

GENERAL ACCOUNTING  
THEORY

EVOLUTION AND DESIGN  
FOR EFFICIENCY



KOŹMIŃSKI



Entrepreneurship and Management

# GENERAL ACCOUNTING THEORY

EVOLUTION AND DESIGN  
FOR EFFICIENCY



EDITED BY IRENEUSZ GÓROWSKI

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# FOREWORD

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Accounting, as one of the economic disciplines, has earned a leading role in the history of the evolution of modern civilization. Now accounting science, as a theoretical instrument, is essential for the improvement of civilization and to facilitate social justice in a capitalistic democracy. In a balanced, highly developed society each member expects to receive value linked to his/her contribution. What each member actually receives matches this expectation. Such a society not only balances individual contributions to receipts; it also balances the fairness of resource distribution against individual incentives to increase their human capital and contributions to society. In our view, developing societies aim at becoming efficient in this sense. Development of markets, balanced expectations, science and technology help bring prosperity. Accounting plays a pivotal role in the process. The main purpose of this book was to examine this deeper role of accounting in the economic development in evolution and design for efficiency.

The idea for this book was inspired by the academics working in the Accounting Departments of two Universities: Cracow University of Economics, and Kozminski Business School. Authors from all over the world, representing countries such as: Belarus, Canada, Ukraine, Poland, UK, USA were asked to present their views and comments within the wide context of the accounting theory.

We are indebted to all reviewers and contributors. Particular appreciation is extended to Professor Richard Mattessich and Professor Shyam Sunder for their essential contribution and most helpful and friendly guidance and advice.

Finally, we wish to thank the Kozminski Business School for the support and help in preparation of this book.

*Ireneusz Górowski*



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PART I

INVITED OPENING  
LECTURES



**Shyam Sunder**

# INTERNATIONAL AND NATIONAL STANDARDS AND NORMS OF FINANCIAL REPORTING: MONOPOLY OR COMPETITIVE COEXISTENCE<sup>1</sup>

## Abstract

In recent decades, financial reporting has shifted away from reliance on social norms towards predominance of written standards enforced by authority. This change has influenced accounting thought, practice, regulation, instruction, and research. Moreover, monopoly jurisdiction of accounting standards has made it increasingly difficult to experiment with alternative methods, slowing the discovery of better methods of accounting. The so-called “fair” value standard is a result of this process. Letting standards compete would promote the development of better financial reporting and the restoration of a balance between the role standards and social norms play in financial reporting.

## KEYNOTE ADDRESS

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There is a long tradition of an important role for social norms in financial reporting. Financial reporting evolved based on the judgment of

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<sup>1</sup> Keynote address, Journée IFRS, Conservatoire National des Arts et Métiers (CNAM), Paris, September 14, 2007. S. Sunder, *Standards and Norms: Monopoly of Competitive Coexistence*.

businessmen and accountants. They collectively decided what the best practice in any given situation was and experimented with alternative ways of doing accounting. Depending on variations in economic environment and business structure, different accounting practices coexisted in most societies.

In recent decades, there has been a shift from social norms toward written national standards, and ultimately international standards. Induced by securities regulation, this transition is reflected in US accounting thought, practice, regulation, instruction, and research, and the same may happen in the EU with IFRS.

Increasingly, our thought processes about accounting are centered on what regulators and standard writers do. A large part of what is being written today in accounting books and research journals concerns the actions of standards setters. When the FASB issues a proposal or standard, researchers often conduct event studies on the consequences of regulatory action on the stock market. Accounting practice, too, has obviously been affected significantly by these standards.

The educational consequences have received less attention. Before accounting became standardized, members of a class could examine a transaction and discuss various ways in which it could be accounted for. Now, students memorize the rules promulgated by the FASB. Accounting education has shifted away from teaching students how to think about and analyze transactions and how to consider the economic consequences of alternative ways of treating transactions towards reading and understanding the rule book. The nature of the CPA exam—largely multiple choice—sends the message that questions in this profession have clear-cut right-or-wrong answers and only call for memorization. This message tends to attract weaker students to accounting classes and to the profession who are not necessarily interested in thinking for themselves about complex problems.

Today, accounting practice is no longer determined by general acceptance, but by a top-down process of enforcement by the Securities and Exchange Commission (SEC) in the US and by the European Commission (EC) in Europe. No longer is “generally accepted accounting principles” merely a description of generally accepted societal norms; instead the acronym GAAP is routinely applied to official promulgations. While standards are enforced by an authority with the power to punish, social norms are maintained by personal and social relationships and by internal and external sanctions. Social norms appear in all aspects of life from professional to national to familial. They are the shared (common knowledge) expectations of behavior, e.g., etiquette, dress, grammar, language, customary law, and private associations. While the accounting profession often looks to the legal profession as an example, it has paid little attention to the continued major role of social norms in law. Legal scholarship and practice recognize the limits of the efficacy

of written rules. When it is not possible to write a rule that will improve the state of affairs compared to a judgment-based system, the law tends to leave the judgment in place. An example of this would be the concept of “reasonable doubt” as applied in criminal cases. There is no set of rules governing this and no set percentage of doubt that defines “reasonable”. Law does not attempt to codify answers to such questions. People who write and practice law understand all too well that clarifying such questions would lead to consequences even less desirable than the consequences of leaving the answers to the judgment, even of lay people. The objective of norms is observable behavior, not unobservable beliefs. In order for something to be a social norm, it must have a consensus, not just majority support. Dictionaries become respectable by attracting a following, not by enforced authority.

Let us take an example of an accounting norm: revenue recognition. It is an inherently subjective concept. We teach students not to recognize revenue until it has been earned, substantially all services necessary for this purpose have been rendered, and any remaining costs can be estimated with a reasonable degree of accuracy. Much judgment is necessary in applying this concept. A complete specification of conditions for revenue recognition to exclude judgment is both unnecessary and infeasible.

In today’s accounting discourse, with the allegiance of accountants shifted from norms to authoritative promulgation, standards have come to be viewed as a measure of progress (our rule book is thicker than yours!). Most research refers to standards with respect, if not approval. There has been little research and debate on the merits and consequences of standardization. William Baxter analyzed the corrosive effect of authority on the accounting profession half-a-century ago, but his ideas were largely ignored. Is it true that more rules make accounting better? I would argue that the opposite is more likely the case. Accountants can expect to be considered professionals as long as they, like physicians and lawyers, must use judgment to make decisions. Yet we seem to be intent on replacing the expertise and judgment of accountants with rules and thus diminishing accounting as a profession. As I mentioned earlier, there are limits to written standards. The SEC and the US Congress did not clarify the definition of insider trading beyond “trading on non-public information”. What constitutes “non-public information” is left open for interpretation and judgment. Suppose the SEC chose, instead, to make a rule that precisely defines “insider trading” as, say, “trading by directors and senior managers”.

Would that include trading by their spouses? What about sons and daughters, nieces and nephews, neighbors, cousins, and so on? It is easy to see that the greater the detail that is written in the rule, the worse it gets. The consequences of clarification are even less desirable than the consequences of leaving such matters open to judgment. This is just

what is happening in financial reporting. In an effort to clarify what is required, we have created corporate bodies like the FASB and the IASB to write rules. However, any body of law or rules that strives for clarity and enforceability must also avoid becoming a road map for evasion. As in the example of insider trading presented above, the clarification of a rule may just become a guideline for how to legally commit fraud. Under the current definition of insider trading, wrongdoers may wonder whether or not their actions are illegal; a more precise definition would make it easier for wrongdoers to evade the spirit of the law without violating the letter of the law and risking a conviction.

Another example of the consequences of clarification is financial instruments designed to get liabilities off the debtor's balance sheet. Bright line accounting standards, such as the 3 percent rule for special purpose entities, remove the uncertainty financial engineers would face in the absence of such standards. Thus, standard-writing agencies can become the unwitting accomplices of evaders.

There is also a fundamental weakness in the structure of a standard-setting body. A permanent rule-making bureaucracy must continue making rules in order to justify its ongoing budget and existence. If their sole job is to make rules, what else could we expect except that they will create more rules and, inevitably, the rulebook will get thicker over time. Until recently, the FASB was dependent on sale of its publications for a significant part of its revenue. The rule of "publish or perish" is as true in this situation as it is in academia.

Another consequence of having institutions with rule-making as their sole function is that their existence encourages requests for "clarifications." Auditors are asked to produce a rule to back up their judgment calls, especially when their judgment is to a client's disadvantage. If the FASB/IASB does not respond to a call for rule clarification in a timely fashion, it can become the basis for a client to have his way.

Absent the rule-making agency, auditors would have to worry about the fair representation requirement under the security laws. In this way, the existence of the FASB/IASB promotes an attitude of, "if it is not prohibited, it must be OK". Investment bankers frequently play a game of hide-and-seek: they call the FASB/IASB for rule clarification and then do some financial engineering to get around the rules. While a reasonable body of rules might be devised to deal with a given set of transactions, it is impossible to devise a system of rules when transactions are continually being redesigned to get around them and to frustrate the very purpose of accounting. The monopolies in the US and the EU deprive the economies and rule makers of the benefits of experimenting with alternatives. Under a monopoly regime, one can no longer observe what might happen if an alternative method were used. If the whole world uses a single method of accounting that happens to be flawed, it would be almost impossible to produce convincing observational evidence that



there is a better method. Discovering efficient rules of accounting is a difficult problem because of the lack of reliable information about the consequences of alternatives. A monopoly restricts the amount of information available to the rule makers as well. Why should we deny ourselves the benefit of information from competitive markets? This preference for uniformity stands in the way of the evolution of accounting, denying accountants the right to develop new and better methods.

As we have seen, there are a number of questions that can be raised about the wisdom of transitioning from a system of social norms, in which alternative methods compete, to a system of a unique set of standards. Perhaps the pendulum of standardization has swung too far. How can we find a balance between norms and standards in accounting? Accounting appears to mimic a poorly understood model of the role of social norms in law even as the growing popularity of stock and accounting based compensation for senior managers is putting them under greater pressure to try to manipulate accounting and auditing.

Consider “Fair” Value Accounting. First, this is an example of how important labels are. What do the following three have in common?: the Unified Budget Act of 1964 proposed by President Lyndon B. Johnson; the Patriot Act of 2002 proposed by President George W. Bush; and Fair Values proposed by the FASB and IASB in 1999. All involved “changes with deceptively reassuring titles”. These labels were chosen to put potential opponents on the defensive before the debates even began. This is an old device in the book of policy rhetoric. Johnson wanted to use Social Security surpluses to finance increased spending on Great Society programs and the Vietnam War and chose a label that challenged opponents to argue for a non-unified budget. Bush wanted to fight the War on Terror and chose a label that challenged opponents to argue against patriotism. The accounting standard setters want to use current values, but have chosen a label that makes opponents appear to be arguing against fairness. However, “fair” is a personal judgment, not a fact. To avoid this misuse of language, we should put the rhetoric of “fair” aside and once again use the label of “current” values, a concept that generations of accountants and researchers have thought and written about.

Current value accounting proposes the use of the price that would be received to sell an asset or that would be paid to transfer a liability in an orderly transaction between market participants at the measurement date. It is, of course, just one method of valuation in accounting. The debate over which valuation should be used in a given situation has a long history in accounting literature. Valuations were chosen based on their relevance to investment decisions, stewardship, management of enterprise resources, contract enforcement, and other criteria for evaluation, e.g., reliability, bias, timeliness, representational faithfulness, and cost of implementation. The debate surrounding valuation has been largely qualitative in nature, and without a framework for quantified

comparison, debates could go on forever. FASB has resurrected the debate under the new label after an interval of almost 70 years. Fortunately, we can use econometrics to bring an element of quantified rationality to this debate.

There are two primary sources of error in the valuation of a bundle of resources.

*Price movement errors* arise when the valuation rule ignores the change in values over time. *Measurement errors* occur in the current values used to revalue the bundle due to the imperfection and incompleteness of markets. The number of possible valuation rules is very large. Let us focus on the three most familiar elements of this subset – historical cost, current value, and general price level.

Historical valuation has price movement errors because it ignores changes in prices from the time of acquisition to present. The size of this error – mean squared error (MSE) – depends on parameters of the economy: the mean and the covariance matrix of the vector of relative price changes. The greater the “magnitude” of these two parameters, the greater the movement error associated with historical valuation. Since historical valuation ignores changes in prices, it is free of measurement errors. Current valuation has measurement errors arising from the assessment of current values. Again, the size of this error (MSE) depends on parameters of the economy. If we assume that the relative changes in current values are measured without bias, then the MSE arising from the mean of measurement errors would be zero. The error, then, arises from the covariance matrix of the vector of measurement errors in relative price changes. The greater the “magnitude” of this covariance matrix, the greater the measurement error associated with current valuation. Since current valuation takes into account the changes in prices, it is free of price movement errors.

General price level valuation (GPL) uses a single price index to adjust historical values towards current values. The use of a single price index reduces the price movement error associated with the historical estimator but does not eliminate it. The use of a single price index also introduces some measurement error, although it is not as large as the error associated with the current value estimator. The total error associated with GPL estimator depends on the values of the above mentioned parameters.

How good are these estimators of value? Which estimator is associated with a lower mean squared value? The answer entirely depends on the parameters of the economy. With high price volatility and low measurement errors, the current value estimator dominates. With low price volatility and high measurement errors, the GPL estimator, and perhaps even the historical value estimator, may dominate. In general, we should not expect that the MSE-minimizing estimator will be any of the three we have explicitly considered. Instead, it is likely to be some

intermediate price index specific estimator of value. Which valuation rule has  $\min(\text{MSE})$  is a matter of econometrics, not theory or principle.

In light of the above discussion, it should be clear that current value accounting has its limitations. Current valuation is informative for firms and industries whose assets have a large mean rate of price change, have more variability in price changes, and are traded in relatively perfect and complete markets (accurately measured current value). However, it would not be appropriate for industries that have large measurement errors, such as real estate, mineral deposits, films, software, and patents. Instead of performing cross-sectional tests, we could benefit by paying more attention to the characteristics of the assets of firms and industries.

In summary, the pendulum appears to have swung too far in the direction of written standards. We should reconsider giving social norms a stronger role and restoring personal and professional responsibility in accounting and business. Without a need for responsibility and careful reasoning, the accounting profession will be diminished. We should again take up the social norm of “fair representation” as a moral compass for accounting, just as “guilty beyond reasonable doubt” is used in criminal law. Written standards could never capture either of these ideas. It may be necessary to create some kind of accounting court system to judge what constitutes “fair representation”. We should assist the evolution of accounting norms by allowing competition among multiple accounting rule makers with no collusion or push for convergence. Instead of being forced to use the FASB’s standards, what if US firms could choose to use FASB, IFRS, or another standards system? Standard-setting bodies could then receive their income solely from royalties charged for the use of their standards and have, their revenue based on how well their system actually works, not on how many rules they write. Once rule-making monopolies in the US, Europe, and elsewhere are removed and standards have to compete, we will have a healthier system of discovering better accounting systems and developing them over time, without eliminating judgment, and creating a better balance between standardization and norms.



**Shyam Sunder** is James L. Frank Professor of Accounting, Economics and Finance, at the Yale School of Management. Few aspects of accounting scholarship – whether mathematical modeling, econometrics, capital markets, managerial or international accounting, auditing, theory, history, standards, or policy – have remained untouched by him. He has brought fresh ideas to every accounting problem he worked on. His econometric analysis of the relationship between corporate accounting for inventory valuation (LIFO/FIFO) and stock prices helped found stock return as a measuring rod for how accounting choices may

affect the welfare of stockholders, pointing out not only the strengths but also the weaknesses of this research paradigm in his doctoral thesis written at Carnegie Mellon University (which received the American Accounting Association's Manuscript Award for young scholars). This thesis also developed new econometric techniques for testing for and estimating unstable model parameters.

In the mid-seventies, with inflation rising in U.S., he started his project on statistical modeling of valuation rules to integrate historical, general price level, specific price level, as well as current value accounting into a single framework, to enable scholars to see the statistical relationships of all these valuation methods in a unified framework. The final paper of this series showed that, in the presence of measurement errors, current valuation methods do not necessarily yield the most precise estimate of the true, underlying current value of a bundle of assets. His best known work, *Theory of Accounting and Control* (for which he received the second of his AICPA/AAA Notable Contributions to Accounting Literature Award) integrated accounting into the economic theory of organisations – if an organisation can be seen as an alliance among the interests of the suppliers of various factors of production, accounting and control can be seen as the operating mechanism of the alliance. This influential work, already translated from English into five languages, is used in many parts of the world to introduce a new perspective on accounting and governance to students as well as managers. While engaged in pioneering contributions to experimental economics since 1982, Sunder continues his interest in accounting through an analysis of regulation and standardisation of accounting and auditing, and alternative regimes for auditor liability. In his recent writings, he raises troubling questions about the consequences of the increasing importance of written rules at the expense of social norms of accounting.

Richard Mattessich

# PROMINENT PUBLICATIONS AND RESEARCH IN ACCOUNTING FROM THE THIRTEENTH CENTURY TO THE NINETEENTH CENTURY<sup>1</sup>

## Summary

The first Section reviews notable accounting publications (of many European nations as well as America) from Fibonacci's *Liber Abaci* (1202) to Besta's (1891–1916) three-volume work, *La ragioneria*. The second Section discusses the Proprietary Theory (concentrating on capital maintenance) where the *capital account* was no longer a residual account but became identified with the owner – just as the entire firm was considered his possession. Thus, the attention shifted from mere transactions (concentrating on the exchange of values) to making profit for the owner – a crucial step in the direction towards 20th century accounting theory. The third Section deals with the Entity Theory. It is characterized by the conceptual and often legal separation of the firm from its owners (e.g. in corporations), as well as a clear distinction between *capital* and annual *income* (often emphasizing the latter). Assets were occasionally regarded to be future expenses, and ownership as well as debt claims were considered equities (though of two separate kinds). The fourth Section discusses a variety of other accounting theories, such as Gomberg's (1899) value cycle theory, balance sheet theories by Veit Simon (1899) and Schmalenbach (1899); also publications by such American authors as Sprague (1880) and Soulé (1880), or the Austrian scholar Schrott

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<sup>1</sup> This paper is *partly* based on material contained in Mattessich (2003) and in the Ukrainian book-contribution of Mattessich et al. (2008) with grateful permission of the pertinent editors.

(1852, 1871, 1882). The fifth Section is devoted to valuation and depreciation issues. It begins with Savary's (1675) *Le parfait négociant* that introduced the conservative principle of "lower of cost or market value". After a long pause, valuation issues were occasionally taken up in the 19th century by authors like Leuchs (1806) and Augspurg (1852–1855, 1873), while Depreciation issues were dealt with by authors like Wilmowski (1895). The fifth Section closes with a sketch of the history of the "present value" notion. Finally, the sixth Section deals with further developments thus far not discussed. It begins with significant French contributions, like those by Léautey (1897, 1903), Guilbault (1865) and Léautey and Guilbault (1885, 1895) and others. It continues with works by authors from Spain, the Netherlands, Russia and Japan.

## 1. INTRODUCTION TO THE LITERATURE

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With the flourishing wool and textile trade of Antwerp, and later the commercial success of Amsterdam and other cities of the Low Countries, the books by such Flemish authors as Jan C. Ympyn (often abbreviated as Jan Ymp), *Novell instruction et remonstration de la très excellente science du livre de compte...* (1543), John Weddington, Valentin Mennher and Simon Stevin improved upon Pacioli's system and applied it to local needs. Apart from the fact that Simon Stevin is considered the first to have used the "income statement" in the modern sense, in a previous work (*Tafeln van interest*, 1582) he applied the net present value approach to financial investments. Another important example is that of the printing and publishing house of Christopher Plantin (ca. 1520–1589) in Antwerp where a kind of *job order costing system* (with accumulated costs for paper, wages, etc. and a perpetual inventory account) was put into practice.

In the United Kingdom, the first English text on double-entry bookkeeping was that by Hugh Oldcastle (*A profitable treatyce*, 1543) that gave rise to a reprint by John Mellis under a changed title (1588) – see also Coomber (1956). But both of these works did not much go beyond a curtailed translation of Pacioli's work. Yet, before this reprint there appeared James Peel's book on *The maner and fourme how to ke pe a perfect reconyng* (1553). It not only borrowed much from Pacioli but also from followers (including Ympyn) – though introducing some innovations. Furthermore, Peel's originality and pedagogy also manifested itself in a second book, *The path waye to perfectness* (1569) that seem to have influenced later authors more than actual practice.

Another significant book was Edward T. Jones' (1767–1833, *English system of bookkeeping by single or double-entry*, 1796). It attempted to combine the simplicity of single entry with the checks available in double entry (later he wrote *The science of bookkeeping*, 1832). This hybrid system consisted of a three-column daybook, a ledger, an alphabetical

chart of accounts and, if so desired, a journal. However, this system did not show current balances of sales and purchases; thus income determination required separate side calculations. Nevertheless, Jones was regarded as an important critique of the double-entry system and his publications were translated into several languages and became popular in Continental Europe. In later publications he seems to have recanted his criticism of double-entry and employed tabular account books as well as some devices that adapted Pacioli's system to the needs of the early 19th century.

In Germany Gottfried von Leibniz (1646–1716) used in 1682 the discounting of debts and the present value method as a by-product of his juridical reflections on the premature repayment of debts. Leibniz, the famous German philosopher, mathematician and logician, is well known for having invented the differential and integral calculus (independently of Sir Isaac Newton). In his correspondence with the leading intellectual and political figures of his era, he discussed mathematics, logic, science, history, law and theology.

In Italy it was Leonardo da Pisa (also known as Fibonacci, ca. 1170–after 1240) who in his *Liber Abaci* (1202, the Book of the Abacus), introduced commercial and accounting innovations as well as the Arabic (or more exactly, Indian) number system (though the more awkward Roman numbers were widely used until the 17th century or so). Through his travels and contact with the Arabs, Fibonacci was able to author what is considered to be an “unsurpassed model of a compendium of mathematics and commercial techniques”.

In medieval Italy and the pre-renaissance the situation was different from Northern Europe. Due to intensive mediterranean commerce and maritime ventures as well as related banking activities of such Italian city states as Venice, Genova, Pisa and Florence, a genuine money and credit economy evolved. This created the need for more sophisticated accounting devices. Indeed, Chatfield pointed out that “among the oldest surviving double entry records are those of Riniero and Baldo Fini (1296–1305). They contain receivables and payables (including interest charges) and operating results”. Double-entry accounting records of many other medieval entities (whether of firms, monasteries or city governments) are available, but the best known fully developed double-entry accounts seem to be those of the *massari* (city stewards) of Genova of 1340.

But accounting practice preceded publications of books, and it was only shortly before the end of the 15th century that Luca Pacioli (ca. 1445–ca. 1517) authored his famous mathematical work, *Summa de arithmetica, geometria, proportioni et proportionalita* (1494). It contained a treatise on accounting (as practiced in Venice) under the translated title “Particulars of calculating and recording” (usually abbreviated as *De Computis*). The latter is the first *published* work on double-entry

accounting. However, an even older treatise on double-entry was *written* in 1458 (though *published* posthumously only in 1573). Its author was Benedetto Cotrugli from Ragusa, and its title is *Della mercatura et del mercante perfetto*.

Pacioli's treatise not only emphasized the duality, integration and balancing features of double-entry, but described many technical characteristics. It was based on the maintenance of three books: (1) the *memorandum* (as a first informal notation of daily transaction, occasionally in terms of different currencies) customarily entered by clerks; (2) the *journal* (kept more formally, but also chronologically), usually valued in a single currency at current market prices, to be kept by the proprietor himself; finally (3) the *ledger* with its accounts for functional classification of those transactions. It is interesting to note that *De Computis* mentions that some merchants maintain a specialized account for income and expenditure that they balance each year (though neither financial statements nor periodic income determination were mentioned). Although Pacioli recommended annual balancing of the books, early Italian accounting was less oriented towards regular periods than towards individual commercial ventures. Thus, most Venetian merchants kept books for each venture, to be closed at the end of such a venture (often making depreciations, accruals, deferred items, etc. either unnecessary or even deemed to be too complex by the author). Nevertheless, each accounting cycle ended with a *trial balance* (the *summa summarium*) that helped to detect a certain category of errors whenever the two sides did not balance. Thus, apart from profit determination for each partner of the venture, error finding (rather than statement presentation) was the main purpose. It may be added that the earliest association of professional accountants (*Collegio dei Raxionati*) was founded in Venice in 1581.

Although numerous books on accounting, often written by eminent scholars, followed in the wake of Pacioli's work, their improvements of the double-entry system were rarely fundamental. The best known among these books were those by the famous mathematician Girolamo Cardano (1501–1576) in his *Practica arthmetica et measuandi singularis*, 1539. Other renowned Italian authors were Giovanni Tagliente (*Luminario di arithmetica*, 1525), Domenico Manzoni (*Quaderno doppio col suo giornale*, 1540) and Alvise Casanova (*Specchio lucidissimo...*, 1558).

More important changes can be found in the works by two monks who generalized Pacioli's accounting (predominantly envisaged for merchants) to non-profit accounting, and specifically to accounting for monasteries. One of them was Angelo Pietra (*Indirizzo degli economi...*, 1586) who emphasized separate financial statements, and regarded the accounting entity as being apart from ownership. In the 17th century, the work by Ludovico Flori (*Trattato del modo di tenere libro doppio domestico con suo esemplare*, 1636) further improved upon Pietra. Flori



not only continued to emphasize the importance of detached financial statements but insisted on allocating revenues and expenses to their proper periods. Flori is also said to have anticipated the “personification” of accounts (identifying an account with a person responsible for it or representing it) that played an important role until the 19th century and beyond.

Spain, the mightiest and richest power of 16th century Europe is said to have used double-entry in many of its commercial firms. Above all, it was the first country to introduce the double-entry system in government accounting (through its legislation of the *Contaduría del Libro de Caja* in 1592, in force until 1621). But as to publications, the only book on double-entry during this period was Bartolomé Salvador de Solórzano’s *Libro de caxa y manual de Cuentas de mercaderes y otras personas* (1590). The late 16th century and most of the 17th century was called “a period of silence” in Spanish accounting, when double-entry was re-introduced as “a novelty from France”. Towards the end of the 18th century the two most important books were Luise de Luque y Leyva’s *Arte de partida doble ilustrado* (1783) and Sebastián Jócano y Madaria’s *Disertación critica y apologética del arte de llevar cuenta y razón* (1793).

In France, Jaques Savary (1622–1690), a major contributor to the *Ordonnance du commerce* of 1673 (an important commercial code), wrote his famous book, *Le parfait négociant* (1675). Although it was an unsystematic mixture of many subjects, the book did emphasize the legal aspects of accounting and, above all, proposed the enduring principle of conservatism known as “valuation at cost or market price whichever is lower”. Later, Mathieu de La Porte (ca. 1660 to ca. 1732) authored *Le guide des négociants et teneurs de livres* (1685) and *La science des négociants et teneurs de livres* (1704). Although these works did not introduce much novel content, they revealed a refreshing theoretical or pedagogic slant by adopting the Socratic method of dialogue (questions and answers). Furthermore, the author used three major classes of accounts (proprietary, material and personal) that influenced future authors. And towards the end of the 18th century, Edmond Degrange, Sr. published one of the most successful and influential accounting texts ever written, *La tenue de livres reduë facil...* (1795). He introduced a synoptic table that combined the journal and the ledger in one book. Thereby simplifying the ledger by reducing it to merely five accounts (later a sixth was added). This double-entry system was, for strange reasons, known in Europe as the “American method”, and was used until the middle of the 20th century or beyond, particularly for smaller enterprises.

It seems that theories of accounts and their controversies were a predominantly Continental European phenomenon (for a truly international survey on 19th and 20th century accounting research, see Mattesich 2008). In Great Britain, scholars took little part in those controversies,

just as they showed little interest in the modern successors of these particular theories, the various charts and *master charts of accounts*, so prominent during a good deal of the 20th century (from France and Germany to Scandinavia and Russia). In England one rather concentrated on auditing and the chartered accounting profession<sup>2</sup>.

In Italy, Ludovico Crippa's *La scienza dei conti...* (1838) and Francesco Villa's *La contabilità applicata...* (1840–41) anticipated the notion of "material" (i.e. non-personal) accounts that not only opposed the personalization of accounts but also dominated our discipline in the 20th century. Further prestigious Italian authors were Niccolò D'Anastasio (*La scrittura doppia ridotta a scienza*, 1803), Giuseppe Bornaccini (*Idea teoriche e pratiche di ragioneria e di doppia registrazione*, 1818), Antonio Tonzig (*Trattato della amministrazione e della contabilità privata e dello Stato*, 1857–59), dealing also with government accounting.

Although those theories of accounts constituted only a pre-cursor of accounting theories, they lingered on into the 20th century. One influence was their impact on various *Bilanztheorien* (German accounting theories). Another legacy was the intensive concern with *charts of accounts* in many Continental European countries (cf. Scherpf 1955). Such a theory of accounts was still pursued in the second half of the 20th century by Käfer (1897–2000, 1966, p. 39–72).

Towards the end of the nineteenth century a series of publications appeared that gradually assumed the character of accounting theories. Perhaps Besta's (1891–1916) four-volume work can be regarded as a milestone towards the beginning of accounting theory in the modern sense. This work continued a trend, partly anticipated by Francesco Villa (1840–41), of economic and *management control* for all kinds of enterprises, including those publicly owned – quite apart from the fact that Besta shifted from a *personalistic* to a *materialistic* (or non-personalistic) theory of accounts. Schneider highly praises Besta and points out that

*He is the first to relate accounting to economic theory, e.g., he uses replacement values by appealing to Ricardo's value theory (reproduction costs) and concerns himself thoroughly with present value (Ertragswert) calculations of real estate and leases.*

(Schneider 2001, p. 98, translated from German)

Besta also opposes the logismographic bookkeeping of his renowned compatriots Cerboni and Rossi. But Besta's is still a *proprietary* theory (in contrast to the subsequently dominating *entity theory*).

<sup>2</sup> As for Great Britain's pioneering effort in developing the accounting *profession*, the reader is referred to Richard Brown (1905).

## 2. THE PROPRIETARY THEORY

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Parallel with the various theories of accounts, the proprietary theory, and later the slowly emerging entity theory, have been interpreted as attempts “to define a conceptual framework based upon logic to replace «rationalization» as used in personification of accounts” (Previts and Merino 1979, p. 165). Thus, we come closer to modern conceptions of accounting theory. The central feature of the *proprietary theory* was its emphasis on the capital account and capital preservation, and later, on the balance sheet, which grew to assume a more dominant position.

In this theory the *capital account* was no longer considered to be a residual account but became firmly identified with the owner – just as the entire firm was considered his possession, not something apart from him<sup>3</sup>. Hence, attention shifted from mere transactions (concentrating on the exchange of values) to making profit for the owner – a crucial step in the direction towards 20th century accounting theory.

Major representatives of the proprietary theory were: James W. Fulton (1800) and Frederick W. Cronhelm (1818) from Great Britain; two Austrians, Franz Hautschl (1840) and Georg Kurzbauer (1850); two Germans, G.D. Augspurg (1852–55), who even concerned himself with *inflation accounting*, and Eduard Löw (1860), who offered a survey of accounting development; the Americans E. Thomas Jones (1841) and, later, Charles E. Sprague (see below) as well as Henry R. Hatfield (1909 – see below) and others – apart from the Italian publications mentioned above. In Switzerland, Friedrich Hügli (1887, 1900), elaborating the work of earlier German authors, became a leading exponent of the *proprietary point of view*, and demonstrated the accounting equilibrium by means of algebraic equations – though Schneider (2001, p. 98) characterizes Hügli’s and Schär’s contributions as of “pale one-sidedness” compared to those of Fabio Besta’s.

Johann F. Schär (1846–1924), also from Switzerland, later became prominent as professor in Leipzig and then at the University of Berlin. He too approached the proprietary theory by means of mathematical symbols (see Schär 1890, 1911, 1914) and, more significantly, pioneered *ethics* in accounting and business economics<sup>4</sup>. In the early 20th century the Swiss scholar C. Sganzini (1908) presented what he called a “realistic theory of accounts”, which anticipated not only Schmalenbach’s

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<sup>3</sup> Alexander Malcolm (1718) and Hustcraft Stephens (1735) had already anticipated certain aspects of the proprietary theory.

<sup>4</sup> A different perspective of ethics, namely from the viewpoint of the *public accounting* and auditing profession, was assumed by such American authors as Joseph Sterret (1907) and John A. Cooper (1907).

dynamic accounting (see the sections below) but even some of its improvements by others<sup>5</sup>.

*With this [theory] Sganzi completely developed dynamic accounting in its formal aspect. Schmalenbach, Walb, and Rieger presented his ideas more thoroughly in some details and expressed them differently, but added nothing of essence. Under these circumstances, it is strange that Sganzi received so little attention. The time was ripe for his ideas, as attested by the success of Fischer [1909] and the subsequently arising dynamic accounting theory of Schmalenbach. They [Sganzi's ideas] were published in a learned journal. Despite of it, his name is hardly mentioned.*

(Borkowsky 1946, p. 67, translated – see also Seicht 1970, p. 59, 146).

In England, one of the greatest logicians and mathematicians of his time, August de Morgan (1806–1871) – in his famous bookkeeping appendix to a mathematical work (De Morgan 1846) – led the personalistic theory of accounts to its logical conclusion. Jackson (1956, p. 298) referred to De Morgan's accounting contribution (mainly his formulation of the proprietary theory) as probably the most influential piece of writing to be found during the 19th century. De Morgan was also the first to use an “accounting matrix”, though without exploiting matrix algebra.

### 3. THE ENTITY THEORY

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A crucial step was the slow but steady acceptance of the “entity theory” by a series of scholars. Its main characteristics were the conceptual and often legal separation of the firm from its owners (e.g., in corporations), as well as a clear distinction between *capital* and annual *income*, and the emphasis of the latter. Assets were occasionally regarded to be future expenses, and the previous distinction between ownership claims

<sup>5</sup> For several reasons the expression “dynamic accounting” (emphasizing, above all, relevant income determination instead of asset and equity representation, see below) is a better translation of “*dynamische Bilanz*” than “dynamic Balance Sheet” – above all the latter is a linguistic contradiction. Seicht (1970: 100) regarded J. von Strombeck, Hermann Scheffler, Schüler, Hermann Simon, Bruno von Wilmowski (1895), Hermann Rehm (1914), and Rudolf Fischer (1909) as having anticipated, in one respect or the other, dynamic accounting. As to the followers of Schmalenbach's dynamic accounting during the *inter-war period*, Sykora (1949, p. 211) lists Erwin Geldmacher, Walter Mahlberg, Anton Haar, and Friedrich Leitner. As to the period *after World War II*, Seicht (1970, p. 137–156) and others regarded Ernst Walb's (1948) *Finanzwirtschaftliche Bilanz* and Erich Kosiol's (1944) *pagatorische Bilanz* as the major efforts to further develop dynamic accounting, and to make it formally and materially consistent (though they may not have fully succeeded in doing so).

and debt claims became somewhat blurred, as both were now accepted as equities (though with different legal implications). A further characteristic of this theory, as later formulated by Paton, required that interest on debt be considered a distribution of income (cf. Cooper and Ijiri 1983, p. 195). This is still a point of controversy, as in some European countries not only *interest on debt but also on owners' capital*, as well as the *owners' salaries* (sometimes even corporate taxes), are considered expenses and not distributions of income. But this may make more sense from an economic and management than a financial point of view.

The entity theory – though traced back by Littleton (1886–1974), (1933) to the 16th century – definitely emerged before the mid-1800's, but gained popularity only after the turn of the 20th century through Nicklisch (1876–1946, 1903, 1912) and other authors. It fully replaced the proprietary theory only during the *second half* of the 20th century. Its early representatives were: The Italian Lodovico G. Crippa (1838); the Frenchmen J.G. Courcelles-Seneuil (1813–1892, 1870) and Jean Dumarchey (1884–1946, 1914); according to Sykora (1949, p. 52), also the Englishman P. Child (1891); the Americans E.G. Folsom (1873), and later William A. Paton (1889–1991, 1922); the Dutchmen N. Brenkman (1882), L. van Zanten (1890), K. Bes (1894), and W. Kreukniet (1896); the Germans Manfred Berliner (1887, 1893) and, as mentioned above, Heinrich Nicklisch. Berliner claimed to have pioneered and taught an entity theory as early as 1870 (cf. Littleton 1933, p. 200). This led to a priority dispute with N. Brenkman, who actually published five years earlier. Yet unbeknownst to both, the entity theory had already a considerable pedigree at this time. Some of its features can be traced to medieval *agency (venture) accounting*, as Littleton (1933, p. 193–194) pointed out. But the actual pioneering work seems to have been done by Crippa (1838) or even earlier (cf., as indicated by Gomberg 1912, p. 68–71). H. Töndury (1883–1937) saw in its emphasis on *contro* an intention toward *generalizing*' accounting (beyond business into *government*, etc.). Hence he would here include authors usually not regarded to be entity theorists, as the following quote reveals:

*The novelty of this view lies not so much in the fact that beside book-keeping other branches are called upon, but rather in the meta-notion (Oberbegriff) of accounting and its systematic analysis in accord with the purpose that accounting has to fulfil within the firm... The formation of this meta-notion, as the totality of accounting control in government and business, has its beginnings in Austrian cameralism [Staatsverrechnungslehre] of the 1840s, and from there it found its way into the Italian literature, where it was further developed. We find it already in Villa... and, above all, in a scientifically profounder form, with Fabio Besta, the founder of the so-called Venetian School,*

*just to name only the two. In the German and French language areas the honour falls upon Gomberg to have been the first to systematically elaborate this view in his *Grundlegung der Verrechnungswissenschaft* (Foundation of Accounting). According to him, accounting falls into six parts: taxation or appraisal (*Schätzungstheorie*), inventory taking, budgeting and planning, bookkeeping, statement presentation, and managerial control.*

(Töndury 1933, p. 97–98, translated from German).

The trend toward generalization may have had even farther implications; it acted as an impetus to the subordination of accounting within the more comprehensive discipline of business economics (*economia aziendale* in Italy, and *Betriebswirtschaftslehre* in the countries of German language; both terms are more comprehensive and, possibly, more appropriate). Finally, one may point out that the controversy between proprietary theory vs. entity theory continued until the middle of the 20th century. The importance of this controversy may have been exaggerated, as Zeff (1978, in his book on the “*orientation postulate*”) believed. But few would deny that the needs of modern corporations (with their numerous stockowners, limited liability, transferability of shares and, above all, separation between ownership and management) are better met by the entity theory than its “proprietary” competitor.

#### 4. OTHER ACCOUNTING THEORIES

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There also existed a series of further theories. For example, several versions of the *value cycle theory* (an extension of transaction analysis) emphasizing the constant transformation of values within the firm as reflected in the various accounts. Käfer (1966, p. 12–18) listed among its representatives Léon Gomberg (1866–1936) with his main works (1897, 1908, 1912), Harry C. Bentley (1911, see below), and later René Delaporte (1926) as well as Wilhelm Rieger (1878–1971, 1928). Among these, Léon Gomberg – a Russian-Swiss scholar who taught in Geneva, and later became professor in St. Gallen – published original and significant theoretical as well as historical accounting books in Russian, French and German.

Indeed, some scholars consider Gomberg (as confirmed in the above quotation from Töndury) as one of the most important accounting academics of his generation (see also Melis 1950, p. 791). Schneider (2001, p. 194) praises the planning and control features as well as the use of benchmark figures in Gomberg’s *Verrechnungswissenschaft*, but points

out that “his teaching was not appreciated by the first generation of business economists” (translated).

In Germany, the controversy between a series of different *Bilanztheorien* (accounting theories) – often based on different views about the valuation of assets and the realisation of income items as well as the priority of one financial statement over the other (with an interpretation of the balance sheet as either a collection of stocks or flow residuals) – slowly began in the 19th century, but came into full bloom after 1920. Veit Simon (1856–1914), writing the first systematic treaties on limited companies (Simon 1899), was a crucial pioneer in this development. Moxter (1984) praises him highly; Schneider (2001, p. 941) finds Veit Simon’s theory even more advanced than Besta’s; and J. Richard (2005, p. 75–90) ranks and discusses him in a common chapter together with Schmalenbach and F. Schmidt.

In the beginning the juridical *Bilanztheorien*, that regarded income determination as the major or even exclusive purpose of accounting, were juxtaposed to the non-juridical or *static Bilanztheorien*; the latter were particularly concerned with the valuation of assets and ownership as the central purpose of accounting (cf. Sykora 1949, p. 184–193). Later, *dynamic* accounting theories, in contrast, emphasised again the *income statement* and income determination. Each of these theories was elaborated during succeeding generations by increasingly sophisticated devices and arguments. The competition between numerous *Bilanztheorien* dominated the scene in Continental Europe (particularly in Germany) for a long time, even beyond World War II.

The American Silas S. Packard (1826–1898), an educator and a proprietor of a commerce school, was one of the first to promote in the USA a scientific and philosophic approach to accounting (see Packard 1881). Of special significance is the aforementioned Ezra Sprague (1842–1912), a banker, who published on *investment and philosophic issues* of accounting (see Sprague, 1880, 1904, 1907–08, etc.) and became, together with Charles W. Haskins (1852–1903), a driving force in the promotion of American university accounting *education* (see Haskins 1904). He too became a pioneer of the accounting *profession* in America. Meanwhile, George Soulé (1834–1926), the founder of a private school in New Orleans, concerned himself with the scientific and philosophical foundations of accounting, auditing and business education (e.g., Soulé 1881, 1905).

Another prominent accounting scholar to be mentioned is Josef Schrott (1871, 1882), a professor in Vienna, who worked on the scientific foundation of accounting, even taking up the Italian notion of logismography. Above all, he explored the relation between traditional *government accounting* (with its *cameralistic* allocations and the practice of juxtaposing budgeted standards and actual results) with the *double-entry* system of business accounting – considering a possible extension of

the former to the latter (Schrott 1852)<sup>6</sup>. Regrettably, his important idea of using such an Is-Ought comparison as a *control feature* in business accounting has been neglected until the 20th century. Schneider, therefore, made the following appropriate remarks:

*Today it is self-evident that a purposeful efficiency control and the improvement of decisions by means of accounting is preconditioned upon an Is-Ought comparison. But to gain this insight, business economics took a roundabout-way: Schmalenbach envisages the best possible economic control through income comparison with the past or with similar firms respectively. The notion to introduce an intra-temporal or intra-firm comparison remains far behind of what was already known a quarter century before... How could it be that such a useful idea, derived from cameralistic accounting, was forgotten and that an unforgivable roundabout-way was chosen?*

(Schneider 1981, p. 124, translated from German).

In the rest of the German language area, it was Richard Lambert [1846–1926] of the University of Leipzig who became one of the first German professors of accounting and business economics, influencing many prominent scholars of the next generation. Among his students were Heinrich Nicklisch, Balduin Penndorf (1873–1941), Willy Prion (1879–1939), Eugen Schmalenbach (1873–1955, beginning with Schmalenbach 1899), Fritz Schmidt (1882–1950) and others.

## 5. DEVELOPMENTS IN VALUATION AND DEPRECIATION ISSUES

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Jaques Savary's famous (1675) commentary (to the French *Ordonnance de Commerce* of 1673) introduced the *lower of cost or market principle* (see also Parker 1965; Chatfield 1996d), but afterwards valuation problems were neglected for a long time throughout Europe. An exception was (apart from the indexation just mentioned) M.J. Leuchs (1806) who used Savary's principle. Another author was the German G.D. Augspurg (1852–1855, 1873) who concerned himself with the decline of purchasing power almost half a century before the inflation after World War I.

Depreciation and valuation problems arose during the 19th century in connection with railroads and factories – not only in Germany, but also in England (e.g., G.D. Augspurg (1852–1855, 1873) and America

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<sup>6</sup> Cameralism went far beyond mere accounting. It flourished in the 17th and 18th century, but was still influential in the 19th century; and traces of it (particularly in budgeting) can even be found in the twenty-first century. For other notable works on cameralism and cameralistic accounting – like von Sonnenfels (1804), Rau (1822) and others – see von Wysocki (1965) and Forrester (1998, p. 79–102). Government accounting also played an important role in Italy (e.g., d'Alvise 1912).



(see below). In referring to the German railway statutes, Seicht (1970, p. 513–514) pointed out that with the successful and frequently cited judgement of the [German] *Reichsoberhandelsgericht* (Supreme Court of Commercial Law) from December 3rd 1873, the *future orientation* of the balance sheet was confirmed, and simultaneously a *capital-theoretic valuation* facilitated’ (translated, footnote omitted)<sup>7</sup>. Von Wilmowski (1895) also concerned himself with depreciation issues and, in a commentary on the Prussian Income Tax Law (von Wilmowski 1896), anticipated, as admitted by Schmalenbach himself, important aspects of the latter’s dynamic accounting.

As to the use of present values’ (i.e., *discounted future* net revenues or cash flows) for commercial-legalistic purposes, it seems to go back to G.W. von Leibniz (1646–1716) or even to Simon Stevin (1548–1620) – cf. Schneider (1981, p. 279). As for balance sheet presentation, Seicht (1970, p. 341–348, 511–547) traced the present value (and ultimately the *kapitaltheoretische Bilanz*) back to the Railway Statutes of 1863 and various subsequent commercial legislations in Germany (see above) but, above all, to Kempin (1910b) and, in the post-war period, to Heina (1925) and the systematic theory of Rieger (1928).

In the nineteenth century, present value and compound interest calculations were also important in the insurance business. History shows that the entire complex of present value calculations proved to be not only crucial for finance and investment theory but, ultimately, held its sway over accountants and accounting scholars as an important supplementary valuation device. But it appears that it was Stevin (1582) – also deemed to be the *inventor* of the “income statement” – who was “the first to apply the net present value approach to financial investments” (cf. Chatfield 1996b, p. 208) as well as the annuity method<sup>8</sup>. Seicht (1970, p. 341–348, 511–547) points out that the application of the present value approach in accounting (and the *kapitaltheoretische Bilanz*).

The concern with valuation and depreciation problems was greatly stimulated through the financial practices of *American* railroad companies. As Chatfield (1996a, p. 96) pointed out: “after 1850 a tendency to understate profits began to replace the deliberate overstatement that had characterized the speculative inception of the railroads... [and] by 1880 English auditors had made the write-down of obsolete or damaged

<sup>7</sup> The decisive passage (originally in awkward legalistic German) of the *Reichsoberlandesgericht* (ROLG judgment of 3.12.1883) may be translated as follows: “The underlying idea for the balance sheet is a fictitious general realization of all assets and equities [debt and owners’ equities]; thereby it has to be assumed that in reality the intention is not the liquidation, but the continuation of the business, and hence that in measuring and determining individual values that aspect has to be neglected which would result in liquidation” (cf. Seicht 1970, p. 514; translated from German).

<sup>8</sup> According to Parker (1969, p. 133), it was Jean (Jan) Trenchant (1558) who first used “interest tables” and “discussed geometric progressions and compound interest”.

goods to lower of cost or market prices a standard procedure<sup>9</sup>. Such instances indicate concern with *accounting problems of fluctuating prices*, as far as “modern times” are concerned. Systematic price-level accounting was rarely mentioned before the waning 19th century, not even during the *inflationary trend* of the American Civil War. Such concern appeared only in the subsequent post-war deflationary period (of the USA); namely, when the controversy between historical versus *replacement costing* arose from the dispute about “*rate setting*” for railroads. While the railroads argued in favour of the historical cost basis, the Interstate Commerce Commission insisted (during those deflationary times) on “*reproduction cost*” to protect the consumer. Finally, in 1898 the Supreme Court ruled in favour of basing the railroad rates on “*a fair value of the property*” (cf. Boer 1966, p. 92–93).

Furthermore, Lawrence R. Dicksee (1864–1932), a professor at the University of Birmingham, became famous for criticizing *inadequate depreciation procedures* (see Dicksee 1903) and, even more so, for his book on auditing (Dicksee 1892). In England too, railroads and other large companies created much interest in valuation and depreciation issues (cf. Lardner 1850). But railroad companies and other large enterprises were not the only impetus that accelerated the development of accounting. The second phase of the Industrial revolution (from 1860 to 1890), with the beginning of mass production, *industrial capitalism*, and the increasing numbers of *joint stock companies* in search of control was the other big impetus<sup>10</sup>.

And in the third phase (after 1890, with the growth of *financial capitalism*), the demand for new commercial legislation as well as higher business education increased even more. Thus many countries not only had to revise various commercial and industrial *legislations* but were impelled to create, particularly during the 1890s, commerce academies with university status. Many of these institutions were later converted

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<sup>9</sup> In another publication, Chatfield (1974, p. 94–95) pointed out that: fixed assets purchased from the proceeds of bond and stock issues were capitalized at original cost and never depreciated. Instead, asset replacements as well as repairs were charged directly to expenses; only expenditures for additional and betterments were normally capitalized.

May (1936, p. 341) suggested that US railroads may not have developed as fast under periodic cost-based depreciation; this may explain why investors in American railroad companies lost immense amounts of money. May (1936, p. 341) confirmed this by pointing out that half the track mileage constructed in the U.S. before 1900 was ultimately placed into receivership. For financial reporting of railroad and other large industrial companies in the UK and USA, see Lee (1982).

<sup>10</sup> As to the contributions of some 19th century engineers and factory accountants to cost and managerial accounting, as far as not previously mentioned, the following publications should be pointed out: Kirkman (1880), Towne (1885–86), Lewis (1896), Evans (1911). Out of all this grew the movement of scientific management (or “Taylorism”) in the early 20th century.

into full-fledged universities. This in turn promoted research, particularly of accounting, as the main pillar of the new twin disciplines of business economics and business administration<sup>11</sup>.

Henry Metcalfe (1847–1927), an ordinance officer of the American army, wrote one of the first books on *modern cost accounting*, pleading for proper cost assignments through *shop order* and *labour cards*, see Metcalfe (1885). This effort was further extended by H.L. Arnold (1899) and Diemer (1900). Metcalfe introduced (according to Vangermeersch 1996) a *job-order costing* system, and tied cost accounting to financial accounting. Another American, Frederick W. Taylor (1856–1915), the renowned engineer, yet often maligned father of “scientific management”, made decisive contributions to cost accounting by introducing the setting of systematic work standards and exploiting time studies (see Taylor 1895, p. 1911). This opened the way to *standard costing*. More concrete ideas for this were presented and elaborated by various cost experts such as G.P. Norton (1858–1939, 1889), who developed a *process costing system, promoting transfer pricing and separate profit centres*. The latter were further refined in the UK by Dicksee (1911). As regards process costing, another Englishman, J. MacNaughton (1899), and the American H.L. Arnold (1899) produced the earliest work, while the contrast to process costing was articulated by H.L.C. Hall (1904) and two Englishmen, J. Lee Nicholson (1909) and W. Strachan (1909). Percy Longmuir (1902) also concerned himself with *controlling the cost function* but rejected job costing. Stanley Garry (1903) dealt with, what nowadays is called, *volume variances* and *price variances*. John Whitmore (1908) proposed that *idle capacity costs* should be charged to a separate account (to be written off); he further developed and clarified the ideas on *standard costing* founded by A. Hamilton Church (1866–1936, 1901–1902) who also seems to have first recommended “production centres”. And Harrington Emerson (1908–1909), the American efficiency engineer, wrote his classic on standard costing, which used the *standard hour* as the “*real standard unit cost*”, though limiting himself to a single *overall variance* between actual and standard costs.

In the 1880s and 1890s cost and manufacturing accounting received a further boost (particularly in the English-language literature) due to the expansion of railroads (see Pollins 1956; Miranti and Goodman

<sup>11</sup> For further details on the development of various aspects of accounting and its research, see such historical publications as Penndorf (1913, 1933), Littleton (1933), Meithner (1933), Garner (1940, 1968), Sykora (1949), Melis (1950), Littleton and Yamey (1956), Löffelholz (1970), Chatfield (1974), Previts and Merino (1979), Kaplan (1984), Lee (1990), Chatfield and Vangermeersch (1996), Hernández Esteve (1997) and Forrester (1998). For a series of pertinent studies on 19th and 20th century managerial accounting, see: Solomons (1968a, 1968b), Johnson (e.g., 1972, 1981), Kaplan (1984), Johnson and Kaplan (1987), Lee et al. (1996), and Lemarchand and Parker (1996). And for an analysis of accounting books kept by “genteel” and professional women from 1700 to 1820, see Vickery (1998).

1996) and other industries with large investments and rising problems with *depreciation, cost allocation, price determination* and *budgeting*. For example, Sir John Mann (1863–1955, 1891, 1904) was arguing in favour of separating overhead costs into selling overheads and production overheads, and advanced a proposal for the use of machine hour rates for cost allocation, already previously suggested by Thomas Battersby (1878) who described contemporary cost accounting.

Shortly after the turn of the century, A. Hamilton Church (1901–1902, see also Vangermeersch 1988) published a series of articles that became a standard reference work on one of the most difficult questions of cost-finding' (cf. Solomons 1968b, p. 25). This work, which developed such ideas as *production centres* and *idle capacity* (and its "supplementary rate"), ultimately drew attention to the difference between "normal" vs. "abnormal" costs, and to the "*scientific*" *machine-hour rate*. It also influenced John Whitmore (1908), another contributor to standard costing, and Harry C. Bentley (1877–1967, 1911) with his sharp observations of contemporary cost accounting practice. The latter was the founder and proprietor of a business college, and is best known for his co-authored bibliographic work (see Bentley and Leonard 1934–35). J. Lee Nicholson (1863–1924), see above, contributed importantly to cost accounting by emphasizing *cost centres* and the *measuring of profits for individual departments* on the basis of machine hours (see Nicholson 1909). He also organized the National Organization of Cost Accountants (later called Institute of Management Accountants).

In the UK, further important contributions to cost accounting were made—quite apart from distinguishing between "prime" and "supplementary" costs, as well as between short-run and long-run processes made by the renowned economist Alfred Marshall (1842–1924), see Marshall (1890). But long before this happened, Cronhelm (1818) presented his system, which enabled the determination of "costs of goods sold" – though Littleton (1933, p. 334) as well as Solomons (1968b, p. 8) were sceptical of some of Cronhelm's claims. Later, the Irishman Dionysius Lardner (1793–1859, 1850) formulated the *cost-output variation* clearer than anyone before him and worked out an elaborate scheme of *cost allocation*. And F.R. Goddard (1872–73) exercised a stimulus upon Emile Garcke and J.M. Fells (1887), the engineer-accounting team who wrote the well-known book on *Factory Accounts*. This work not only traced the flow of costs through the enterprise but integrated cost accounting with double-entry accounting<sup>12</sup>. It also pointed at the futility of overhead cost

<sup>12</sup> And Littleton (1929, p. 102) reported that by 1910 large factories in the USA operated with accounting systems in which financial accounting and cost accounting were well connected. This and, even more so, the pioneering work by Garcke and Fells (1887), would mean a considerable primacy over similar attempts by Schmalenbach's *Kontenrahmen* in the late 1920s.

allocation, and, according to Solomons (1968b, p. 34), has to be counted among the pioneering achievements of the *marginal cost* school of thought. And Garner asserts that:

*This book by [Garcke and Fells]... probably had more to do with the advancement of cost accounting practice than any single book ever published... Another practising English accountant, G.P. Norton [1889], was one of the first to treat comprehensively the cost problems of a firm using the process cost method.*

(Garner 1968, p. 217–218).

Nevertheless, when it came to such economic concepts as “opportunity cost and differential cost [they] had remarkably little influence on early cost accounting thought and practice” Parker (1969, p. 20). E.J. Smith (1899) pioneered *uniform* cost accounting in the UK. And as to *break-even-charts*, Solomons (1968b, p. 35) pointed out that “Sir John Mann knew about it in 1904”. But Ferrara (1996) credits Henry Hess (1864–1922, 1903) with “the earliest published example” of a break-even-chart. Hess also made decisive steps in budgeting (see also Parker 1969, p. 62–65). Apart from the early efforts on farm budgeting by de Cazaux (1825), the germ of *flexible budgeting* can be found in the remarkable article by Hess (1903), which contained an interesting graphical treatment for comparison of actual cost with budgeted cost. Here is Solomon’s pertinent comment:

*By having a line instead of a point for his budgeted expense, he [Hess] expresses clearly the variability of certain expenses as output varies. His lines are straight lines and represent, therefore, an over-simplified relationship between output and expense. But the harnessing for control purposes of the distinction between fixed and variable expenses which he had earlier discussed in relation to questions of output policy shows Hess to have been well in advance of most of his contemporaries.*

(Solomons 1968b, p. 45–46)

Apart from an earlier article on budgeting by the American engineer H.M. Lane (1897), *fixed budgeting* was presented by Sterling H. Bunnell (1911).

## 6. FURTHER DEVELOPMENTS IN VARIOUS COUNTRIES

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For the French language area during the second half of the 19th century (and not only confined to cost accounting) were of particular importance the contributions that Eugène Léautey (1845–?, 1897, 1903) and Adolphe Guilbault (1819–1896, 1865) made individually as well as jointly (see Léautey and Guilbault, 1885, 1895 – see the biographical study

by Colasse 1982; and Degos 2005). The excellent and systematic effort of the latter work was designed to represent accounting as a mathematical and scientific discipline. Guilbault (1865) also pointed at the crucial distinction between fixed and variable costs. These two authors revived the French efforts of 17th and early 18th century accountants, such as Mathieu de la Porte<sup>13</sup>, Edmond Degrange, Sr. and others. Other French authors were Georges Reymondin (1909) with his accounting bibliography as well as A. Monginot (1854), Mézière (1862), and and J.G. Courcelles-Seneuil (1867, 1870) who, according to Hernández Esteve (1996, p. 548), considerably influenced Spanish accounting.

From Spain several authors are notable, for example José M. Brost (1825) with his book on double-entry bookkeeping, Francisco Castaño Dieguez (1863), Felipe Salvador y Aznar (1846), Emilio Oliver Castañer (1885) and Fernando López Toral (1878) who, as previously mentioned, followed the “logismographic direction” (for other Spanish authors of the 19th century, see Hernández Esteve 1999). From Portugal, one may list Antonio Magelhães Peixoto (1910) and Ricardo de Sá (1912). In the Netherlands two authors, the above-mentioned W. Kreukniet (1896, 1898), and also H.L. Heykoop (1897) are known to have dealt with accounting and commercial knowledge in general. Meanwhile, in Japan Alexander Shand (1844–1930) produced a Japanese translation of his work (Shand 1873). Another book-translation was presented by Yukichi Fukuzawa (1834 or 1835–1901), the founder of Keio University and one of the most influential persons in Japanese commercial education-see Fukuzawa (1873 – translated from a book by H.B. Bryant and H.D. Stratton). And Naotaro Shimono (1865 or 1866–1939) introduced his *boki seiri* (Shimono 1895), a typical Japanese version of double-entry (see also Chapter 13). And in China, Cai Xiyong seems to have published in 1905 the first Western style double-entry primer. As to industrial applications of early double-entry accounting and cost accounting in Japan and China, see Kimizuka (1991) and Guo (1982–1989, 1996), respectively.

In Russia, apart from some of Léon Gomberg’s (1866–1936) early publications, the following authors were prominent in the 19th century and most of them also contributed to 20th century accounting literature: Venediktovich Ezersky (1836–1916), Evstaphiy Evstaphievich Sivers (1852–1917), Adolf Markovich Wolf (1854–1920), Alexander Pavlovich Rudanovsky (1863–1934), Nikolay Sevast’janovich Lounsky (1867–1956), R.Y. Veitsman (1870–1936), N.A. Kiparisov (1873–1956), Nikolay Aleksandrovich Blatov (1875–1942), Alexander Mikhailovich Galagan (1879–1938). The article by Sokolov and Kovalev (1996, p. 508) refers to some of those authors born in the 19th century with the following words:

<sup>13</sup> Mathieu de La Porte’s classification of accounts still influenced such 19th century authors as Vannier (1840), Jaclot (1856), Sibuet (1867), as well as some authors of the 20th century.

At first, the writings of the Italian, French and German accountants guided practice in Russia. However, an indigenous crop of accounting writers soon developed. F. Ezersky stressed the importance of a perpetual-inventory system, which allowed for profit determination at various time intervals during the year. S. Ivanov focused on prime costs for “Cost of Basic Production”. I. Valitsky designed the methodology of both a national and a firm’s balance sheet along the lines of current and non-current classifications. E. Feldhausen introduced standard costs. L. Gomberg created his own original theory of “economology”, which placed theoretical accounting concepts into the system.

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He and his research have been profiled in Gaffikin and Aitken’s *The Development of Accounting Theory: Significant Contributors to Accounting Thought in the 20th Century* (1982), in Moonitz’ *History of Accounting at Berkeley* (1986); in J.R. Edwards’ *Twentieth Century Accounting Theorists* (1994), in Chatfield and Vangermeersch’s *The History of Accounting: An International Encyclopaedia* (1996), and more recently in B. Colasse’s (2005) *Les grands auteurs en comptabilité* (spanning from the 15th century to our time). Mattessich introduced analytical methods to accounting and is one of the pioneers in the axiomatisation attempts of accounting, as well as the first to develop “computerised accounting spreadsheets” (in several publications in the early 1960s). His recent interests concern the philosophy of accounting and the history of accounting research. Twenty-seven books bear his name (as author, co-author or editor, including translations) and his book *Accounting and Analytical Methods* (1964, with later reprints) has been translated into German, Japanese and Spanish. In addition, he has over 80 contributions to books, and published over 110 papers in academic journals (some of them translated into French, German, Italian, Japanese, Polish, Portuguese, Spanish, and Ukrainian). Most recently (2008) he published (in co-authorship with 15 scholars from various countries) a work of some 630 pages: *Two Hundred Years of Accounting Research: An International Survey of Personalities, Ideas and Publications (from the Beginning of the Nineteenth Century to the Beginning of the Twenty-First Century)*.



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PART II

THEORIES



Jerzy Jakubczyc

# TIME DISCOUNTING SUPPORTED WITH PERSPECTIVE IMAGES

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## Abstract

It is being said more frequently that the simple discounting, known also as the hyperbolic one, is better than the exponential discounting despite such defaults as the lack of the compounding recurrence and the time inconsistency in the preference ordering. It has been proved that the absence of the compounding procedure is untrue and what's more, it is the hyperbolic discounting which can be named as the dynamic one. For the time inconsistency problem it has been shown that it is about a controversial isometric projection. When a perspective projection is applied, the discounted hyperbolically values form the realistic images on which none of curiosities were present. The last ones have appeared, however, on the perspective images based on the exponential discounting.

## 1. INTRODUCTION

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For some time a growth in attention towards discounting processes has been observed. It is so because of a new look at the simple interest arithmetics which is named more frequently as the **hyperbolic discounting** (see: Laibson 1997, Rachlin 2006). The results of the experimental researches suggest that the hyperbolic discounting is the one which describes the human preferences better than the more popular process of exponential discounting (see: Frederick, Loewenstein, O'Donoghue 2002). The advantages of the first one are also stressed during discussions on the project evaluation problems (see: Cropper, Laibson 1996). So, what is the discounting process and why neglected actually the simple interest procedure is systematically more appreciated?

According to the encyclopedia of *Britannica*

**discounting is the reduction in quantity or in money value**

and it can be added that the nominal value is changed into the effective value showing an importance of the time flow. So, **the reduction**

is the target of discounting, but it is still unknown – why discounting is necessary?

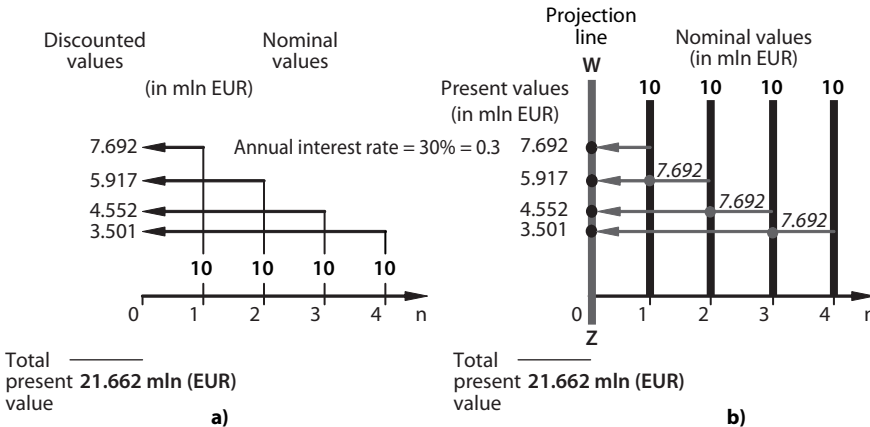
As we will see, the answer is surprisingly simple and it is strange that it remains unnoticed. At the beginning we can say shortly that

**discounting is applied to obtain realistic images supported with perspective projection.**

If the hyperbolic discounting is more accepted by beneficiaries it is perhaps because realism and rationalism is less important here.

## 2. ABOUT THE TRIALS WHICH ILLUSTRATE THE DISCOUNTING PROCESS

Economists present various arguments to explain the necessity of discounting (see: Frederick, Loewenstein, O'Donoghue 2002, for example). It seems that the preferences can be treated as the most convinced, on the basis of which the options are compared and selected. An evident reluctance in supporting the illustrations is simultaneously observed and the two charts in Figure 1 should be treated as the exceptional ones.



**Figure 1.** Exponential discounting explained graphically

On both charts in Figure 1 the basis of our considerations comes from the profile of annuities, nominally equal to 10 mln *EUR* each. The effective value of the profile is defined by the so-called **present value**, calculated at the instant of time,  $t = 0$ . It is seen that the nominal values should be discounted and then the obtained effective values should be added together. It is assumed here that the annual drop in value is equal to 30% and it is necessary to apply the compounding version of discounting which is equivalent to the **exponential discounting**.

It is worth stressing that the chart in Figure 1a) should be treated as the scheme only. It is so since the relationships between nominal and



discounted values are shown vaguely. It is unknown, however, why it has been resigned from showing the vertical segments illustrating the nominal values. It is worth asking as well what is the target for the arrows and **why are the ones parallel with the so-called time-line?**

The objections have been eliminated partially in Figure 1b) and the segments shown define the regular profile of annuities. We see that the arrows follow towards the vertical line **WZ**, on which the discounted values have been localized. But **the arrows are still parallel with the time-line**. Because of this, it is impossible to explain why the arrows are starting from wrong places – quite different than the tops of segments.

It is possible to say that the chart in Figure 1b) is slightly better than the previous one. First of all, it indicates the presence of **projection** and the line **WZ** is the **projection place**.

The parallelism with the time-line means, however, that the **isometric projection** has been suggested here which keeps the discounted values independent of the time instants. In that case we talk about the **time consistency**. There is a proof that the last one is valid for the exponential discounting only.

To state the time consistency is not a difficult task and it has been illustrated by the grey lines on Figure 1b). We can see that the amount of 7.691 mln EUR can be prescribed to all of them. It means that the delay of time is important here, but the placement of the instant of time does not matter.

It is strange, however, that the grey points are not localized on the same horizontal line. It is evident now that the chart in Figure 1b) is **unrealistic** and it is because of the suggested isometric projection which should be replaced with the perspective projection.

### 3. HYPERBOLIC DISCOUNTING

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Before showing the perspective image of the discussed annuities profile, let's consider an interesting feature of the hyperbolic discounting. In the most popular version we have:

$$PV = \sum_{n=1}^N A_n \times \left( \frac{1}{1 + g \times n \times \Delta t} \right) = A \times \sum_{n=1}^N \frac{1}{1 + i \times n} \quad (1)$$

where:

$PV$  – the present value of annuities;

$A_n = A$  – the constant annuity value;

$I = g \times \Delta t$  – the interest rate;

$g$  – the growth rate;

$t$  – the nominal period which is usually equal to 1 (year);

$n$  – the multiplicity of the nominal period;

$N$  – the horizon of the profile.

We can see that in (1) there is the **simple interest formula**. If it is so, why is the name of hyperbolic discounting proposed and because of what reasons should the one be reminded? It is especially strange since the simple interest formula is unpopular and it is almost absent in financial literature.

**Table 1.** Hyperbolic discounting calculation example

	Hyperbolic Discounting (in mln EUR)	
	without compounding	with compounding
$n = 1$	$10 \times \left( \frac{1}{1 + 0.3 \times 1} \right) = 10 \times 0.7692 = 7.692$	$10 \times \left( \frac{1}{1 + \frac{0.3}{1 + 0.3 \times 0}} \right) = 10 \times 0.7692 = 7.692$
$n = 2$	$10 \times \left( \frac{1}{1 + 0.3 \times 2} \right) = 10 \times 0.6250 = 6.250$	$7.692 \times \left( \frac{1}{1 + \frac{0.3}{1 + 0.3 \times 1}} \right) = 7.692 \times 0.8125 = 6.250$
$n = 3$	$10 \times \left( \frac{1}{1 + 0.3 \times 3} \right) = 10 \times 0.5263 = 5.263$	$6.250 \times \left( \frac{1}{1 + \frac{0.3}{1 + 0.3 \times 2}} \right) = 6.250 \times 0.8421 = 5.263$
$n = 4$	$10 \times \left( \frac{1}{1 + 0.3 \times 4} \right) = 10 \times 0.4545 = 4.545$	$5.263 \times \left( \frac{1}{1 + \frac{0.3}{1 + 0.3 \times 3}} \right) = 5.263 \times 0.8636 = 4.545$
	Total = 23.750	Total = 23.750

**Table 2.** Exponential and hyperbolic discounting comparison

Exponential Discounting	Hyperbolic Discounting
Discounting Functions	
$F_n^W = \left( \frac{1}{1 + r} \right)^n$	$F_n^H = \frac{1}{1 + i \times n}$
The Rate of Return	
$r_n = \frac{F_n - F_{n-1}}{F_{n-1}}$	
Discounting Rates	
$r_n^W = r^W = \frac{r}{1 + r}$	$r_n^H = \frac{i}{1 + i \times n}$

**Table 3.** Direct comparison of exponential and hyperbolic discounting calculation

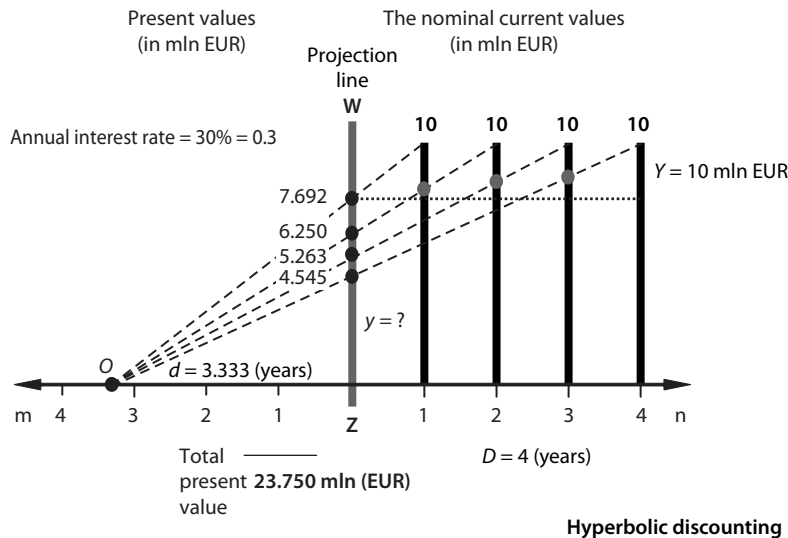
Exponential Discounting	Hyperbolic Discounting
$PV^W =$ $= 10 \times 0.7692 +$ $+ 10 \times 0.7692 \times 0.7692 +$ $+ 10 \times 0.7692 \times 0.7692 \times 0.7692 +$ $+ 10 \times 0.7692 \times 0.7692 \times 0.7692 \times 0.7692 =$ $= 21.662 \text{ (mln EUR)}$	$PV^H =$ $= 10 \times 0.7692 +$ $+ 10 \times 0.7692 \times 0.8125 +$ $+ 10 \times 0.7692 \times 0.8125 \times 0.8421 +$ $+ 10 \times 0.7692 \times 0.8125 \times 0.8421 \times 0.8636 =$ $= 23.750 \text{ (mln EUR)}$

It seems that the main cause of the diminishing popularity of the simple interest is because of the presumed lack of compounding. Let's see, however, on the results shown in the Table 1.

It appears that the simple interest accounting can be named as the **compounded** one as well. As opposed to the exponential interest, the return rates are dependent, however, on the considered instants of time and what can be noticed from the comparisons shown in Table 2.

So, it is not true that the exponential discounting is the dynamic one since the rate of return is **constant** with the time flow. The dynamic feature can be assigned to the simple discounting where the rate of return is dependent on the multiplicity of the nominal period. To be more convinced about the last statement let's have a look at the direct comparisons displayed in Table 3.

But it is true as well that the simple discounting (or the hyperbolic one) does not admit the condition of time consistency. To see why, let's look at the next chart shown in Figure 2.



**Figure 2.** The linear perspective and the profile of annuities

The arrows shown before have been replaced by the dashed lines. Now, however, the lines are not parallel with the time-line and the grey points are not placed across the presented horizontal line. We can see that the time inconsistency can be demonstrated graphically and it is more accessible than the examples or cases presented in literature. It is so because of the replacement of isometric projection with **perspective projection**.

There are more interesting relationships between discounting and perspective projection as well. If somebody wants to calculate the present value, it is **not necessary** to know the discount rate and such a statement should be treated as revolutionary. There is nothing revolutionary, however, and from Figure 2 we have:

$D = 4$	means the time distance, measured in years, between the instant of appearance of the last annuity and the projection line;
$d = 3.333$	is the distance measured in years between the projection line and the observation point, $O$ ;
$Y = 10$ mln EUR	is the nominal value of the last annuity;
$y = ?$	is the unknown present value of the last annuity.

In the case of perspective projection there is:

$$y = Y \times \frac{d}{d + D} = 10 \times \frac{3.333}{3.333 + 4} = 4.545 \text{ (mln EUR)}$$

What's more, after an easy modification we obtain:

$$y = Y \times \frac{d}{d + D} \times d \quad (2)$$

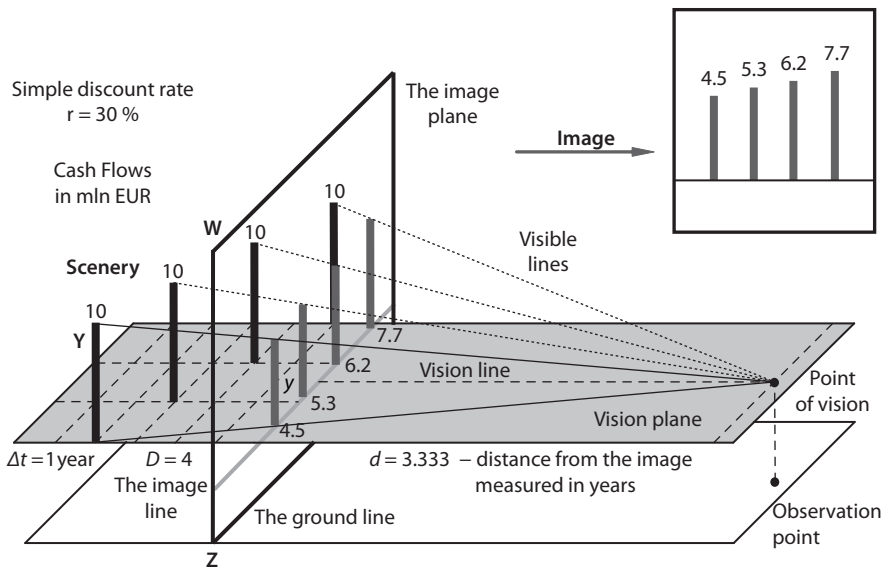
and we can see that it is the well known equation of value, where  $Y/(d + D)$  is the **price of time** and  $d$  means the **quantity of the commodity**. Of course, it is the time as the commodity for selling or for buying and the payment should be done with currency.

How to obtain the discount rate? From the original equation we have:

$$y = Y \times \frac{d}{d + D} = Y \times \frac{d/d}{(d + D)/d} = Y \times \frac{1}{1 + D/d} = Y \times \frac{1}{1 + r}$$

and the discount rate is  $r = D/d$ . By the way, in the denominator the mystery of the "1" is solved at last, but is it really the right explanation of the discount rate as the intertemporal price?

The chart shown in Figure 2 is not completely satisfactory, however. It illustrates the idea of the perspective projection and we can see how



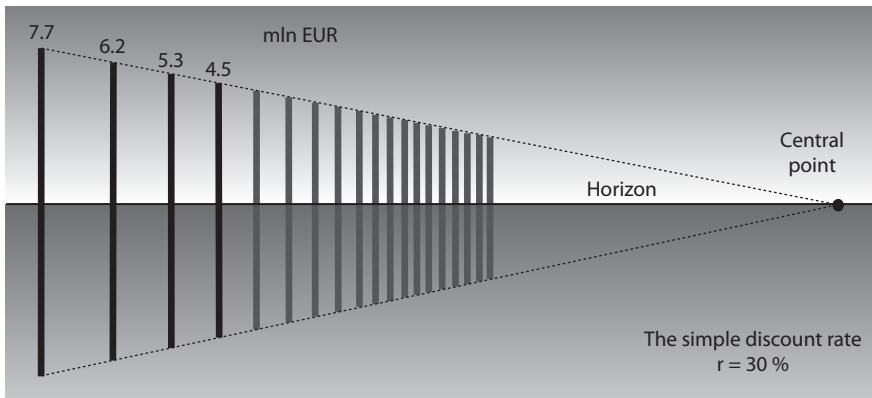
**Figure 3.** Hyperbolic discounting consistency with perspective projection

the **proportionality principle** is applied here as well as the **similarity principle** for the right triangles. But it is still the scheme instead of the promised image.

The fuller and the more communicative picture is shown in Figure 3. First of all, let's notice that the projection line is represented now by the **image plane**. The observed objects are represented by the black poles with the same longitudes equivalent to the amount of 10 mln EUR. The very basic perspective principle says that **the more distant pole should be seen as the shorter one**. It is present in the illustration shown and because of this, the reduction of poles is **consistent** with the process of seeing. For discounting justification it is not obligatory to call for artificial interpretations. We can say now that:

**the target of discounting is to produce a realistic picture  
and without perspective it is impossible**

In Figure 3 some terms from the perspective projection have been included. But let's take a special look on the **vision plane** which is localized on the same level as the point of vision or the eye of any observer. The vision plane is the artificial construction, however, the network shown on that plane with the time flow should be treated as the mistake. The network ought to be included but on the ground plane. If it is so, the time flow should be demonstrated on the image as well. The image presented in the right upper corner suffers from the lack of the scenery depth.



**Figure 4.** Annuities in the linear perspective

The realistic and demanded image is shown in Figure 4. Let's notice that not only the nominal longitudes of the poles have been reduced but the following nominal periods as well. The lack of time reduction was something which was absent in the previous illustrations. The time inconsistency for the hyperbolic discounting is true, but only if the isometric projection is taken into account. In the situation when one of the perspective projection is included, the statement should be quite opposite. But the following hypothesis should be formally proved:

**there are only perspective pictures which are realistic  
and time-consistent**

To make realism more evident in Figure 4 many more poles have been included and the final effect has been strengthened with the gradient graphics. It is possible now to imagine the presence of the depth and the heights of the slopes which are recognized visually as the same.

## 4. EXPONENTIAL DISCOUNTING

From the visual point of view the hyperbolic discounting seems to be quite correct. The only problem is the small popularity and the advantages are pointed towards the exponential discounting. Let's check if the likelihood of the last one can be admitted with the perspective image.

There is an investment project which demands a financial input of the amount of 1500 mln EUR. It is expected that after one year the annual cash profits will be the same and equal to 500 mln EUR. Taking into account the nominal interest rate,  $r = 12\%$ , it is necessary to check the financial admissibility of the investment. As the unusual task the perspective picture of the investment profile should be produced to see if the project is realistic.

Checking the financial viability is the trivial task. Let's consider the NPV method and the following result can be obtained:

$$\begin{aligned}
 \text{NPV} &= \\
 &= -1500 + 500 \times e^{-0.12 \times 1} + 500 \times e^{-0.12 \times 2} + 500 \times e^{-0.12 \times 3} + 500 \times e^{-0.12 \times 4} + 500 \times e^{-0.12 \times 5} = \\
 &= -1500 + 500 \times 0.8869 + 500 \times 0.7866 + 500 \times 0.6977 + 500 \times 0.6188 + 500 \times 0.5488 \approx \\
 &\approx -1500 + 443 + 393 + 349 + 309 + 274 = \\
 &= 268 \text{ (mln EUR)}
 \end{aligned}$$

Since the financial result is positive the investment project can be treated as the admissible one.

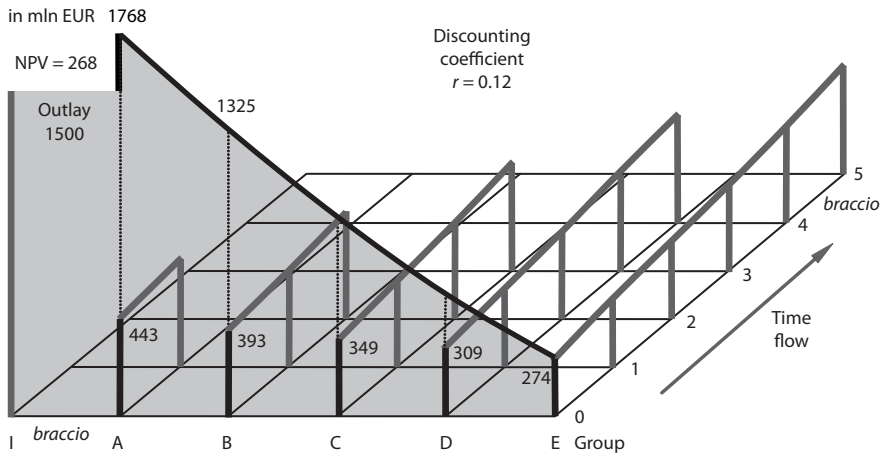
Discounting coefficient	Instant time	Cash Flows (in mln EUR)					
0.5488	5	*	*	*	*	*	500
0.6188	4	*	*	*	*	500	443
0.6977	3	*	*	*	500	443	393
0.7866	2	*	*	500	443	393	349
0.8869	1	*	500	443	393	349	309
1.0000	0	-1500	443	393	349	309	274
Cumulated			1768	1325	932	583	274
Group		I	A	B	C	D	E

**Figure 5.** The cash flows matrix

The obtained results and the other data have been presented in a form of the matrix which is shown in Figure 5. The cumulative cash flow values have been included as well. Let's notice that the periods are defined by the rows and the discounted values are shown in the columns.

On the base of the cash flows matrix it is possible to produce a picture which is improperly named as the “spatial”. To do so, firstly, it is necessary to construct the network. Let's assume that we are focused unwillingly on the perspective projection and we've decided to produce an **isometric network**. Of course, it can't be the rectangular network since it will be impossible to show the third dimension – the scenery depth.

The picture of the isometric network is shown in Figure 6. For the horizontal direction it has been assumed that 1 (*braccio*) = 2 (*cm*) and the *braccio* is the unit measurement of everything applied by the artists. It has been done similarly for the vertical direction but here it has been assumed that 1 (*braccio*) = 2 (*cm*) = 1 (*year*).



**Figure 6.** Isometric image of the cash flows profile

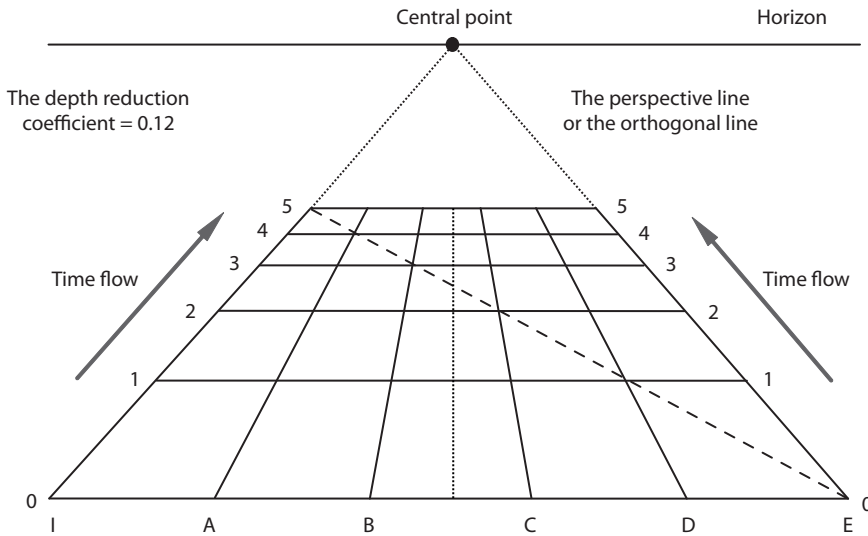
Disposing with the isometric network is an easy task to finish the picture. The values from the cash flows matrix should be exchanged for the *braccia* and next, they should be put on the network. It is assumed here that 500 000 EUR = 2 (*cm*) = 1 (*braccio*). In this way all dimensions are measured with the same measurement unit. Of course, there is no difficulty to “read” the picture. What’s more, it is not necessary to reveal the applied unit and that is why in Figure 6 we have the money values.

Let’s “read” the produced picture now. The sequence of the “barriers” symbolizes the currently discounted amounts of money. It is strange, however, that according to the time flow direction, the heights of the “barriers” are growing up instead of diminishing. It seems as well that the whole picture construction is broader upwards. If it is true, we observe an inverse perspective which was popular at the remote past in Byzantium and in the Far East. This time however, it is an optical illusion only, but the question remains – **is it admissible that the *tromp d’oeil* effect is present on the picture?**

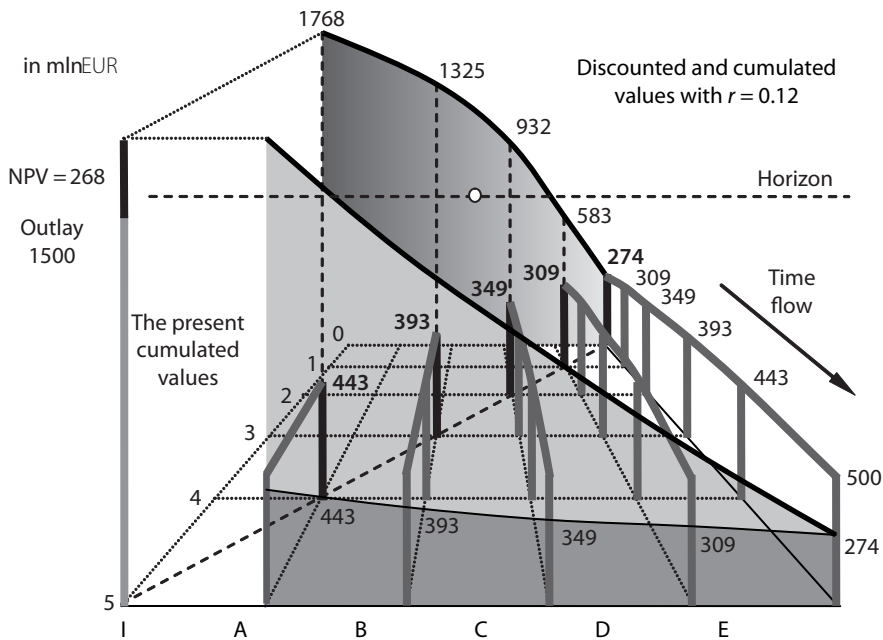
Let’s resign from the further picture analysis and let’s start to produce the perspective image of the cash flows. As usual, the right network should be done firstly which is shown in Figure 7. The added descriptions are exactly the same as in the cash flow matrix in Figure 5. Thanks to this there are no difficulties to show the places on the network where the money values will be localized.

In contradiction to the isometric pictures, in the perspective picture it is the horizon which plays an important role. On the other hand there is always a central point to which all perspective lines should follow. Let’s add that the lines are named the orthogonals and all of them are designed correctly. It can be easily verified by the dotted line which passes through the right corners.





**Figure 7.** Network for the nonlinear perspective



**Figure 8.** Cash flows profile with the nonlinear perspective

We are sure that the perspective network is designed properly. It means that if something curious will appear in the picture, the cause should be placed somewhere else. Let's look at the produced image which is shown in Figure 8. We state that it looks unexpectedly. First of all, the

change in the time direction is certainly a surprise. The nearest plan in the picture describes the most distant future and the present time is far away. It has been done so since the “barriers” should follow to the central point and originally it was inversely.

Despite strong intervention, the final effect is miserable, however. It can be checked that the “barriers” follow towards the white central point but this tendency is only rough.

The next interesting detail concerns the different shapes of both cumulative curves. We can see that one is concave and the other is convex instead of the expected straight line. It is not only a puzzle but a classic time-inconsistency as well. Perhaps it is because of the presence of perspective projection but the one is not forbidden. None the less it is possible to formulate the next hypothesis that

**the exponential discounting generates the perspective picture which can be time-inconsistent**

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# CONCEPTUAL EVALUATION OF UTILITY THEORY IN ACCOUNTING

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## Abstract

Accounting as a system has a certain peculiarities and market economy needs to be taken into consideration here. Utility theory is a fundamental concept and the basis for the market relations. Besides, at present, the economy of all countries is functioning in the circumstances of the informational society. It has its impact on the accounting processes. Up to now, little attention was paid to the conceptual evaluation of utility and informational theory influence on accounting for those processes which form some trends of its development at theoretical, institutional and practical levels. The paper presents the main ideas and views of the authors on these issues.

## 1. THE UTILITY OF ECONOMIC INFORMATION AND ITS QUALITATIVE CHARACTERISTICS

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The outstanding scientists in the sphere of microeconomics: Robert S. Pindyck and Daniel I. Rubinfeld (1966, p. 88) interpret utility as a level of personal satisfaction with the consumption of goods or some activities.

The market relations make the users of commodities choose the most satisfying commodities. Under market relations accounting and its product in the form of accounting information also has its utility both for the persons in charge and other interested persons: state and non-state institutions, political parties, shareholders, mass media, competitors, counteragents, participants of stock, insurance and various financial markets. That is why the most important element of improving accounting

as the scientific activity in establishing market relations is taking into consideration some points of utility theory about the accounting information. The utility of accounting information is determined by the advantages from using it.

The actuality of problem of accounting information utility can also be explained in accordance with Coase theory – the most important issues in dividing resources in modern economy are transaction expenses. The major part of them contains searching and obtaining economic information. Thus, those information consumers who will have knowledge about the utility of information will be able to put it in practice.

The Financial Accounting Standards Board of USA suggests qualitative characteristics which determine the information utility: relevance, timeliness, clarity, reliability, neutrality, representative character (Hendriksen, Van Breda 1997, p. 535).

The National standard of accounting 1 “The General Demands for the Financial Reporting” determines as obligatory the qualitative characteristics of utility which corresponds with the methodology of financial accounting in Ukraine.

According to the international accounting standards (Golov 1998, p. 24–42) the quality of accounting is stipulated by keeping some qualitative characteristics: relevance, clarity, reliability and comparative-ness.

A set of qualitative utility characteristics which can be found in National standard of accounting 1 “The General Demands to the Financial Reporting” (PSBO 1) is less detailed. Taking into consideration the influence of PSBO 1 on accounting policy of economic agent this approach seems to be rather simplified. It limits the functional liabilities of accounting subsystem and, accordingly, of economic analysis to make the right managerial decisions. The Ministry of Finance of Ukraine should revise PSBO 1 with respect to qualitative characteristics of financial accounting. The following items should be included: representative character, necessity, relevance, timeliness, the advantage of using information over its expenses, transparency, etc. which correspond to providing information on economic strategies and tactics.

The functional interactions of scientific and practical approaches to accounting utility need to be considered when analyzing the influence of economic theories, laws and regularities:

- The concept of marginal utility (marginalizm) (1871, 1874),
- The G. Hix intertime model of general balance (1939),
- The games theory (1944),
- The Neiman-Morgenshtern theory of expected utilities (1947),
- The consuming behavior and demand theory,
- The analysis of utility of an alternative choice which foreseen risk by M. Fridman and L. Seavage (1948),
- The G. Stingler economic theory of information (1961),

- The D. Kaneman – A. Tversky theory of perspectives (1979),
- The works on general balance theory, research on types of utility Zh. Debre (1983),
- The M. Alle works on effective usage of industrial resources (1988),
- The G. Merlize – W. Vikry works on economic stimuli theory in conditions of asymmetric information (1996).

## 2. THE TYPES OF ACCOUNTING INFORMATION UTILITY

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The utility of economic (and accordingly, accounting) information is divided into 3 types or subsystems: common, collective (corporative) and individual.

The common utility of economic information is achieved by keeping all possible qualitative characteristics: actuality, continuity, adaptability for machine data processing, clarity, accuracy, ability to operate, neutrality, representative character, truthfulness, functionality, transparency.

The common utility of information is defined on every stage of society development by the appropriate state institutions such as the Ministry of Finance Ukraine.

The collective or corporative utility is determined by motivation and interaction of employees' interests according to the theory of self-organization.

The individual utility of accounting information is formed by its users.

The total utility of accounting information is a result of integration of common, collective (corporative) and individual utilities.

At the same time, depending on the level at which the utility is determined, there exist various connections of its types for example: at a micro level – the priorities for choosing the most important qualitative characteristics of utility are determined by individual and collective motivation. At macro level, the system of accounting information utility should consider both common and corporative economic interests.

## 3. THE APPROPRIATENESS OF UTILITY OF THE ACCOUNTING INFORMATION

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The utility of accounting information as a service subsystem of data base for decision making has some appropriateness:

- Every qualitative characteristic of accounting information has its common, collective (corporative) and individual utility. They can be determined to ensure the needs of decision making.

- The common utility of accounting information can be determined by the summarizing method and the maximum expenses as to its obtaining can be foreseen. It is regulated by state and non-state institutions.
- The regulation of qualitative characteristics of accounting information utility can be internal as well as external.
- The absence of management of the utility of qualitative characteristics of accounting information can affect decreasing of evaluation indexes.
- A manager can determine himself/herself the priority for every part of the accounting information utility.

The existence of these characteristics of utility subsystem determines the user's choice for example: relevance or representative character. This approach is behavioral and determines by a certain degree the managers and accountant motivation.

The selection of qualitative characteristics of accounting information can be done by approaching the evaluation and SWOT-analysis. Scenario and type of managerial policy of a firm should be taken into consideration.

#### 4. THE FORMALIZATION OF THE UTILITY OF ACCOUNTING INFORMATION

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The utility is an economic function and according to prof. V. Savchuk (1996) can be organized in summarizing and multiplicative models (Savchuk 1995, p. 29).

Some conditions of its existence and usage should be taken into consideration. Managers can realize their activity, either with full or partial determination of the information. Full information is the basis for determining the firm existing environment. But, to a greater extent it is abstract and of low probability. Today, the majority of economists follow the idea that the business agents are functioning under conditions of full or partial unawareness of informational environment. That is why, a certain risk must be taken into account. As regards the utility function, it means applying the Arrow – Pratt coefficient to the above mentioned models. It equals the ratio of the second and the first derivative functions of utility in the risk condition.

The value of the total utility can be various depending on:

- the selected strategy of firm development;
- the parts of separate expenses pertain fixed and variable which is connected with accounting process;
- the identified demands to financial and managerial account;
- the limitation of resources in time and in quantity;

- the motivation and types of behavior of interested parties;
- the scientific and technical progress and innovation processes of forming, developing and usage of accounting information;
- the level of uncertainty of outer environment;
- the degree of risk realization (productive, financial and others).

The state, its legislative institutions and regulatory policy have a great effect at the level of function which determines the substantiation and actual quantity of accounting information and provide the formation on the firm, bank or non-profit organization level.

The appropriateness of development of the subsystem of accounting information utility may be described by laws of the system development.

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Czesław Mesjasz

# OBJECTIVE AND SUBJECTIVE RISK IN ECONOMICS, FINANCE AND MANAGEMENT

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## Abstract

It can be observed that in theory and in policy making the term “risk” has different, sometimes incompatible, interpretations. Obstacles associated with the concept of risk go much deeper than semantic discrepancies. The ideas of risk and uncertainty reflect the fundamental human challenge of how to relate expectations towards the future with present actions, and vice versa. It is obvious that it is neither necessary nor possible to provide a single and universal definition of risk. The aim of this paper is to present a survey of ideas and definitions of risk that are applied in economics and in social sciences. The survey is used to prove that it is not possible to refer to any “objective risk” but it is always necessary to explain the context of the meaning of that term in accounting, economics, finance and in management.

## 1. INTRODUCTION

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The term “risk” has become one of most frequently used and at the same time misused and abused concepts in modern society. Although the concept of risk society was already promulgated in the book *Risk Society* by Ulrich Beck (1992, 1999), the dramatic events of 11 September 2001 and the increasing wave of terrorism along with several great natural disasters (tsunami in 2004), have made that idea one of the key issues of contemporary social theory and policy making.

It can be observed that in theory and in policy making, the term “risk” has different, sometimes incompatible, interpretations. Other ideas that



can have several interpretations are for example “stability in international relations”, “financial stability and governance”. This paper discusses such ideas that can have various meanings to them. Such a situation hampers theoretical considerations, makes policy-making less efficient and creates a specific “noise” efficiency decrease in social communication. It can be stated that different participants of the discourse on risk apply different meanings in theory, practice and in the communication process.

Obstacles associated with the concept of risk go much deeper than semantic discrepancies. The ideas of risk and uncertainty reflect the fundamental human challenge of how to relate expectations towards the future with present actions, and vice versa.

It is obvious that it is neither necessary nor possible to provide a single and universal definition of risk. However, the situation of a conceptual chaos is also not acceptable since ambiguous utterances and failure to stipulate definitions can lead to failures in communication or disputes about the meaning of terminology.

The aim of this paper is to present a survey of ideas and definitions of risk applied in economics, finance and management. The survey is used to prove that it is not possible to refer to any “objective risk” but it is always necessary to explain the context of the meaning of that term in the frame of accounting, finance and management.

## 2. THE RISK SOCIETY

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When treating “risk” as a negatively valued feature of relations between the past, the present and the future, a few questions have to be taken into consideration. The first one, concerning the modern time, can be formulated as follows: Are there any specific characteristics of modern society, which create new challenges in politics and business at all levels of social hierarchy and in everyday life? If so, what areas of social life are especially exposed to their influence?

The response to the first question immediately leads to the idea of post-modernist “risk society” proposed by Ulrich Beck (1986/1992) that painfully gained more actuality after the events of 11 September 2001. In the “risk society”, risk can be defined as a systematic way of dealing with hazards and insecurities induced and introduced by modernisation itself (Beck 1992, p. 21). The idea of “risk society” is not intended to imply an increase of risk in society, but rather a society that is organised in response to risks. The hazards we encounter today are the unintended and unanticipated consequences of our own ordinary social activities such as science, technology, economy and even our daily private lives. It is often hard to make provisions against the damaging consequences, let alone identify the responsible agents in advance. It is a society

increasingly preoccupied with the future (and also with safety), which generates the notion of risk (Giddens 1999, p. 3).

The specificity of a risk society lies in the very character of risk. Humans have always been subjected to a level of risk but modern society is exposed to a particular type of risk that is the result of the modernisation process itself altering the social organisation. There are risks such as natural disasters that have always had negative effects on the human populations, but are produced by non-human forces. Modern risks, on the other hand, are the product of human activity. These two different types of risks can be referred to as external risks and manufactured risks (Giddens 1999). A risk society is predominantly concerned with manufactured risks. The marked difference between the two is that there is a significant level of human agency operating in the production and mitigation of manufactured risks.

Since manufactured risks are the product of human activity, there is the potential to assess the level of risk that is being produced, or that is about to be produced. As a result, risks have transformed the modernisation process itself. With the introduction of human-caused disasters such as Chernobyl and the Love Canal Crisis, public faith in the modern project has declined, leaving a variable trust in industry, government and experts (Giddens 1990). The increased critique of modern industrial practices has resulted in a state of reflexive modernisation. Concepts that demonstrate reflexive modernisation are sustainability and the precautionary principle that focus on preventative measures to decrease the level of risks.

### 3. RISK AND UNCERTAINTY

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#### 3.1. Epistemological challenges

The terms “uncertainty” and “risk” reflect relations between the past, the present and the future. Uncertainty is the basic concept that mirrors the future as unknown and unpredictable. In logical terms uncertainty means the state of not knowing whether a proposition is true or false. Risk, hazard, danger and threat are normative terms, usually linked to negative consequences in the form of possible future events.

There is no commonly accepted definition of risk. Therefore etymology could be helpful in disclosing the evolution of its meanings. The term risk derives from Italian and has its roots in economics. It comes from the Italian *risco* or *rischio*, which both mean the “danger” that one is succumbing to and the “venture” that one is embarking (Gregersen 2004, p. 22).

According to Wit (1997), the concept of *risk* was first employed in merchant vocabulary in the fifteenth century in Central and Western

Europe, where it stood for financial speculation. The concept developed in the Italian city-states, probably from the verb *rischiare*, which means *to endanger* or *to wager*.

The verb itself originates, via *risicare*, from the Greek  $\rho\iota\zeta\alpha$ , (*riza*), which means *cliff*. *Risicare* came to mean *to go around the cliff*, much in the same sense as the noun *clipper*, and consequently they acquired their contemporary meaning, *rischiare*, which means to speculate. In this sense risk means rather choice than fate. Even if this etymology is uncertain, the concept of risk did come up in the Renaissance mercantile world. From this sphere, the word moved slowly into the everyday language of the Latin languages in the 16th Century (Gregersen 2004, p. 23).

Until the nineteenth century the term risk was used exclusively in the domain of economics. During the same period there was an important shift of meaning. Whereas previously the idea of risk had been connected with the hope and expectation of the one who financed the operation and the *individual* who executed it, in the course of the seventeenth and eighteenth century the newly gained understanding of probabilities and mathematical expectations transformed the concept of risk into long run *average* wins and losses away from individuality (Wit 1997).

Similarly as for other concepts of social sciences, the division between objective and subjective (probabilistic and contextualist) can be made in the discourse on risk. The sense of this division is described by Kelman (2003, p. 6–7): “Physical scientists sought to quantify, to measure, to objectify, to calculate, to scientificify, to nail down risk. Risk can, and more importantly should, be made precise, exact and accurate. Social scientists viewed risk as contextual and as a cultural construction. The act of measuring, thinking about it and seeking to understand and manage risk, changes the risk. The definition of risk depends on who defines it. “(...) Risk becomes objective and exact within the culture which defines it. But that axiom, that fundamental geometry of risk, may be challenged and redefined. Risk is thus contextual and cultural, depending on the initial assumptions that can never be proven or disproved”.

Problems arising from the dilemma of objectivity vs. subjectivity of risk have been discussed by several other authors. Shrader-Frechette (1991) distinguished three philosophies on risk evaluation: cultural relativism, naive positivism, and scientific proceduralism.

The cultural roots of interpretation of risk have also been exposed by Douglas and Wildavsky (1982), who proved that statements about risk are as much (and often more) a reflection of deep social structures as a representation of the world.

It is worthwhile to underline that in most cases, and in this paper as well, the subjectivist (constructivist) views do not deny facts about risk in general and they certainly do not entail relativism with respect to specific well-characterised elements of risk, such as for example, the

statistical probability of events. Doubts about the very sense of probability are connected with deeper epistemological interpretations.

Differences in defining risk are not the only obstacle in describing relations between the past, the present and the future. Semantic discrepancies between risk and uncertainty may be different in various cultures. Due to the size and scope of this paper, analysis of their differences will be conducted solely in reference to the cultures where this discrepancy is congruent to the English language – “risk” and “uncertainty”.

**Table 1.** Theoretical approaches to risk

	Epistemology	Type of theory	Key questions
Realism	Risk is an objective negatively assessed disturbance that can be measured independently of social definitions, but may be biased by subjective perceptions in the public realm	Technical sciences Economics and finance	What risks exist? How to measure (calculate) and manage risks?
Weak constructionism	Risk builds on objective dangers that are perceived and mediated through personal, social, cultural, or self-observing processes	Phenomenology “Risk society” theory Symbolic Theory (Mary Douglas) Attribution theory (Niklas Luhmann)	What is our attitude to dangers? How do we understand risk in today’s society? How and why do we select risks among the multiple dangers? How do we observe our own risk-decisions?
Strong constructionism (Radical constructivism)	Nothing is a risk, but risks are fabricated by social decisions and negotiations	Governmentalist theory (Michel Foucault)	Why and how do we fabricate particular risks?

Source: author’s research based upon Bernstein 1996; Douglas and Wildavsky 1982; Gregersen 2004, p. 24; Luhmann 1991.

The first and most influential distinction between risk and uncertainty was established by Frank Knight in his seminal work *Risk, Uncertainty, and Profit* published for the first time in 1921:

*(...) Uncertainty must be taken in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated. The term "risk" as loosely used in everyday speech and in economic discussion, really covers two things that, functionally at least, in their causal relations to the phenomena of economic organisation are categorically different. (...) The essential fact is that "risk" in some cases means a quantity susceptible to measurement, while at other times it is something distinctly not of this character; and there are far-reaching and crucial differences in the bearings of this phenomenon, depending on which of the two is really present and operating. (...) It will appear that a measurable uncertainty, or properly "risk", as we shall use this term, is so far different from an immeasurable one that it is not in effect an uncertainty at all. We (...) accordingly restrict the term "uncertainty" to non-quantitative cases.*

(1921, I. I. 26)

The above excerpt from Knight's work is very frequently quoted, but it should be added that his economic interpretation of risk went deeper:

*If risk were exclusively of the nature of a known chance or mathematical probability, there could be no reward of risk-taking; the fact of risk could exert no considerable influence on the distribution of income in any way. For if the actuarial chance of gain or loss in any transaction is ascertainable, either by calculation a priori or by the application of statistical methods to past experience, the burden of bearing the risk can be avoided by the payment of a small fixed cost limited to the administrative expense of providing insurance.*

(1921, I. II. 41)

Using the distinction proposed by Frank Knight, it is necessary to remember that probability measures only the perceived uncertainty. Therefore, also other attempts have been made to describe risk and uncertainty in a more rigorous manner.

This idea of perceived and non-perceived (to know what we do not know) was reinforced by Keynes (1937), who expressed the following sentence:

*By "uncertain" knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty (...) The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence (...) About these matters there is no scientific basis on which to form any calculable probability whatsoever. We simply do not know.*

(Keynes 1937, p. 213 ff)

The *formal* incorporation of risk and uncertainty into economic theory took place in 1944, when John von Neumann and Oskar Morgenstern published their *Theory of Games and Economic Behavior* (1944), giving a rational foundation for decision-making under risk according to expected utility rules with objective probabilities.

Another view on risk was introduced into economic literature by Friedman and Savage (1948), who argued that any choice of options with multiple outcomes, each of which can be assigned a conditional probability contingent upon selecting a given option, is made under conditions of risk. Luce and Raiffa (1957) further clarified the Friedman and Savage approach and many economists adopted the practice of treating risk not as a quantity but as a class of decisions. It is worth noting that a strict application of the Luce and Raiffa terminology does not lend itself to risk comparisons.

Although it seems convincing at first glance, the possibility of measurement of parameters values describing a situation is not the only difference between the meanings of risk and uncertainty. Risk and uncertainty as well as differences between them can be analysed at five levels.

At the first basic, epistemological level, the difference between risk and uncertainty is non-existing. Bearing in mind all limitations of measurement and the probability theory, scrutinised in the dispute about the subjective and objective character of probability (Ramsey 1931; Holten 2004) paradoxes of probability<sup>1</sup> and the fundamental barriers of computability (Chaitin 2001), uncertainty and risk seem impossible to distinguish.

This argument can only be strengthened when problems of uncertainty are associated with fundamental physical considerations taken from thermodynamics or upon time and space. The same conclusion can be drawn when a post-modernist (radical constructivist approach) is applied. At this level, risk and uncertainty have the same validity and differences between them that emerge solely as a result of intersubjective discourses in which uncertainty is described as a situation in which the outcome is partially or completely unforeseeable, with some possible outcomes involving potentially negative consequences – as perceived in the moment of utterance.

The second level of analysis exposes the intersubjective approach to risk and uncertainty. Interpretations of present processes are the result of social discourses. In this case, a distinction between objective probability and the Bayesian probability should be considered. Risk can also be determined by culture (Douglas and Wildavsky 1982), or as described in Table 1, risk can even be “fabricated” due to the power game within society. Empirical research on heuristic biases and cognitive aspects

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<sup>1</sup> [http://en.wikipedia.org/wiki/Category:Probability\\_theory\\_paradoxes](http://en.wikipedia.org/wiki/Category:Probability_theory_paradoxes)), retrieved 10 March 2007.

of risk perception can also be included into considerations at this level (Slovic 2000).

The third level of comparison is determined by measurability. However, in addition to measurable risk states, two kinds of uncertainty can be distinguished. The first kind of uncertainty occurs when in theory approximation of probability is possible, but due to the absence of mathematical models, or absence of data, or insufficient computing power, the estimation of probability is limited. Such a situation can be illustrated with the example of weather forecasts. Even if all the consequences of a simplified “chaos theory” are taken into account, it seems reasonable to expect that weather forecasts can be made more precise, but they will obviously never be certain.

The second kind of uncertainty occurs when it is not possible to make predictions with the use of any probability assessment, when the future states cannot be predicted due to their number, complexity or interrelatedness, e.g. a forecast of the fate of a unit – individual, state, company, etc. Sometimes such a situation is called “genuine uncertainty” (Lökvist-Andersen et al. 2004).

On the fourth level, differences between risk and uncertainty are stemming from an additional valuation between those terms. Risk is treated as a negatively valued expected state of future events, while uncertainty is neutral, or at least more neutral than risk. To feel uncertain about the future is neither positive nor neutral, but at least not as negative as feeling in a risky position. The only positive or neutral stance towards the future may occur when one feels certain about the future course of events. In the intersubjective discourse such a course of events can be assessed either positively or negatively.

In this case however, an interesting paradox can be observed. What about a situation when a threat (danger) is, or better to say seems, to be certain (predictable)? This paradox would require further analysis, but the declaration of certainty can be interpreted in such a way that the expectation of a threat allows to make at least some preparations, or to resign. Unpredictable, or worse, unthinkable threats are frequently seen as the most dangerous and damaging ones.

On the fifth level of analysis, differences between the use of the terms risk and uncertainty are defined in a pure arbitrary way. Risk does not always refer only to the avoidance of negative outcomes. For example in the game theory and in finance, risk is only a measure of the variance of possible outcomes and uncertainty in measurement is equivalent to acceptable error.

### 3.2. Definitions of risk

Since risk is defined subjectively, definitions of risk depend on specific applications and situational contexts. In each area of application, the term

risk as a “qualified” aspect of uncertainty has its own characteristics. In a common sense, risk interpretation is related to the expected losses that can be caused by a risky event and to the probability of this event. The harsher the loss and the more likely the event, the worse the risk.

It is difficult to prepare a homogeneous typology of the definitions of risk. They can differ according to their objective or subjective character. Therefore, the typology presented in this paper includes several representative definitions.

### Objective (positivist, quantifiable, probabilistic) definitions of risk

Risk as a measurable category is defined in several ways. In the simplest, “pseudo-mathematical” way, risk is usually presented as a product of hazard, value, vulnerability, capacity, etc. The definitions presented in the table are obviously not always operational, but in many cases they are used as quantifiers for different types of risks.

Other quantitative definitions of risk represent various interpretations of uncertainty and/or losses. It must be underlined that in some cases risk is not always defined as a negative category. Risk in finance is often defined as the unexpected variability or volatility of returns, and thus includes both the potential of worse than expected returns as well as better than expected ones. References to negative risk below should be read as applying to positive impacts or opportunity (e.g. for loss read “loss or gain”) unless the context rules this out.

**Table 2.** Quantifiable interpretations of risk

$\text{Total risk} = \text{Impact of hazard} \times \text{Elements at risk} \times \text{Vulnerability of elements at risk}$ <p>(Blong 1996, citing UNESCO)</p>
<p>“«Risk» is the probability of a loss, and this depends on three elements: hazard, vulnerability and exposure”. If any of these three elements in risk increases or decreases, then risk increases or decreases respectively.</p> <p style="text-align: right;">(Crichton 1999)</p>
<p>Risk = Hazard × Vulnerability × Value (of the threatened area) × Preparedness</p> <p style="text-align: right;">(De La Cruz-Reyna 1996)</p>
<p>“Risk (i.e. ‘total risk’) means the expected number of lives lost, persons injured, damage to property and disruption of economic activity due to a particular natural phenomenon, and consequently the product of specific risk and elements at risk. “Total risk can be expressed in a pseudo-mathematical form as:</p> $\text{Risk}(\text{total}) = \text{Hazard} \times \text{Elements at Risk} \times \text{Vulnerability}”$ <p style="text-align: right;">(Granger et al. 1999)</p>



<p>Risk = Probability × Consequences</p> <p>(Helm 1996)</p>
<p>“Risk is a combination of the chance of a particular event with the impact that the event would cause if it occurred. Risk therefore has two components – the chance (or probability) of an event occurring and the impact (or consequence) associated with that event. The consequence of an event may be either desirable or undesirable (...) Therefore, in some, but not all cases a convenient single measure of the importance of risk is given by:</p> <p style="text-align: center;">Risk = Probability × Consequence”.</p> <p>(Sayers et al. 2002)</p>
<p>“Risk is the actual exposure of something of human value to a hazard and is often regarded as the combination of probability and loss”.</p> <p>(Smith 1996)</p>
<p>“Risk might be defined simply as the probability of the occurrence of an undesired event [but] is better described as the probability of a hazard contributing to a potential disaster (...) importantly, it involves consideration of vulnerability to the hazard”.</p> <p>(Stenchion 1997)</p>
<p>Risk is “the expected losses (of lives, persons injured, property damaged, and economic activity disrupted) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard and vulnerability”.</p> <p>(UN DHA 1992)</p>
<p>Risk as a probability of damages is closely related to hazard occurrence and severity, but also, just as significantly, to numerous other components: the <i>vulnerability</i> of the exposed unit, its <i>capacity</i> to anticipate, resist (<i>resistance</i> or <i>robustness</i>), to face the adverse consequences of the impact (<i>coping</i>) and to adapt, to come back to an acceptable state (<i>resilience</i>). It can be said therefore, that risk is a function of hazard, vulnerability, resistance and resilience – the first two being multipliers of risk, and the last ones dividers:</p> <p style="text-align: center;"><math>R = f(H, V / R_{tce}, R_{lce})</math></p> <p>(Nathan 2007).</p>
<p>“Pseudo” formalisations of risk used to begin with <math>R = H + V</math> (Blaikie and al. 1994), then replaced by <math>R = V \times H</math> in order to show the combination between hazards and vulnerabilities that shape risk. As some scholars have argued that societies also have capacities to lessen risk, the variable C appeared, as in UN/ISDR (2002), p 24: <math>R = H \times V / C</math>. Others (ZEF Bonn 2002, p. 11) have tried <math>V = H - C</math> (coping)</p> <p>(Nathan 2007).</p>
<p style="text-align: center;">Business Continuity</p> <hr style="width: 50%; margin: auto;"/> <p>Disaster Planning formulation of Risk = Threat × Vulnerability × Impact</p>

Source: Kelman 2003; Nathan 2007.

This interpretation can be called “teleological” (from *telos*), as it expresses the relation to goal achievement.

The definition

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability} \times \text{Potential Loss}$$

is similar to the Business Continuity / Disaster Planning formulation of

$$\text{Risk} = \text{Threat} \times \text{Vulnerability} \times \text{Impact}$$

which is also used in some types of security risk analyses.

In statistics risk is often represented as the probability of some event occurring that is seen as undesirable. Usually, the probability of that event occurring and the assessment of its expected harm must be combined into a believable scenario (an outcome), which combines the set of risk, regret and reward probabilities into an expected value for that outcome. This definition can be related to the expected utility concept in economics.

In the statistical decision theory, the risk function of the estimator  $\delta(x)$  for the parameter  $\theta$  that is calculated from the observable value  $x$ , is defined as the expectation value of the loss function  $L^2$ :

$$R(\theta, \delta(x)) = \int L(\theta, \delta(x)) \times f(x|\theta) dx$$

where:

$\delta(x)$  – estimator

$\theta$  – the parameter of the estimator

The means of assessing risks vary widely between professions. They can actually define these professions; for example, a doctor manages medical risk, while a civil engineer manages risk of structural failure. A professional code of ethics is usually focused on the risk assessment and mitigation (by the professional on behalf of the client, public, society or life in general).

Some industries manage risk in a highly quantified and numerate way. These include the nuclear power and aircraft industries, where the possible failure of a complex series of engineered systems could result in highly undesirable outcomes. In these cases, the usual measure of risk for a class of events is where  $P$  is probability and  $C$  is consequence. The total risk is then the sum of the individual class-risks.

A specific definition of risk that cannot be assigned to any of the above groups was proposed by Holton (2004). In his proposal, the definition of risk is built upon the concept of exposure. Risk entails two essential components: exposure and uncertainty, and it can be treated as an exposure to an uncertain proposition.

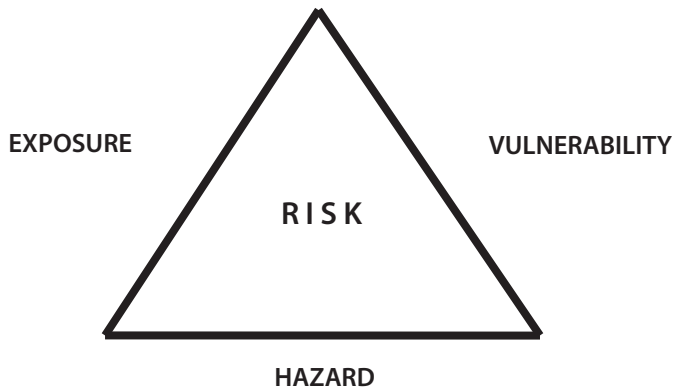
<sup>2</sup> This formula is drawn from the entry “risk” in Wikipedia (<http://en.wikipedia.org/wiki/Risk>), 5 March 2007.

### 3.3. Dealing with risk, hazard, threat and vulnerability

Since dealing with exposure to risk may occur under different conditions – natural disasters, and military, political, economic and social threats, it is necessary to see the relation between the definitions of risk and other negatively assessed circumstances.

The basic vocabulary of risk-associated concepts embodies the following terms: threat, danger, hazard, resilience, robustness, vulnerability, etc.

A detailed analysis of links between the interpretations of those terms and of risk goes beyond the scope of this paper. Crichton (1999) proposed a scheme of interdependence between some of them and a specific quasi-mathematical formula, the so-called “Risk Triangle”.



**Figure 1.** Risk Triangle

Source: Crichton 1999, p. 102.

The links between the elements of the triangle can be represented by the quasi-mathematical equation:

$$\text{Risk (Total)} = \text{Hazard} \times \text{Elements at Risk [Exposure]} \times \text{Vulnerability}$$

Changing society creates a new environment for negotiating. According to some interpretations, understanding risk requires new theories that extend the concept of risk society to a general theory of risk in reflexive modernity. The literature on governmentality and risk refers to Foucault (1991) and his concept of a new style of governance in modernity. In this approach (generally understood as a method rather than a theory), risk is mainly understood as a concept produced entirely by society. There is no outer world, which forces society to respond to risk. Instead risk is understood as a specific way of shaping and controlling populations and governing societies – from the governmentality of risk to the governance of uncertainty (Zinn 2006).

More precisely defined ways of managing uncertainty and risk include such approaches as risk management and risk assessment. Usually, in the risk management process five steps can be distinguished:

- the identification of exposure to loss;
- the evaluation of the loss exposure and available risk management techniques;
- the selection of risk management techniques;
- the implementation of a risk management program;
- the monitoring of the risk management program.

Risk assessment is a step in the risk management process. Risk assessment is the measurement of the two quantities of risk ( $R$ ), the magnitude of the potential loss ( $L$ ) and the probability ( $p$ ) that the loss will occur.

It is worthwhile to mention that risk cannot be eliminated, therefore such concepts as risk acceptance level and risk homeostasis can be proposed. The concept of risk homeostasis proposed by Wilde's (1994) suggests that individuals, and communities and societies as a whole, maintain a specific level of risk irrespective of external influences. If we build walls along rivers and coasts in order to alter the parameters of flood hazard under certain circumstances, we will build more property in floodable areas as a result, we will reduce our preparedness and behave differently, which will increase our vulnerability. The overall risk does not change. Unless the "target risk", the risk we are willing to tolerate or accept, can be altered, external measures do little to reduce total risk over the long-term (Kelman 2003).

#### 4. RISK COMMUNICATION AND RISK NEGOTIATION

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The variety of approaches to risk (probabilist vs. contextualist and objective vs. subjective) bring about an important challenge of how to communicate the attributes of risk circumstances and risk negotiating issues and how the parties involved can agree on their interpretation. Therefore in negotiation it is always necessary to communicate the risk and to negotiate its meaning and potential costs and compensation.

##### Risk communication

In general terms, risk communication is an important factor in the relations between social groups. Risk communication involves a two-way exchange of information, the exchange of meaning, between interested parties in order to make decisions about how to best manage risks. Risk communication can occur in many forms, from providing information to target audiences (primarily one way) to highly interactive stakeholder engagements and citizen dialogue (two-way).

General considerations on risk communication can be used as a point of departure for a preliminary study of risk communication in any discourse. Three types of risk communication can be distinguished:

- from a broadly defined environment to each negotiator;
- between the participants of the discourse;
- from each participant to a broadly defined environment.

Risk communication can be illustrated with an example of communication between the probabilist and contextualist approaches described by Thompson and Dean (1996). It is quite likely that probabilists and contextualists will have rather divergent perspectives on risk communication. Probabilists are likely to think that people generally do not know about probabilities and that they need to know about them in order to have adequate information on risk. Given this starting point, risk communication is largely a process of disseminating information about probability. Contextualists are less likely to approach risk communication with any specific assumptions about what people need to know. For the contextualist, risk communication will be construed as bridge building between discourse communities – between groups that share a particular social context and have evolved patterns for conceptualising and discussing risk within that context.

## Negotiating risk

Negotiating risk should be analysed according to two overlapping approaches. Firstly, due to its dualist subjective-objective character, the parties involved in any negotiation process, including the issue of risk, should firstly and most importantly agree upon their understanding of the meaning of risk that they will apply. In such case, it is the meaning of risk in semantic terms, which is the topic of negotiation.

Secondly, the meaning of risk cannot be analysed in isolation of potential losses and ways to compensate them. Therefore, the process of negotiating the meaning of risk should also include the tangible attributes of risk. The process of negotiating the meaning of risk in which the interests of partners are taken into account has been illustrated by Shrader-Frechette (1990).

The point of departure of reasoning is that assessors who subscribe to the “Expert-Judgment Strategy” assume that one can always make a legitimate distinction between “actual risk” calculated by experts and the so-called “perceived risk” postulated by laypersons. They assume that experts grasp the real, not perceived, risk, but that the public is only able to grasp the perceived risk.

The Expert-Judgment Strategy consists in the belief that risk can either be reduced to some characteristic of a technology, determined only by experts, or that it is possible for experts alone to distinguish “actual risk”, as a property of a technology, from the so-called “perceived

risk” postulated by laypersons. Once they make the distinction between perceived risk and real risk, many assessors assume that the perceived risks by laypeople are the source of most controversy over technology. As a consequence, they ask how to mitigate the impact of the perceptions about risk (perceptions they assume to be erroneous), rather than how to mitigate the impact of risk itself. They assume that public relations, or “risk communication”, are their only problem.

The problem is more complex. If an appropriate risk evaluation strategy means having people negotiate about their alternative definitions of risk and their different value judgments concerning hazard, rather than to simply assess the predictive or explanatory power of their risk evaluations or merely follow the Expert-Judgment Strategy, an obvious question arises. How to negotiate in order to resolve some of the conflicts concerning acceptable risk?

It is also worthwhile mentioning that both in risk communication and in risk negotiation, the role of the prospect theory should be taken into consideration.

## 5. CONCLUSIONS

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It is not simple to draw unequivocal conclusions from this paper, which is aimed at surveying ideas and definitions of risk that are applied in social sciences, economics and finance. Therefore only a few general observations can be made. It can be stated that in all negotiations concerning risk the following issues have to be taken into account:

- The subjective and objective character of risk definitions should always be taken into account in all risk studies in economics, accounting and finance.
- The differences between objective and subjective risk should be discussed much more extensively in the theory of accounting, finance and banking. Technical studies of risk without references to a broader context of its meaning may lead to narrow formal results of limited usefulness.
- Subjective risk is an important determinant of risk communication. While objective risk can be easily communicated with mathematical models, the meaning of subjective risk is created in an intersubjective discourse.

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Paweł Bielawski

# THE THEORETICAL STRUCTURE OF THE ACCOUNTING OF FINANCIAL INSTRUMENTS — AN OUTLINE

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## Abstract

The paper presents the theoretical structure of the accounting of financial instruments based on the objective-means scheme. In the proposed theoretical structure of the accounting of financial instruments the standards are based on the commonly accepted accounting standards that result from the theory and postulates of accounting as well as from theoretical accounting concepts. The accounting theories and postulates and related theoretical concepts include the accounting targets of financial instruments. The accounting targets of financial instruments are the basis for developing a theory. Normative and positive theories, postulates and theoretical accounting concepts as well as the principles – the remaining elements of the theoretical structure of the accounting of financial instruments, act only as a means of achieving the specific targets of the accounting of financial instruments.

## 1. INTRODUCTION

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The increasingly advanced process of globalisation of the world economy is coupled with a greater need for comparable and transparent financial statements, which are fundamental when making economic decisions. The development of financial markets constitutes major challenges to the traditional accounting concepts and financial reporting and

facilitates trading in different financial instruments – which implies the possibility of modelling their risk profile.

Financial instruments cause a lot of controversy in both theory and practice of accounting. The problems related to financial instruments, especially derivatives, include the following:

- balance sheet or off-balance sheet forms of presentation,
- deferred income and too early recognition of profits,
- effective interest rate,
- adjusted purchase price (amortised cost),
- risk and its presentation,
- value estimation based on valuation methods,
- actual and hypothetical cash flows,
- fair value,
- synthetic instruments.

The accounting of financial instruments is most certainly a difficult issue both in the near and more remote future, and the theory and practice of accounting are not likely to offer clear-cut solutions to controversial matters. Such solutions are of special significance to the science of accounting, since the traditional concepts of accounting based on costs and the realisation of income are not applicable when presenting and valuating financial instruments.

The above problems clearly point out the challenges faced by the regulating agencies that set the accounting standards. Is it necessary to adopt a new approach to financial reporting to solve the problem of the specific features of financial instruments? Will the underlying theory reject the principles of financial accounting applied for centuries? Is the accounting model based on fair value that is applicable to all the aspects of financial statements? These questions are fundamental to the theory and practice of accounting because a number of users of the financial statements do not have a proper understanding of the fair value model. Even those who do understand it, are often not fully convinced of its usefulness when generating financial statements based on the historical costs.

The objective of the paper is to present the theoretical structure of the accounting of financial instruments based on the objective-means scheme on the basis of which it is possible to create accounting standards in a logical manner.

## 2. ELEMENTS OF THE THEORETICAL STRUCTURE

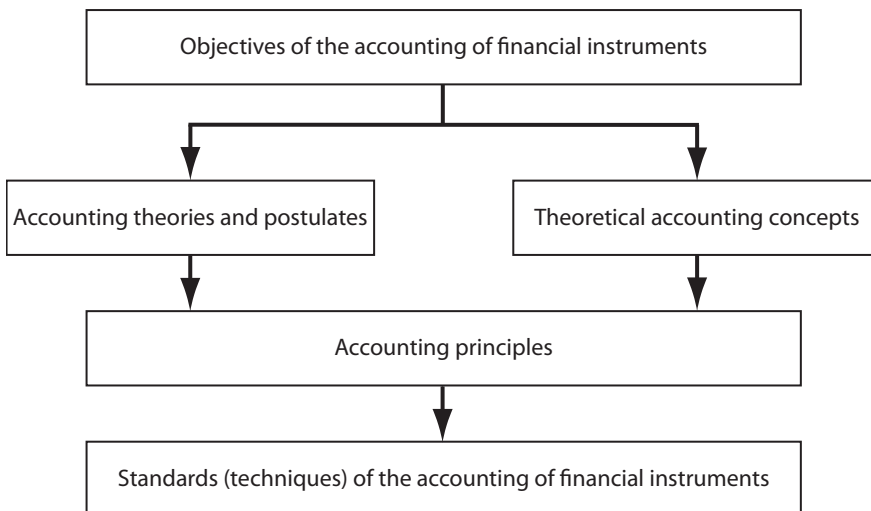
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The theory of the accounting of financial instruments is focused on a set of principles that underline the practice of accounting. This coherent and internally logical set of principles constitutes a general system of reference when examining the nature of the accounting of financial instruments. In the examination of the nature of the accounting of

financial instruments, the creators of positive and normative theories have the same objective – to develop procedures and accounting techniques, in other words accounting standards related to financial instruments, regardless of the fact whether their reasoning is based on deduction or induction and whether they apply the language of pragmatics, syntactic or semantics in creating their theories. Accounting theoreticians are interested in both approaches: the normative one, providing the best way of recording financial instrument transactions in accounting, and the positive one, which examines the basis according to which the interested parties choose a specific solution in a given case related to financial instruments.

The two approaches have contributed substantially to developing and assessing the principles, methods and procedures adopted in accounting. One of the first steps in attempting to understand the classical approach to the accounting of financial instruments is the examination of objectives, assumptions, principles and concepts. The theory of the accounting of financial instruments is defined as a coherent set of logical principles, constituting a theoretical conceptual structure applied in the practice of accounting. The structure of the accounting of financial instruments can be presented in theory and in practice. The theoretical structure of the accounting of financial instruments should logically lead to an empirical structure. The theoretical structure of the accounting of financial instruments is presented in Figure 1.

In the theoretical structure the standards of the accounting of financial instruments are based on the generally accepted accounting



**Figure 1.** The theoretical structure of the accounting of financial instruments

Source: own research.

principles, which result from the theory and postulates of accounting and accounting theoretical concepts. The theories and postulates of accounting and the theoretical accounting concepts include the objectives of the accounting of financial instruments and are based on a logical examination of the environment.

It is of vital importance that the objectives that are to be achieved by the accounting of financial instruments are formulated as one of the economic sciences. The objectives should identify the efforts undertaken by the accounting of financial instruments, leading to the establishment of the accounting standards. When establishing the objectives it should be stated that the accounting of financial instruments, in a similar way to accounting as such, can be considered in terms of science and as an operating system in a specific company. The objectives of accounting are related to those of business activities. All economic systems, including business entities, operate as part of specific “institutions” such as the external environment, ownership, income distribution and the division of labour. These “institutions” have an impact on the motivation and the objectives of business activities. Business entities are created by their owners, who use them to achieve their own objectives through business operations.

### 3. THE OBJECTIVES OF THE ACCOUNTING OF FINANCIAL INSTRUMENTS

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In the economic theory, one of the major concepts is the assumption that business activities result from the efforts made by individuals in order to satisfy their own needs. An activity cannot be referred to as a business activity if its objective is not clearly defined. In the economic science the company’s objective is defined in different ways<sup>1</sup>. In the theory of microeconomics, it is defined in a broader sense (Marciniak 1993), by

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<sup>1</sup> According to the classical theory, the objective of a business entity is to create value (generating profit) in order to satisfy buyers’ needs. The theory assumes appropriate behaviour of the manufacturer and the consumer, i.e. supply automatically results in demand. The neoclassical theory views a business entity as a rationally acting one-person decision-maker who tries to maximise profits and reach the condition of internal balance, i.e. the point of balancing costs and marginal income. According to the behavioural theory, the objectives of every business entity are shared between the owners and the managers. Managers can hold the shares of the entity, while the owners can be the stakeholders, which entitles them to manage the entity. According to the optimisation theory, the objective of a business entity is to maximise revenues from sales, which is the objective of the management, and reach a minimum level of profit, which is the objective of the owners. In the systemic approach, developed by cybernetics, a business entity is viewed as a self-organised system of human, material and financial assets separated from the social and economic environment. Entity resources are interlinked by cause and effect factors, steered by incoming and outgoing information, with the purpose of reaching the desirable condition. See: Samuelson, Nordhaus 1989; Kohler 1992; Friedman 1993; Colander 1994; Dobija 1994; Walczak 1995; Blaug 2000.

partial objectives of the entities inside the company as well as in its surroundings. The company's benefits correspond to the sum of benefits expected by the related entities. More specifically, reflecting a certain consensus of economic sciences in defining business objectives, the company's objective consists in maximising profits, i.e. the difference between revenues and operating costs<sup>2</sup>.

The economic theory assumes that every business entity tries to maximise its profits for the owners' benefit. The maximisation of profits justifies the necessity of agency costs that are incurred by the owners as the costs of matching the agent's costs with those of the owners. The maximisation of costs leads to maximising economic welfare.

If this assumption concerning the objectives of business activities is considered the foundation of the economic theory, the question arises to what extent this is reflected in the accounting theory.

In the first approach to defining the accounting objectives, the attention is focused on the calculation and presentation of net profit resulting from the adopted principles of financial accounting. The concept focused special attention on the process of gathering data and the structure of financial statements. The major problem in the approach that stresses accounting and financial reporting is the fact that the accounting concepts such as net profit, costs and revenues as well as the measure of historical costs are not useful in interpreting the real world phenomena<sup>3</sup>.

In a different approach, which focuses on the measurement and presentation of resources in an economic sense, the objective of accounting and reporting is to provide reliable information concerning the company's economic resources and liabilities. In this approach the major prac-

<sup>2</sup> This is both a short term and a long term objective. The major difference concerns the amount of capital resources involved, which is greater in the case of long term objectives (Czarny, Nojszewska 1997). Nowak, Ryć, Skrzypczak (1998) stress that in the short term the maximisation of profits is accompanied by variable sales costs, which eventually leads to maximising the coverage margin (gross margin). In the long term, a business entity should increase average profits, considering fixed sales costs.

<sup>3</sup> According to Mattessich (1964), an assessment of the accounting system is not possible on the basis of the criterion of maximising the entity's profits. This is due to the following: the objective is not precisely defined, measurement methods in accounting are not accurate and it is not possible to meet the conditions which would make this objective realistic. According to Crandall (1969), an objectively optimal information or accounting system, suitable for every user or group of users, does not exist. This results from the differentiation of the utility functions for different users of the information system. It is therefore not possible to distinguish a specific information system and formulate its individual criterion of effectiveness. It is necessary to apply the optimum criterion for this decision. R. Crandall's reasoning seems to be convincing with regard to Mattessich's criticism. It leads to the conclusion that the maximisation of profits, the ultimate measure of the utility of information that is provided by the accounting system, is incorporated in the maximisation of utility. The maximisation of profits can be regarded as a specific case of the maximisation of utility, without restraining the possible applications of accounting.

tical difficulty is the choice of appropriate items in the financial statement and their measurement. This approach stresses the significance of the balance sheet and the profit and loss account, and the measurement of their components.

M. Moonitz (1961) presents a set of objectives in this approach, which is of vital significance to accounting. The following accounting objectives are defined:

- measurement of resources owned by a business entity,
- presentation of settlements and shares in those entities,
- measurement of changes in those resources, settlements and shares,
- changes referring to specific periods,
- denomination of the above categories and their changes in monetary units.

The presented accounting objectives are descriptive in character – not normative or based on deduction. Those objectives are clearly focused on the balance sheet and profit and loss account, which are used to measure company resources and their changes, constituting the foundation for the financial reporting system based on the present value (Moonitz, Sprouse 1962).

Another approach to accounting objectives focuses on financial reporting. Financial reporting is viewed as a more complete science than financial accounting as it includes supplementary information. Financial reporting does not only include financial statements but also other means of providing financial and non-financial information. According to this concept, financial reporting should be crucial when making economic decisions by its users. This user oriented approach was the basis for developing the conceptual assumptions of FASB – the Financial Accounting Standards Board in the USA<sup>4</sup>.

The objective defined in this way leads to two significant conclusions. Firstly, financial reporting should provide useful information to investors, creditors and other parties. This will facilitate the assessment of the amounts, timeliness, and the extent of uncertainty of future net cash flows in a given business entity. Secondly, financial reporting focuses on the company's financial results presented in terms of profit and its

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<sup>4</sup> The starting point for the conceptual assumptions was a report by the Study Group on Objectives of Financial Statements headed by Trueblood. Trueblood's report included 12 objectives of financial statements and 7 quality features of information included in financial statements aiming to satisfy the user's needs. According to the report, the basic objective of financial statements is to provide useful information for making economic decisions (Report of the Study Group on the Objectives of Financial Statements 1973, p. 13). The report became the basis for two FASB conceptual assumptions (SFAC no. 1, SFAC no. 2), namely: the objectives of financial statements of profit oriented companies and the quality features of financial information. See: Kam 1990; Dobija 1996; Riahi-Belkaoui 2000; Hendriksen, Van Breda 2002.



components. It implies that the measurement of the financial result in the profit and loss account should be put above the valuation of the assets and liabilities in the balance sheet.

The critical argument in this approach concerns the choice of users who should be taken into consideration in the process of financial reporting. Different groups of users can use financial reporting for very different purposes. The following question may also be posed: how similar are the objectives of different user groups? (Bearing in mind that the assumption that the users have common objectives has been questioned). The users of information that is provided by accounting are not uniform and their different needs pose problems for the institutions that regulate the practical use of accounting<sup>5</sup>.

The objective of accounting, regardless of which of the presented approaches (syntactic, semantic, or pragmatic) is adopted to define its objectives, is to measure the results of business activities. Attempts to present business activities in a measurable way have been made in accounting for quite a long time. It was not until last century however, that the accounting theory was combined with the theory of economic measurement. The same views on this matter were presented by Ijiri and Mattessich. Ijiri (1967) stresses that accounting is a science of measuring, focusing on the system of economic measurement, and that its development is dependent on the understanding of the results of the measuring processes. According to Mattessich (1964), accounting is a theory based on the quantitative description of economic parameters that are characteristic to the economics of a given business entity. The quantitative measurement of a company's economic performance is one of the major objectives of accounting. Acceptance of this view would imply that the fundamental objective of accounting in theory and in practice is the measurement of economic performance<sup>6</sup>.

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<sup>5</sup> Different concepts of the user-oriented approach are presented in: Demski 1974; Dopuch, Sunder 1980; Anthony 1983; Beaver 1989; Kam 1990; Wolk, Tearney 1997; Riahi-Belkaoui 2000; Hendriksen, Van Breda 2002.

<sup>6</sup> Burzym (1980, p. 6) stresses that the objective of accounting is to get to know and describe the economic reality in terms of figures and that the complete picture of such a reality can and should describe it in terms of its resources and the occurring changes as well as from the point of view of economic processes and their results. Peche rightly observes (1973, p. 55) that the entire powerful system of accounting records is, in fact, subjected to one objective – the correct settlement of the financial result in the short term. Jarugowa (1993, p. 23) presents the development of the science of accounting and states that accounting has long been used in the measurement of property, result and its distribution. Dobija (1994, p. 25) defines accounting as a system that aims to make the measurements of economic indicators realistic in compliance with theoretical assumptions. Apart from economic objectives (maximisation of profits or future net cash flows), many writers suggest considering a wider scope of objectives including social, ecological and prestigious ones. See: Burzym 1993; Mattessich 1995.

If the above approaches constitute the basis of the accounting theory, a question could be posed as to the objectives of the accounting of financial instruments.

The users of information that is provided by accounting in a free market economy are different but they can have the common objective of projecting future cash flows. The users that are directly interested in a business entity expect that it will have the ability of generating positive cash flows on the basis of the available financial instruments. Their decisions are related to the amount, timeliness and uncertainty of the projected cash flows. A business entity should therefore strive to maximise the value of future cash flows that are generated from the available financial instruments. The objective of the accounting of financial instruments is to measure the value of projected cash flows generated by financial instruments. The measurement of the expected cash flows in a given business entity, registered and presented by its accounting system, should provide information that facilitates the process of making rational economic decisions for all the users.

The introduction of a new approach to accounting involved the incorporation of social objectives into the accounting of business entities – social responsibility. Such objectives are also achieved through financial instruments. Firstly, from the point of view of society as a whole, financial instruments are applied in risk management. Secondly, trading in financial instruments provides society with information on the value of specific assets as well prevailing economic trends. Such information contributes to increasing general welfare, resulting in a more effective allocation of resources (Kolb 1993; Mattessich 1995).

According to Feltham (1968), the total expected payoff function, which represents the difference between cash flows with the use of the information system and the cash costs of maintaining that system in a given period of time, is the best way of measuring the effectiveness of a given accounting system. The total expected payoff function depends on the following:

- the expected payoff in a given period, based on the events of the previous periods,
- the sum of expected cash flows in future periods as part of the investigated period and the probability of the occurrence of specific events,
- the probability of the occurrence of specific events provided that the decision maker takes action on the basis of the obtained information.

The total expected payoff function is the sum of the function values of the particular periods calculated starting from the last period. The cash flow considered in the measurement function is characterised by the fact that it is directly related to a given event. The expected payoff function is determined by a set of events, which have a major impact

on its value. Less significant revenues and costs can therefore be disregarded.

Events should have the following characteristics:

- accidental (random) relations can exist between the events in given sub-periods, so the probability of the occurrence of a given event is conditional,
- in the case of an incomplete probability distribution it is necessary to seek additional and updated information based on the statistical methods of distribution revision. However, in such case the existing accounting system must include information on probability distribution before additional information is obtained.

The accounting system, apart from the phase of preparing financial statements (frequently identified with accounting), includes the earlier periods of assessment and registration as well as the phases of the later interpretation and material assessment of the action taken based on this interpretation. The results of the user's activities constitute the function of the effectiveness of the accounting system. In the long run, this is reflected in the level of the user's satisfaction. The individual character of the usability function requires the retention of different measuring methods, as different methods can be applicable for a given usability function.

According to Drury (1995), a business entity should maximise the current value of future net cash flows for the following reasons:

- it is the most precise measurement of objectives in the accounting theory,
- it makes it possible to determine the value of alternative objectives from the point of view of the entity's owner,
- it is possible to determine the impact of the agent's decision on the owner's capital contribution<sup>7</sup>.

It should also be noted that maximising cash flows is a business objective that is accepted by the theory of finance (see: Copeland, Weston 1992). In view of the above, this objective is a certain consensus in the economic sciences related to finance management, which complies with the interdisciplinary approach to problem solving in contemporary science.

It can be concluded from the above that the fundamental objective of the accounting of financial instruments is to measure the value of the expected cash flows generated by financial instruments. Considering

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<sup>7</sup> Drury (1995) stresses that the total profit in a given period of business operations equals the net amounts of incoming cash. Profit calculated for a given accounting period will be different from the net amounts of incoming cash in this period. The difference between profit and cash inflows in a given period results from accrual financial accounting. Dechow (1994) and Healy, Wahlen (1999) note that net cash flow projections on the basis of net profits are less erroneous than net cash flow projections based on current net cash flows.

the theory of the accounting of financial instruments, assuming that cash flows are the difference between cash-in and cash-out amounts, one might ask the following question: what cash flows are generated by financial instruments?

In general terms, financial instruments generate two types of cash flows:

- deterministic (non-random) cash flows,
- non-deterministic (random) cash flows.

More specifically, four types of cash flows determined by financial instruments can be identified:

- deterministic cash flows occurring in one period or a number of periods. Financial instruments that generate such cash flows are analysed from the point of view of different interest rate concepts,
- non-deterministic one-period cash flows, comprising cash flows at the beginning and end of the period. One-period uncertain cash flows relate to the financial instruments possessed by a business entity from the time of their purchase to the time of selling them. The analyses of such cash flows are based on the theory of probability,
- non-deterministic multi-period cash flows that are directly related to the value (price) of other financial instruments. Derivative instruments generate cash flows that are functionally dependent on other financial instruments. The properties of derivatives can then be specified on the basis of the financial instruments. An analysis of derivatives leads to the determination of significant values – theoretical prices,
- non-deterministic multi-period cash flows that are not directly related to the value (price) of other financial instruments. Most financial instruments generate uncertain cash flows in a number of periods.

The above specified objectives of the accounting of financial instruments are the fundamental elements for developing a theory. The remaining elements of the theoretical structure are merely a means to achieve the adopted objectives of the accounting of financial instruments. Theories and postulates are the first steps in achieving the fundamental objective, i.e. the value of the expected cash flows generated by financial instruments.

#### 4. THE THEORIES AND POSTULATES OF THE ACCOUNTING OF FINANCIAL INSTRUMENTS

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An outline of the two basic research trends in the accounting of financial instruments distinguishes 3 fundamental areas of a priori research and 5 fundamental areas of empirical research.

The three a priori areas include:

- the general theory of the accounting of financial instruments,
- valuation theories,
- research in the scope of objectives, postulates and principles, which constitute a theoretical basis for setting the relevant accounting standards.

Empirical research includes the following approaches:

- descriptive and comparative (domestic, international), which consists in presenting and comparing financial instrument standards,
- behaviour oriented,
- capital market oriented,
- oriented on the projected values of financial statements,
- decision related significance.

In line with the assumed fundamental objective of the accounting of financial instruments, i.e. the measurement of the expected payoff, attention should be given to valuation theories. The valuation process in accounting consists in matching measurement units with objects or events that are related to a business entity. The measurement unit assigns the features of a specific object to the number that represents a specific value. The fundamental value measurement in accounting is a monetary unit, which results from the principle of nominalism. It states that accounting deals only with those events that can be measured and presented in monetary terms. It makes it possible to obtain information that, depending on the situation, can be subjected to aggregation or disaggregation. In the accounting of financial instruments the objects are financial assets, financial liabilities and capital instruments, while the events represent the process of the exchange of instruments between business entities.

In financial accounting the measurement issues are related to the general theory of accounting, i.e. the question of the use of measurement (the general theory of measurement) including axiomatisation and the application of different basic concepts of valuation but maintaining the possibility to use more detailed methods. It can generally be stated that value measurement issues, measurement units and scales, measurement features along with the axiomatic approach to the use of measurement are all fairly well developed theoretically in the science of accounting. However, in the case of the valuation theory and the use of more detailed methods, some problems occur due to the fact that measurement operations are carried out within specific accounting systems. In accounting there is a basic problem of making the choice between the historical and the present costs. The choice of the historical costs implies that preference is given to the measurement of profit (revenue-cost approach) and the profit and loss account. The choice of the present costs, on the other hand, gives priority to the balance sheet, favouring the asset-liability approach.

In the case of the accounting of financial instruments this is the choice between valuation theories based on values and costs including the present cost. This can, as confirmed by the theory and practice of accounting, lead to a change of the general concept of the historical costs in favour of fair value as the basis for drawing up financial statements. In the case of financial instruments, one ideal concept for assessing the financial status and profits does not exist. The process of assessing financial instruments is based on a number of theories and detailed methods developed by the science of accounting. Additionally, apart from the accounting concepts, in the absence of a liquid and active market facilitating the use of the *mark-to-market* method (valuation based on the market value or fair value), the *mark-to-model* method is applied, which is hypothetical and probably does not reflect any market transactions. The indicators that should be considered when choosing valuation methods include the following: the stability of balance sheet items, flexibility and the possibility of monitoring the results (profit and loss) as well as risk. The choice of the valuation concept consists in applying an appropriate measurement method for a given financial instrument under specific economic circumstances and therefore not in choosing a specific measurement method.

The accounting of financial instruments distinguishes two fundamental value measures – namely the concepts related to:

- cost,
- value.

In general terms, on the basis of those two concepts the following approaches to the valuation of financial instruments can be distinguished<sup>8</sup>:

- historical cost,
- current purchasing power or historical exchange value,
- replacement cost,
- realisable value,
- present value,
- market value,
- fair value,
- cash flow value.

These concepts make use of detailed valuation methods as well as approaches to estimating financial instruments based on models and comparisons. It should be stressed that there is a possibility of choosing one valuation concept and applying it as a part of another concept, i.e. the use of mixed models commonly applied in practice.

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<sup>8</sup> See: Hendriksen 1982; Lee 1984; Kam 1990, Glautier, ; Underdown 1991; Belkaoui 1993, Dobija 1995, Scott 1997; Wolk, Tearney 1997, Schroeder, Clark, Cathey 2001; Hendriksen, Van Breda 2002.

Descriptive and comparative research focuses on presenting differences and similarities with respect to the content and the form of financial statements, valuation methods and the ways of book registration of financial instruments in accounting standards. Such research concerns the standards of particular countries, regional regulations or international standards. In this context the examination of financial instruments constitutes an integral part of international accounting.

The fundamental objective of behaviour oriented research is an attempt to present the decision making process on the basis of information obtained from the accounting of financial instruments. Research focuses on the response of an individual user to information obtained from the accounting system. Scientific research concerns subjectively useful information in the decision making process, the decision related usefulness of accounting that is viewed as a behavioural process and the predictions and explanations of the individual behaviour of business entities in the context of the accounting of financial instruments.

Capital market oriented research examines the impact of information on the aggregated behaviour of capital market participants. The analysis focuses on the market's response to publicly presented information on financial instruments. This trend in research aims to explain, on the basis of hypotheses and financial theories, what factors have an impact on the changes in the values of financial instruments in a given business entity. Research is conducted on the basis of the effective market theory, CAPM, APT and a number of other financial instrument valuation models.

Research into the projected values of financial statements concerns the usefulness of information on financial instruments in forecasting corporate expansion. This approach also specifies the role of quantitative and qualitative information in assessing expansion prospects for business entities. The research focuses on forecasting the prices of financial instruments, cash flows, dividend amounts as well as modelling and forecasting the changeability of financial time series.

The last research trend deals with the decision related significance of the information presented in financial statements. Research concerns both quantitative and qualitative information. Studies of the significance of financial information are an important component of the analysis of behaviour and capital markets. Research studies representing this trend also verify the hypotheses regarding the extent to which changes in standards in the accounting of financial instruments influence the decisions of investors. In this case the investigated areas usually include the results of changes in valuation methods, changes in the amortisation of long term investments and in financial reporting standards.

Considering the role of information concerning financial instruments in financial statements, special attention should be given to its applicability to the decision making process. Professional literature does not

offer clear-cut answers to the question: what features make information applicable to the decision making process? (see: *Framework for the Preparation and Presentation of Financial Statements* 1989). Accounting offers the *true and fair view* (TFV)<sup>9</sup> concept, but it is understood intuitively and without an accurate definition (see: Gmytrasiewicz, Karmańska, Olchowicz 1996; Surdykowska 1999). The concept of the true and fair view of a business entity refers to its financial statements. It implies the true and fair presentation of the entity's reality through information included in the financial statements.

There seems to be one fundamental postulate in the accounting of financial instruments, which can be formulated as the necessity of a *fair view* in the relations with all users of the economic community. This postulate can be defined as a true presentation of information on financial instruments in financial statements. A true presentation requires a fair picture of cash flows that is generated using financial instruments in a business entity. This postulate is a fundamental assumption related to the economic, political and sociological environment in which the accounting of financial instrument functions. Its interpretation is based on the assumption that accounting standards that are related to financial instruments define minimum and not maximum amounts of information disclosed to the users of financial statements by a business entity. This postulate should be a foundation when formulating the principles of the accounting of financial instruments.

## 5. THE THEORETICAL CONCEPTS OF THE ACCOUNTING OF FINANCIAL INSTRUMENTS

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The other components of the theoretical structure of the accounting of financial instruments include theoretical accounting concepts. Three systemic approaches are defined in financial accounting (see: Fischer, Taylor, Leer 1986; Belkaoui 1993; Dobija 1996):

- proprietary theory,
- entity theory,
- fund theory.

The presented theories can be referred to the accounting of financial instruments based on the definition of a financial instrument. It can be inferred from the definition that the construction of a financial instrument is based on the financial asset, the financial liability and the capital instrument.

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<sup>9</sup> The British concept of *true and fair view* is entirely consistent with the American concept of *fair*, where the definition is also based on intuition.



According to the proprietary theory, a business entity is defined as an agent, a representative, or a middleman through whom entrepreneurs or shareholders carry out their operations. This approach focuses on the analysis of the property net value, which is reflected in the fundamental equation of the accounting of financial instruments:

$$\text{Financial assets } (A_F) - \text{financial liabilities } (D_F) = \text{Property } (E),$$

or

$$\text{Financial assets } (A_F) - \text{Financial liabilities } (D_F) = \text{Capital } (E)$$

The proprietary theory does not separate the owners from a business entity. The lack of such a separation calls for a proper manner of maintaining records and preparing financial statements.

The entity theory distinguishes and separates an entity from its owners – the suppliers of capital. The capital structure of an entity is divided into the shareholders' capital and the lenders. It is the economic entity that owns financial assets and has obligations towards the owners and lenders. The fundamental equation in the accounting of financial instruments is as follows:

$$\text{Financial assets } (A_F) = \text{Capital } (E) + \text{Financial liabilities } (D_F)$$

The basic objective of the entity theory is to generate cash flows from financial instruments in order to benefit all entity „investors”, both the stockholders/shareholders and the lenders.

The fund theory views a business entity as a group of financial assets interlinked by restraints and liabilities which are referred to as „fund”. The fund theory concentrates on financial asset management in accordance with the accepted liabilities and restraints regarding their use. This is expressed by the fundamental equation of the accounting of financial instruments:

$$\text{Financial assets } (A_F) = \text{Restrictions on financial assets.}$$

## 6. THE PRINCIPLES OF THE ACCOUNTING OF FINANCIAL INSTRUMENTS

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Accounting principles should be based on the theory, postulates and theoretical concepts of the accounting of financial instruments. The commonly accepted accounting principles of financial instruments include the following<sup>10</sup>:

- money measurement,
- entity,
- going concern,
- historical cost,

<sup>10</sup> See: Anthony, Reece 1989, p. 468–471; Dobija 1996, p. 175–178.

- dual aspect,
- accounting period,
- conservatism,
- realisation,
- matching,
- consistency,
- materiality.

The above listed accounting principles determine the methodology of accounting measurements, creating a general framework for financial instrument standards. The accepted principles imply that this is an example of accrual accounting and not cash accounting. Compliance with the accounting period principle, the realisation principle – a way of identifying revenues, and the matching principle along with the consistency principle determine the existence of receivables and payables, deferred income and accrued expenses and reserves – the foundation of accrual accounting.

## 7. CONCLUSIONS

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The objective of the paper was to present the theoretical structure of the accounting of financial instruments based on the objective means scheme. The proposed theoretical structure of the accounting of financial instruments should lead to constructing an empirical structure. Firstly, in the practice of accounting it is important to solve the problem of financial instrument valuation by answering the question as to when an appropriate method should be applied for a specific financial instrument. This dilemma does not concern the choice of a specific method but the time at which an appropriate method should be used. Secondly, the choice of a valuation method has a direct impact on the book registration of a financial instrument in the accounts. Thirdly, the manner of the book registration of a financial instrument determines the principles of its presentation in financial statements.

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# CREATIVE ACCOUNTING IN THE ASPECT OF POSITIVE ACCOUNTING THEORY — THE POLISH PERSPECTIVE

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## Abstract

Creative accounting became a socially well recognized phenomenon. It has become a critical issue in the aspect of informative role of financial accounting. Its perception has been evolving over the last decade very significantly, especially in the countries of continental accounting traditions after IFRS implementation. This paper summarizes how the understanding of its role, impact on the market and other attributes such as legal or ethical aspects were changing in Polish perspective. In the meantime the normative dimension of accounting has changed significantly in continental countries. The author analyses its impact on possibility of creative accounting usage. In his opinion, implementing IFRS into European common platform of accounting did not change the legal (normative) perspective of creative accounting.

## 1. THE HISTORICAL PERSPECTIVE OF THE PROBLEM

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Right from the moment Poland got back its political and economical independence in 1989, the role of accounting started to change rapidly. As soon as it had evolved from administrative slavery for the state towards the economical attitude (along with the implementation of the 4th EU Directive into Polish Act on Accounting in 1994), the new dimensions

of accounting were being (re)discovered. At first the impact of German accounting literature had created the tendencies in Polish accounting literature and practice, placing Polish accounting in the group of Continental “models” of accounting. It lasted for a whole decade, until 2000 when Polish accounting regulations had shifted significantly towards Anglo-Saxon philosophy of accounting.

It gave birth to a number of conflicts, misunderstandings and dilemmas resulting from the lack of convergence between Continental and Anglo-Saxon view on accounting – let us call it philosophy of accounting in general. The problem was especially meaningful in case of different understanding of phenomena called in Anglo-Saxon countries *creative accounting*, and in German language countries *balance sheet policy* (*die Bilanzpolitik*). Additionally, we implemented in accounting regulations the term of *accounting policy* adopted from IAS, which additionally magnified the terminological misunderstandings.

## 2. CREATIVE ACCOUNTING VS. BALANCE SHEET POLICY

The term of *balance sheet policy* was implemented into Polish literature and practice of accounting at the beginning of 90s of the last century directly from German practice of accounting. Along with the term itself, its understanding and views on its role and its features were adopted. In the majority of cases Polish literature sources adopted definitions proposed by: G. Wöhe, G. Sieben, M.J. Matschke and E. Köning (Table 1).

**Table 1.** The German definitions of *balance sheet policy*

Source	Quotation
G. Wöhe, <i>Die Handels-und Steuerbilanz</i> , Monachium 1990	„(...) all consistent with law entity’s decisions, which are supposed to influence presented in balance sheet: assets, liabilities and income, so that the entity’s business purposes were optimized. The medium of this policy is making use of legal provisions allowing the subjective judgment or granting the choice between the different methods accepted by the law”.
G. Sieben, M.J. Matschke, E. Köning, <i>Bilanzpolitik</i> , Stuttgart 1981	„(...) all enterprises undertaken during the financial year and during the preparation of the closing statement (for the balance sheet is being systematically created), which are supposed to influence the assessment made by the recipient of the financial statement and make him act in the way needed by the management”.

Sources: Sawicki 2001, p. 25; Webber, Kufel, Cebrowska 1993, p. 182.

Concluding above statements, it is clear that *balance sheet policy* is perceived as a fully legal, useful and ethically neutral business tool supporting management actions. Moreover, it has been highlighted in the literature that in order to optimize the results of operational policy, management should not resign from using it. The authors dealing with this subject agreed that all companies in Germany were using balance sheet policy, and this thesis was supported by extensive research.

This understanding of balance sheet policy was fully adopted by Polish authors and as a result by most of accountants in Polish reality. The idea of instrumental usage of financial reporting was then reborn after more than 50 years lasting period of not informative purpose of accounting (since the World War II up to 1989 accounting was used only for the statistical or fiscal purposes).

In the 90s the IAS became a leading trend in European accounting. As Poland launched the process of its accession to EU in the late 90s, the revolutionary adoption of the elements of Anglo-Saxon accounting in general became a fact. Along with this process the terms such as *creative accounting*, *accounting policy* or *aggressive accounting* found their way to be an element of Polish reality. But the implementation of *creative accounting* created more terminological chaos than anything else.

In the beginning, the term itself was causing the dubious impressions. Some believed it was contradictory to a mission that accounting and reporting had. They claimed that “to create” meant to make something out of nothing. Therefore, in common understanding the term creative accounting was considered to be pejorative description of illegal actions performed by some accountants. It should not be a surprise analyzing the Anglo-Saxon literature sources (Table 2).

The perception of *creative accounting* in British reality (though we could expand it to all Anglo-Saxon world) has several dimensions. First of all, it consists of an *apriori* – an assumed judgment that it is a negative (dark) side of accounting as a profession. There are several reasons given for that:

- the motives – management has unfair motives of using it,
- ethical dimension – it is stressed that it stays in conflict with informative role of financial reporting, especially with qualitative features of financial information as they are defined in IFRS,
- legal dimension – authors assume that using it breaks legally bounding accounting standards/provisions.

The second dimension refers to the fact that it is perceived as a phenomenon commonly present in the real business. And the most frequently expressed judgment says that it is not possible to eliminate it anyhow.

Table 2. British understanding of *creative accounting*

Source	Author's perspective	Quotation
I. Griffiths, <i>Creative Accounting</i> , Sidgwick & Jackson, London 1986, s. 1	a business journalist	„Every company in the country is manipulating its profits. Every set of published accounts is based on books which have been gently cooked or completely roasted. The figures that are fed twice a year to the investing public have all been changed in order to protect the guilty. It is the biggest con trick since the Trojan horse... In fact this deception is all in perfectly good taste. It is totally legitimate. It is creative accounting”.
M. Jameson, <i>Practical Guide to Creative Accounting</i> , Kogan Page, London 1988, s. 7–8	accountant	„The accounting process consists of dealing with many matters of judgment and of resolving conflicts between competing approaches to the presentation of the results of financial events and transactions... this flexibility provides opportunities for manipulation, deceit and misrepresentation. These activities – practiced by the less scrupulous elements of the accounting profession – have come to be known as «creative accounting»”.
K. Naser, <i>Creative Financial Accounting: Its Nature and Use</i> , Prentice Hall, Hemel Hempstead 1993, s. 2	academic	„Creative accounting is the transformation of financial accounting figures from what they actually are to what preparers desire by taking advantage of the existing rules and/or ignoring some or all of them”.

Source: Blake, Amat and Dowds 1998, p. 24–25.



Since the moment creative accounting has appeared in Polish accounting it started a massive confusion in several aspects. It is represented by questions:

- is it the same as balance sheet policy?
- should we recommend it or condemn it?
- is it legal or not?
- what is its impact on the role of accounting?
- is it as ethically dubious as British say?

According to the author's opinion, none of the above questions were given the satisfactory and full answers up till now. Although most of authors took the British point of view on the issue, it is not perceived negatively by all members of accounting profession especially by the accountants themselves.

We could admit that the terminological evolution has developed further on. There is a quite often expressed view according to which we have to deal with two phenomena: *creative accounting* and *aggressive accounting*. This distinction is expressed by authors of the subject and it is also present in business society (managers and bankers). The meaning of *creative accounting* is being narrowed down to the scope of actions that are undoubtedly legal according to the maxim: *that which is not forbidden, is permitted*. In this case there is no place for analyzing the ethical aspect of this problem. The author will continue this issue in the next paragraphs. Whereas *aggressive accounting* is considered to comprise actions taken to manipulate the financial statement brutally regardless of the legal provisions.

In this case German *balance sheet policy* and English *creative accounting* mean the same range of actions taken for the same purposes. If we separate the described actions from their assessment (which is an element of quoted definitions of creative accounting), we will have exactly the same definition.

### 3. OTHER TERMINOLOGICAL PROBLEMS

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IAS-1 and IAS-8 contain "recommendations" concerning disclosures of the accounting policy, as the determinants for relevance of the reporting information for external users. In this place numerous questions and controversies arise among others whether the balance sheet policy is a legal category to which the Accounting Act refers directly or an economic category serving as a tool for managing a business entity or, perhaps, an ethical category – a pejorative term used to describe the practices adopted for drawing up financial statements or maybe it comprises all these terms? Furthermore, there comes another question about the relation' if any, between the following terms: *balance sheet policy*, *accounting policy*, *accounting standards* and *creative accounting*.

Also the issue of attributes of the *balance sheet policy* requires explanation. Subsequent questions appear: which of the attributes ascribed to it in the literature can be justified in the light of the binding regulations of the balance sheet law (dualism, usefulness, (il)legality, common occurrence, (lack of) conflict with ethical standards, (lack of) a possibility of identifying it, limitations, ambivalence), are these attributes absolute and universal or maybe they depend on specific circumstances resulting from practice (such as legal regulations, tradition, economic factors) and evolve as these circumstances change.

Analysing the problem mentioned above it should be noted first that the terms *balance sheet policy* and *accounting policy* are considered equivalent, which has already become a rule in Polish literature on the subject and can be illustrated by the quotations shown in Table 3 and Table 4.

The above examples illustrate the fact that in the literature on the subject the terms *accounting policy* and *entity's accounting standards* as well as commonly binding provisions in a given country (as absolutely binding) and codified in legal norms are considered equivalent.

**Table 3.** Interchangeable use of the terms *balance sheet policy* and *accounting policy* (selected examples)

Source	Quotation
Sawicki 2001, p. 23	“In the literature written in English a term «accounting policy» is used, while in the literature written in German – «balance sheet policy»”.
Cebrowska 2002, p. 14	“Such understanding confirms as well the literature on this subject, in which balance sheet policy is another term for accounting policy (...)”.
Schweitzer 2001, p. 160	<p>1. <b>Policy in the scope of reporting</b> is the focus of the positive theory of accounting. If the statement that the standards of <b>this</b> policy, not related to cash flows, have no influence on investors' decisions is right, it is necessary to consider why a specific <b>balance sheet policy</b> is adopted and what decides about its shape.</p> <p>2. At the level of a company the starting point for formulating hypotheses is the “process of developing the <b>accounting policy</b>”, which consists of making decisions by the management board with regard to alternative solutions (...)” (bold marking by M.K. and W.H.)</p>
Szmerekietta 1999, p. 61	“(...) another term for «accounting policy» is the term «balance sheet policy»”.

Source: own study on the basis of literature on the subject listed above.

Taking into consideration the transitivity concept binding with regard to the logical identity relation, we could also identify the following relation: *accounting standards = balance sheet policy*. Of course, it does not stay in line with the author's view on the issue. If we assume the above relation is true, numerous questions and controversies arise in the ground of Polish accounting law:

- I. **Is there an obligation to adopt the balance sheet policy?** – pursuant to the provisions of art. 4 of the Accounting Act, entities are obliged to adopt the accounting standards as specified by the act

**Table 4.** Use of the term *accounting policy* for the purpose of *accounting standards* (selected examples)

Source	Quotation
IAS 1994, p. 67	“(…) principles, rules, methods, conventional arrangements and procedures adopted by the company’s management for drawing up and presenting financial statements”.
Accounting Act, art. 3, item 1, par. 11	“(…) solutions selected and adopted by the entity, appropriate for its activity, permitted by statutory provisions and ensuring the required quality of financial statements”.
Brzezina 1995, p. 33 see also: Sawicki 2001, p.20	“In D. Bradley’s opinion the accounting policy in Great Britain is predominantly based on the substance over form principle (...) while in Continental Europe, except for the Netherlands, the accounting policy places emphasis on the primary role of the state authorities and it is reflected in the binding charts of accounts, or, in a broader sense, in the willingness to regulate accounting standards through the provisions of law”.
Brzezina 1995, p. 32	“(…) change of the economic system in Poland required modification of the accounting policy in the first place (regulations on the standards for keeping the accounts, charts of accounts)”.
Sawicki 2001, p. 21–22	“During the selection and application of the suitable accounting policy and during the preparation of financial statements the company’s management should observe three rules (...)”. And “The accounting standards (policy) adopted by the entity have to be applied on a continuous basis (...)”

Source: own study on the basis of literature on the subject listed above.

(absolutely binding or provided as variants). Moreover, these standards have to be applied on a continuous basis (art. 5 item 1). Thus, a business entity which is subject to requirements of the Accounting Act has to adopt and apply “some” standards. This leads to the following conclusion: **a business entity always pursues “some” balance sheet policy because the Accounting Act imposes the obligation of pursuing it.** Such a point of view is confirmed by the literature on the subject (Cebrowska 2002, p. 18). This reasoning raises, however, some justified doubts, if definitions of *balance sheet policy* (and not *accounting policy*) referred to in literature on the subject (presented in the further part of this paper), emphasising its instrumental and agitating nature (Sawicki 1996, p. 10) and (Webber, Kufel 1993, p. 183), will be considered in the light of the requirement to present the true view of financial position (art. 4, item 1 of the Act on Accounting) and the neutrality (impartiality) feature of the reporting information.

- II. **Should the balance sheet policy be documented?** Article 10 imposes the obligation to possess (and update) the documentation describing the *accounting standards (policy)*. When this obligation is linked to *the balance sheet policy*, the question occurs: *how to document utilisation of the balance sheet policy tools?* Taking into consideration their quantity, diversity and, foremost, their character, it is not possible to document all tasks performed in the scope of the balance sheet policy and in particular, the tools of the material *balance sheet policy*. Only its effects can be subject to documentation (that is business events resulting from its usage) and not the *balance sheet policy* itself. Let us consider an example, when management gives up activating the costs of research and development activity (in the situation when legal requirements allow capitalization of those costs). The goal of this activity could be to reduce the profit subject to distribution. If this decision is reflected in books and in financial statements, there must exist the source documentation being the basis for accounting entries. This way we have documented the results of such decision. However, it is difficult to agree that it forms documentation of the balance sheet policy (creative accounting). Documentation of the balance sheet policy would require reflecting not only the effects, but also the premises and the goals of taken decisions and actions. It is difficult to imagine how this condition could be fulfilled.
- III. **Should the balance sheet policy be disclosed?** Art. 48, item 1 of the Accounting Act constitutes the requirement for disclosing the adopted accounting standards (policy) in the *introduction to the financial statement*. Taking into consideration the essence of the balance sheet policy (creative accounting), it is difficult to determine the range of disclosure in this area. In particular, it is difficult to

imagine the manner of disclosure of some tools of balance sheet policy. In the literature the balance sheet policy is recognised as the most important barrier of its effectiveness. In connection with that: *tasks identified by the addressee of the year-end closing as the means of the balance sheet policy, not only lose their significance, but in the worst case they achieve the reverse of what was intended to be achieved by means of them* (Webber, Kufel 1993, p. 193). Therefore, it would make no sense to make a balance sheet policy and disclose it at the same time.

Any attempt to answer above questions exposes the terminological chaos existing in this range in accounting literature and practice in Poland. It results from the gaps in the Polish contemporary accounting science in the scope of precise terms definitions and considering their reciprocal relations. It is a clear and obvious consequence of a unique mixture of Anglo-Saxon terminology influence onto Continental traditions of accounting. This conflict arose after those two systems met in accounting practice in Poland.

Concluding the problem mentioned in this paragraph it should be stated that *accounting policy* and *balance sheet policy* are two different terms describing different phenomena. Yet, there is a relation between them – the instrumental usage of *accounting policies* (internal standards of the entity) is one of the basic tools of balance sheet policy (creative accounting).

#### 4. LEGAL DIMENSION OF CREATIVE ACCOUNTING

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The other dimension of the problem is resulting from structures of legal provisions regulating the financial reporting in Poland. Except for national regulation (Accounting Act) the regulative system of financial reporting consists of the IFRS in case of listed companies since our presence in EU. It formulates the double nature of creative accounting in a legal sense. Financial reporting is regulated not only by two sets of standards (or in case of Polish Act on Accounting we should rather say norms), but by two different philosophies of creating law regulations. Polish – the continental one and IFRS representative for Anglo-Saxon common law.

The earlier mentioned maxim: *that which is not forbidden, is permitted* is characteristic for continental thinking. This attitude is characteristic for Roman Code of Laws-thinking. In ethics we could call it deontological approach when an acting person focuses on taking the appropriate (legal) actions regardless of the results. The opposite attitude (teleological) is concerned with achieving the expected goal regardless of the chosen methods. The distinction between those two models/philosophies is crucial to understand the legal background for using creative

accounting. Considering the differences between those two models in the range of financial reporting we should mention:

- I. in case of continental – code based accounting:
  - not defined purpose of accounting
  - not defined addressee of financial report
  - as a result of above listed: no necessity for definition of qualitative features of financial information
- II. in case of Anglo-Saxon based IFRS:
  - the goal of financial reporting is strictly defined, as the one presenting the useful information
  - the addressee is characterized as a stakeholder
  - to meet the above set goal the qualitative features of financial information must be described and executed.

The differences listed above have a crucial meaning for creative accounting for one single reason. Anglo-Saxon system is founded on fulfilling the mission of providing stakeholders with information of sufficient quality. One of the conditions to prepare useful information is to grant the neutrality of it. There is an obvious contradiction between neutrality of financial information and *creative accounting*. Therefore any action taken within the range of tools of creative accounting should be considered as illegal even if it fits the borders set by the accounting standards (or other source of law). Teleological approach of IFRS makes us reject any instrumental, manipulative actions taken by the financial statement preparation. The situation is quite different with Continental code based accounting regulations, as in Polish Act on Accounting. The only measure of appropriateness of accountant's choices is those choices themselves. If they stay in line with formally set provisions everything is correct. No one should ask about accountants' motives as long as he or she makes the legally accepted choices.

## 5. EUROPEAN IFRS?

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The above reasoning should lead to the conclusion that implementing IFRS into European grounds should make any attempt to manipulate financial information illegal. However, there is one but. Except for the obvious fact that it is hardly ever possible to prove to an accountant that his motives make his actions illegal, the legal background of IFRS implementation is a little bit different in EU. It is because the Framework for the Preparation and Presentation of Financial Statements being a kind of constitution for all IFRS did not become a part of formally accepted set of standards in EU. The legal results are simple. There is no reason to ban the usage of *creative accounting* upon the current legal status of financial reporting regulations. The lack of the Framework

means the lack of any requirements referring to a neutrality of financial information in the set of formally bounding provisions.

## 6. CREATIVE ACCOUNTING IN POLISH PRACTICE

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It is not the purpose of this paper to discuss in detail the evidence from Polish economy showing if and how frequently business entities use *creative accounting*. It should be enough to indicate that it is used. According to the author's research and experiences all entities that could have gain something from using creative accounting were using it. The Polish reality does not differ from those described in Anglo-Saxon literature. There is evidence confirming the usage of the whole range of tools of creative accounting on one hand and existence of all motives for using it (if only there are suitable circumstances) on the other hand. There is evidence for existence of the most commonly recognized motives of creative accounting usage, which in positive accounting theory are described as:

- the size hypothesis,
- big bath,
- premium system hypothesis,
- income smoothing.

Considering the above, we could say it is commonly accepted by accountants in Poland. On the other hand, the other group of accounting profession (auditors) express the dubious attitude towards this phenomenon. The officially expressed view on it refers to high ethical standards of the profession and care about the high quality of financial reports. On the other hand, the obvious signs of usage of creative accounting by the audited entities are hardly ever disclosed in auditors' report. The problem is quite complex, of course, for at least two reasons:

- it is not possible to find clear and unquestionable evidence of creative accounting usage,
- there is still a marketing factor in the game even if we accept the high professional standards of auditors, making them careful about the range of judgments expressed in auditors opinion and report

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**Dorota Dobija**

# DEVELOPMENTS OF CORPORATE GOVERNANCE IN POLAND: IMPLICATIONS FOR ACCOUNTING

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## Abstract

Corporate governance has become an attractive topic for academic research, especially after several cases of corporate scandals at the beginning of the 21st century. Since then, much effort has been put into improving existing and inventing new corporate governance mechanisms as well as into increasing the accountability of managers to their stakeholders. Through an evolutionary process, Poland has attempted to develop a unique governance system suitable for developing a market economy, while considering the economic history and culture of the country.

Accounting has a special role in the effectiveness of governance systems, since it is regarded as one of the contract enforcement mechanisms. Through financial reporting, accounting helps to reduce information asymmetry between managers and other stakeholders, especially investors. A variety of other control mechanisms is also aimed at increasing the accountability of managers. The Polish accounting system has been developed in parallel with the advancement of the capital market and governance system. However, the following question still remains: to what extent the Polish accounting system helps to enforce the accountability of managers.

## 1. DEFINING CORPORATE GOVERNANCE

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There is no single, accepted definition of corporate governance, and the subject can be treated narrowly or more broadly. In the narrow view, corporate governance is restricted to the relationship between a company and its shareholders. This is the traditional finance paradigm,

expressed in the *agency theory*, which asks how investors get managers to give them back their money. The basic question in this approach deals with how agency costs can be reduced by using appropriate governance (incentive) mechanisms. According to theorists of the principal-agent stream, it is the decision between behavior-based and outcome-based contracts under conditions of complete information, outcome uncertainty, risk aversion of both principal and agent, goal conflict between them, task programmability, outcome measurability and length of agency relationship which will determine the optimal contract<sup>1</sup> (Eisenhardt 1989).

The dispersed ownership structure, which was the basis for developing the classical agency model that is the pattern of corporations across the U.S. and the UK, is not identical to that of the European models and some other corporate governance structures around the world. In fact, corporations throughout the world often have concentrated ownership structures where voting rights are concentrated in the hands of a small group of shareholders or are owned by one dominant shareholder (e.g., Shleifer and Vishny 1997)<sup>2</sup>, which requires that the agency problem be transformed and modified because the conflict is between shareholders who own the majority of shares and minority investors, rather than between owners and managers. Therefore, in countries with concentrated ownership structures great attention must be paid to the protection of minority shareholders to protect them from expropriation by large

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<sup>1</sup> According to principal-agent theorists, outcome uncertainty, risk aversion of the agent, task programmability and length of agency relationship are positively related to behavior-based contracts (e.g., salaries) and negatively related to outcome-based contracts (e.g., commissions and stock options). Risk aversion of principals, goal conflict and outcome measurability are negatively related to behavior-based contracts, and vice versa. The behavior of managers can be either readily measured or discovered by investing in information systems. Outcome uncertainty and risk aversion of agents precludes principals from delegating risks to agents. Task programmability, which is defined as the possibility that the agent will take certain actions, reveals the behavior of agents when the task is highly programmed. With regard to the length of the principal-agent relationship, it is expected that the principal will be able to collect some information about the agent when the relationship is longer term; however, when outcome measurability is easy, when goal incongruence between agent and principal occurs, or when the principal is risk-averse (and the principal delegates risk to the agent), outcome-based contracts are used instead (Eisenhardt 1989).

<sup>2</sup> The European Corporate Governance Network (ECGN) studied the pattern of ownership concentration throughout Europe and found that it is highly concentrated, unlike the U.S. model of dispersed ownership. In dispersed ownership structures, a large number of minority investors dominates the corporate scene with median voting block ranging from 5.4% to 8.6%. The exception is the U.K., which has a median voting block at 9.9%. However, in the majority of corporate governance structures across Europe, the concentration of ownership is much higher, the median of voting block ranges from 20% in France to 57% in Germany, with 56% in Belgium and 52% in Austria. The study also documented that the voting blocks of other shareholders are much lower in Europe and are similarly concentrated as in the dispersed ownership structures of the U.S. and the U.K. (For example, the median voting block ranges from 2.5% in Austria to 8.9% in Spain). See Becht and Mayer 2001.

shareholders. But even this modification must still look at how to make sure that the investors are left with the biggest possible residual, which is then distributed properly.

On the other hand, corporate governance may be seen as a web of relationships, not only between the company and the owners, but also among other participants, such as employees, customers, suppliers, bondholders, directors and shareholders. In this sense, the question about corporate governance is how to govern organizations so that all participants find it in their own interests to do what is expected of them by the other members of the organization (Sunder 2007). Here, we look not only at the interest of shareholders, but also at the interest and rights of other participants of an organization. In this setting, a well developed governance system will maximize shareholder wealth and will also increase the wealth of all participants.

In analyzing a corporate governance system, one has to understand the environment a company operates in, the legal framework of a country, the local culture, history and organization of society, the role of the capital market, and the active market forces. It is difficult to classify governance systems into bad and good, developed and undeveloped, into mature and immature; although there are ready prescriptions on what a developed world would consider to be a good governance system, those prescriptions cannot be implemented blindly because organizations in different countries operate in different environments with different economic traditions and different cultures. One size cannot fit all. Moreover, as the environment in which companies operate changes, any adopted solution cannot remain effective for long: the governance system has to be adjusted. Therefore, **good governance is a constant struggle to design and redesign the organization's alliances in response to the changes in its environment** (Sunder 2007).

A number of theoretical frameworks have evolved to explain and analyze corporate governance, including the agency theory, the transaction theory and stakeholders theory, organization theory and stewardship theory, and all work to analyze the same problem, but from different perspectives.

## Agency theory

When the owners of the company delegate the running of the company to management, the separation of ownership from control can lead to the “agency problem”. In their seminal work, Berle and Means (1932) associated the separation of ownership from control with a dispersion of shareholding, while Jensen and Meckling (1976) defined managers as the *agents* and the shareholders as the *principals*. In the agency theory, the principal delegates decision-making in the company to the agents, but a problem arises because the agents do not necessarily make

decisions in the best interests of the principals as the goals of the two parties conflict. In finance theory, the basic assumption is that the primary objective for companies is to maximize shareholder wealth. However, managers are likely to behave in a way that leads to maximization of their own interests, resulting in a tendency to focus on projects with high short-term profits, rather than longer-term projects that may do more to maximize the wealth of the principals. This kind of behavior is often referred to as “short-terminism”. Because it is costly for the principal to verify what the agent is doing, there is a need for alignment of the two parties’ goals. There are a number of ways to accomplish this, but the literature generally agrees that the best solution to establish a nexus of optimal contracts.

The main task of agency theorists is to solve the problems of goal incongruence between the agent and principal and the difference in their attitudes towards risk-taking. The principal can use incentives to limit any activities of the agent which are not in the principal’s interests (Jensen and Meckling 1976). However, it is not possible to align the agent’s behavior with that of the principal at zero cost (Jensen and Meckling 1976). Monitoring costs, bonding costs and residual loss<sup>3</sup> represent a burden for the principal, so it is in his/her best interest to reduce them as much as possible (Jensen and Meckling 1976). As a result, the attention of agency theorists has been directed towards identifying incentive mechanisms that are effective in certain situations (Eisenhardt 1989) and that have benefits to the principals that are greater than the cost associated with them (Jensen and Meckling 1976). According to Fama and Jensen (1983), this can be achieved by separating decision management from that of control. This separation of those two functions allows specific knowledge to be centralized where it is most needed and, thus, to generate benefits that outweigh agency costs.

## Transaction Cost Theory

One of the main differences between agency theory and transaction cost theory is the use of a different taxonomy. Both theories attempt to tackle the problem of how to motivate company management to pursue shareholders’ interests and profit maximization. Transaction cost theory was first proposed in “A Behaviour Theory of the Firm” (Cyert and March 1963), which viewed a firm as an organization comprised of people with different views and objectives. When firms become large enough, they

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<sup>3</sup> Agency cost is the total cost of monitoring, bonding and residual loss, where monitoring costs represent the costs of monitoring the agent, bonding costs are those extra resources that the principals have to spend to ensure certain actions of the agents, and residual loss stands for welfare loss, which occurs as a result of differences between decisions taken by the agent from those taken by the principal (Jensen and Meckling 1976).

substitute for the market in determining the allocation of resources. Usually, price movements outside companies direct production, and the markets co-ordinate transactions; but the transaction cost theory holds that management coordinates and controls production (Coase 1937), and the company itself determines the boundaries beyond which it no longer sets price and production levels. The transaction cost theory says that it is in the interest of company management to internalize transactions as much as possible in order to remove the risks and uncertainties about future product prices and quality, so some large companies extend their influence by partnering with suppliers to set up vertical integration. In transaction cost economics, managers practice bounded rationality, organizing transactions in their best interests. Herbert Simon (1957) defined bounded rationality as behavior that is intentionally rational, but only within limits, and contended that transaction cost theory assumed that individuals (including managers) were opportunistic by nature.

## Stakeholder theory

Stakeholder theory is less formal than agency theory or transaction cost theory and stems from a broad research tradition, incorporating philosophy, ethics, political theory, economics, law, and organizational social science. In the stakeholders theory, organizations are so large and their impact on society so pervasive, that they should be accountable to many more parties than only their shareholders. The stakeholder relationship has been described as one of exchange, where the stakeholder groups supply companies with “contributions” and expect their own interests to be satisfied via “inducements” (March and Simon 1958). Thus, the idea of corporate social responsibility is linked to the stakeholder theory. However, balancing the needs and interests of different stakeholder groups is difficult, especially when those needs and interests conflict. Is it possible that the companies can maximize shareholder wealth, at the same time satisfying a broad range of stakeholders needs? The literature is full of new frameworks for business which depict a “sustainable organization” culture within a corporate community and which also recognize the interdependencies and synergies among the company, its stakeholders, and society.

This approach towards governance systems is more inclusive and broader. It also includes issues related to accountability and corporate social responsibility. It is not impossible to create value for stakeholders by focusing attention solely on maximization of value for local communities, employees and environmental aspects; in the long run, ignoring the needs of stakeholders can lead to lower financial performance and corporate failure. However, performance related to social, ethical and environmental factors is often used as a proxy for performance in business-related areas, as well as an indicator of management quality.

A company which is well managed and has a well balanced governance system is likely to have a good environmental management system and a high level of engagement with all stakeholders.

At first glance, the agency theory and the stakeholder theory are irreconcilable. However, Shankman (1999) argued that the agency theory may be subsumed within a general stakeholder model of companies, as the agency theory is a narrowed form of the stakeholder theory. It seems that the problem related to difficulty to reconcile the two theories lies in the definition of a contract. Alchian and Demsetz (1972) and Jensen and Mecking (1976) defined the firm as a nexus of contracts. Sometimes the definition of “contract” includes only explicit contracts, and sometimes it includes both explicit and implicit contracts. In the classic agency model, the only contract which cannot be explicitly written down is the one between the owners (shareholders) and the managers; therefore, the shareholders should have the major voice in the governance of the firm. Zingales (2000) pointed out that:

*If we accept the view that decision rights should be allocated to the party that can benefit and lose the most from these decisions, then this view of the firm has very sharp implications for the allocation of voting rights. Looking at explicit contracts, the only residual claim is equity. Thus, shareholders deserve the right to make decisions. Hence, we have the basis for shareholders' supremacy.*

However, if we see a firm as a nexus of explicit and implicit contracts, the situation changes. The recognition of implicit contracts (e.g., with environmental organizations or the local community) means that there are other residual claimants beside equity holders who may need to be protected. This has implication for the governance structure as well, as control should not be given solely to shareholders as the single-minded quest for shareholders value may lead to the breach of valuable implicit contracts (Zingales 2000, p. 1635).

As in many other areas, researchers coming from different disciplines tend to use their own taxonomy. Economists seek formal theories which will allow them to pursue more rigorous research. Sociologists, management theorists, and philosophers, who are not as bound to rigorous models, are more interested in using a more normative approach such as the stakeholders theory.

## 2. DEVELOPMENT OF CORPORATE GOVERNANCE SYSTEMS IN POLAND

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The literature of corporate governance in Poland primarily covers the development after the political breakthrough of 1989. The period that is most commonly analyzed can be divided into two basic sub-periods: the first is related to the process of re-awaking of the market economy

and to the privatization and early mechanisms adopted during that time (Koładkiewicz 2001), and the second is related to the post-Enron era, when Poland joined the quest for a perfect global corporate governance system. The approach various authors have used to describe the development of corporate governance in Poland has usually been narrow, analyzing the classical investor/manager relationship and protection mechanisms (in the case of concentrated ownership, which is so dominant in Poland). If one accepts the broader definition of governance as a constant struggle to find a balance between the expectations and interests of various organizational participants, one must also accept that corporate governance is not a recent phenomena, even in Poland, and that governance mechanisms existed long before the re-awakening of the market economy.

Some sort of governance mechanisms must have existed even in the Salt Mines in Wieliczka and Bochnia, but the most interesting period, which should shed some light on the current system of corporate governance, is the period of the Polish industrial revolution, known from art as the modernist period of “Young Poland”. The legal framework Poland now enjoys has its roots in that time, so before analyzing the current governance system, it is worth stepping back to look at the developments of that time. At the beginning of the 20th century, Poland was partitioned among the Russian, Prussian and Austro-Hungarian Empires. The process of industry concentration (vertical and horizontal) among Polish enterprises was often faster than those in Western Europe, leading to the development of modern, privately owned corporations in which shareholders were the major source of capital. For instance, in the metal industry the number of companies fell from 40 to 15 from 1900 to 1909 (Pogodzińska-Mizdrak 2003); in southern Poland, the concentration process dominated the oil industry; the coal industry was dominated by international cartels; and most banks were a form of privately owned corporation with capital involved in the heavy and textile industries. The period before the WWI was also a period of development of various cooperatives, especially in agriculture, food processing and financial sectors.

The concentration and accumulation of capital in the hands of the State and the Central Association of Polish Industry, Mining, Trade and Finance also affected the development of accounting in Poland; however, industrialists and financiers alike opposed openness of financial reporting. In 1934, Poland introduced a new Commercial Code, regarded as one of the most advanced of the time, which required the introduction of accounting systems in sole proprietorships and limited liability in publicly and privately held companies. The code gave permission for the use of simplified accounting (based on single-entry accounting) for tax purposes, but the big industrial corporations had to have a full system of accounting, including auditing of financial statements, although the

implementation of the latter was postponed by the Ministry of Industry and Commerce (Pogodzińska-Mizdrak 2003).

These developments show the struggle of the Polish economy to find the balance between market forces and regulations in a dynamic economic and political environment and culturally difficult circumstances. The basic corporate governance structure was developed during that period, but under the fragile, unstable and new economic situation, enforcement of the governing rules was problematic and led to corporate governance scandals like the 1934 “Towarzystwo Zakładów Żyrardowskich” scandal.

### **A corporate governance scandal in “Towarzystwo Zakładów Żyrardowskich” in 1934**

Before the breakout of WWI in 1914, the biggest textile company in the Polish Kingdom, located in Żyrardów, belonged to the Austrian capital company of Hielle and Dietrich and employed about 10,000 people. During WWI, the company was almost completely devastated and, by 1919, the company could employ only 300 workers. Hielle and Dietrich requested a governmental loan to rebuild the company and, when the loan was refused, the owners closed the factory. The factory was then taken over by the government, which invested 2,5 million Swiss francs to rebuild it and expand its operations.

In early 1920, a group of French capitalists representing Comptoir de l'Industrie Cotonnière (CIC), known also as the Boussac group, arrived in Poland. The owner, Marcel Boussac, was interested in investing in the Polish textile industry. He had acquired a third of Zakłady Żyrardowskie in 1920 and requested a full privatization of the company. The negotiations with the Polish government lasted for four years and, under pressure from French politicians, Zakłady Żyrardowskie was finally given into hands of the Boussac group in 1924. However, the Boussac group paid for 2/3 of the shares with only 20,000 Swiss francs, causing a loss in the State budget of more than 2,5 million Swiss francs.

When the Boussac group took over Zakłady Żyrardowskie in 1924, the company was well managed, operated at full capacity, had secure levels of raw materials, employed 5600 employees and generated a substantial profit. However, only nine years later, Zakłady Żyrardowskie had only 1800 workers, no inventory and a debt of 15 million PLN. In 1933 the company reported losses of 3 million PLN, and accumulated losses for the nine-year period amounted to 40 million PLN.

So what went wrong? What corporate governance mechanisms, if any, were used at Zakłady Żyrardowskie to protect it from exploitation



by the majority shareholder? The minority shareholders' rights were not fully protected, and they had little influence on decisions made by the Boussac group. There are numerous examples of how the good governance rules were infringed. For example, Zakłady Żyrardowskie signed an unfavorable agreement, allowing the Boussac group to be solely responsible for management of the company and renewed that agreement annually for nine years. The agreement also granted a monopoly to the Boussac group for supplying of raw materials (so CIC was, in fact, both the supplier, as the Boussac group, and the receiver, as Zakłady Żyrardowskie, of those materials). CIC was not interested in acquiring the best-quality cotton at the cheapest price: on the contrary, CIC was making high profits delivering a poor quality of cotton at the highest possible price. It was a common practice for CIC to charge Zakłady Żyrardowskie an 18.67% interest rate on the purchase of cotton, although the standard rate for the cotton industry was about 7%. Additional sources of unfair income for CIC were the cancellation fees Zakłady Żyrardowskie had to pay for fictional purchases of cotton. For instance, in May 1925 the company paid 8,312 USD despite having informed CIC on time of the fact that the warehouses were full of raw materials and additional acquisitions were not needed. It was also a common practice to provide Zakłady Żyrardowskie with a lower quality of cotton than the company paid for, which affected the quality of the final product and resulted in a loss of reputation and brand. The agreement with CIC also included clauses on financial and technical support of CIC to Zakłady Żyrardowskie, but CIC charged a fee of 2% of total Zakłady Żyrardowskie's total sales for very expensive consultants and advisors who were marginally useful at best. Another practice was hiring well paid foreign accountants, who manipulated accounting numbers and managed earnings according to CIC's needs. A wider description of the "creative accounting" of Zakłady Żyrardowskie by the Boussac group can be found in Michałowicz (1951).

These poor practices were brought to light by H. Potocki, the chairman of the Supervisory Board, when he expressed concern about the future of Zakłady Żyrardowskie after CIC cancelled the agreement related to financial and technical support for the company. Of course, there had been tensions between the majority owner and minority Polish owners before, but this event brought about a chance to make the fraudulent practices of CIC public. That was a beginning of revising the role of minority shareholders in managing of the company. The directors of Zakłady Żyrardowskie were arrested and an investigation was begun.

Problems related to the behavior of participants of organizations and the self-interest of individuals did not disappear with the introduction of the centrally planned economy. However, with the nationalization of the industry, the problems shifted towards governing the state-owned enterprises. Poland soon began to try to resolve the problem of the centrally planned economy's low efficiency, not through strengthening the role of the state, but by introducing some elements of economic decentralization. In 1956, the Act of Workers' Self-Management was passed, which granted state-owned enterprises limited autonomy and allowed directors and employees to make decisions in some areas of companies' operations (Kozarzewski 2007). The deeper changes began in the early 1980s, with employee management as one feature of the new system. The new law, which is still in force for state-owned enterprises, introduced a corporate governance that, to a certain extent, imitated the two-tier continental system with three bodies: the director (the managing body), the employees' council (with supervisory functions), and the general assembly of employees whose competencies resembled those of a general meeting of shareholders. Of course, the new governance was not perfect. In the command economy, based on state property, the reforms created a sort of incomplete set of property rights: the law gave employees some owner benefits, yet without owners' financial responsibilities (Kozarzewski 2007, p. 8).

The 1990s brought the radical reforms of the Polish economy and the transformation of the centrally planned economy to the market economy. The urgent problem to be solved was the privatization of the state-owned enterprises and the introduction of corporate governance mechanisms to improve their competitiveness and to enhance the transition. The main features of Polish privatization were reflected in the privatization law, which allowed a wide range of possible methods and paths of ownership transformation: selling to strategic investors and via the stock market, management-employee buyouts and a unique kind of mass privatization related to the National Investment Funds program. At that time, Poland had also already developed economic and corporate laws, although the quality of the laws was often problematic and there were enforcements problems due to the weak courts. The corporate law already defined the broad framework for the companies' organizational structure and activities, allowing the firms to create structures and rules that suited their needs. Since the companies already had some experience in self-management and the participation of employees, the continental model of governance was a natural choice, and Poland introduced the two-tier board structure (Table 1).

However, the legal basis in Polish law is not free from inconsistencies; it is often found to be problematic and not instructive enough when main actors lack adequate knowledge on the structure and function of

modern private companies (Kozarzawski 2007). Therefore, because the ownership structure is so different in the two types of organizations, a company's corporate governance system depends on the enterprise origin: whether it originated in the state sector or was newly established in the private sector.

In 2000 the World Bank working group, within the Reports on the Observance of Standards and Codes program, assessed Poland's corporate governance, measuring it against OECD principles (World Bank 2002). The Institute of International Finance task force that visited Poland in 2002 found that "the quality of Polish corporate governance framework is generally perceived to be almost in line with recommendations contained in the OECD principles" (Institute 2003, p. 2). In their opinion, however, enforcement left much to be desired, as they saw "structural weaknesses in the areas of law and regulation implementation, enforcement by the various agencies charged with upholding the laws, and compliance by the supervisory and management boards of companies in establishing the necessary internal compliance procedures, monitoring and culture" (p. 5).

Since then, Poland has engaged in the improvement of corporate governance by adopting new legislation and continuing to develop strong regulatory and enforcement institutions. There have been attempts to strengthen corporate governance by elaborating and introducing best practices of corporate governance, which are aimed at putting moral pressure on companies to behave correctly. Between 2001 and 2002, two draft corporate governance codes were presented: one by the Polish Forum on Corporate Governance in Gdansk and the other by the Committee of Good Practices in Warsaw. The Gdansk code was based on seven general principles; it provided recommendations as to how they should be implemented and a commentary on each of the recommendations. The Warsaw code took a different approach in setting "general rules" and presenting a series of specific provisions regarding best practices of general meetings, supervisory boards and management boards. The code differed also as regards relationships with third parties and third-party institutions. The Warsaw code won greater institutional support; it was adopted by the Warsaw Stock Exchange and was supported by the Polish Confederation of Polish Employers, the Securities and Exchange Commission, the Business Development Institute, the Polish Business Council, and the Association of the Stock Exchange.

The Best Practices of Corporate Governance, the result of the adoption of the Warsaw code, is a codification of customs and norms. The listed companies must file a compliance certificate each year describing their compliance with each Best Practice Principle under the "comply or explain rule" incorporated into the Polish Best Practices in Public

**Table 1.** Differences between corporate governance models

Components	Corporate governance model	
	Anglo-Saxon	Continental
Organization perceived as:	Instrument	Joint undertaking
Objectives of the organization:	To serve the owners	To serve all the groups engaged
Measures of success:	Company value	Meeting the needs of stakeholders
Perspective of operations:	Short-term	Generally medium-term
Ownership structure:	dispersed	Concentrated
Shareholders' identity:	<ul style="list-style-type: none"> <li>■ Private investors</li> <li>■ Financial institutions</li> </ul>	<ul style="list-style-type: none"> <li>■ Industrial investors</li> <li>■ Institutional investors</li> <li>■ Private persons</li> </ul>
Shareholders' influence	Low	Significant
Capital market	Highly developed, great diversity of capital suppliers, large set of financial instruments	Much smaller diversity of financial instruments
Main source of raising capital	<ul style="list-style-type: none"> <li>■ Securities market</li> <li>■ Stock exchange</li> </ul>	Institutional sources

Main forms of management discipline	<ul style="list-style-type: none"> <li>■ Active enterprise control market</li> <li>■ main instrument: “high cost” take-over transactions</li> </ul>	<ul style="list-style-type: none"> <li>■ Emphasis on internal supervision mechanisms</li> <li>■ Low cost direct monitoring</li> <li>■ Weak enterprise control market</li> </ul>
Systems of boards	One-tier (board of directors)	Two-tier (managing board and supervisory board)
Structure of the supervising board/board of directors	<ul style="list-style-type: none"> <li>■ Board of directors composed of executive (insider) and non-executive (outsider) directors</li> <li>■ CEO sits on the board</li> <li>■ large shareholders rarely present</li> <li>■ bank representatives rarely present</li> </ul>	<ul style="list-style-type: none"> <li>■ Supervisory board members elected by shareholders and by employees</li> <li>■ The CEO cannot sit on the supervisory board.</li> <li>■ Large shareholders always present</li> <li>■ Bank representative often present</li> </ul>

Source: Kozarzewski (2007).

Companies 2002 (with minor revisions in 2004). If a company is not in compliance with a principle, it must explain the extent to which it does not comply with the principle and reasons for it.

A new Corporate Governance Code was introduced on January 1, 2008, after having been presented by the Committee of Good Practices and the Polish Institute of Directors in 2007. Its preamble stresses the importance of corporate governance for financial markets, and the rest of it is divided into four parts: recommendations for good practices in the listed companies, recommendations for management boards, recommendations for members of advisory boards, and recommendations for shareholders.

The 2005 World Bank Report on Corporate Governance (2005) on the observance of standards and codes noted improvements in the corporate governance system in Poland since the previous assessment and confirms that “Poland is at an advanced stage of corporate governance debate, discussion, and reform” (p. 3). The corporate governance framework complied with many of the OECD Principles (2005, p. 3), but the report identified several problems: insufficient regulation of corporate governance activities of pension funds, weakness of supervisory boards, problems in the delisting/squeeze-out process, and insufficient approval process for related-party transactions. The report set forth several recommendations for further development, including improvement in financial reporting to reach EU and OECD standards, enforcement of the WSE Code of Best Practice, and incorporation of the most important provisions into the Polish law.

### 3. IMPLICATIONS FOR ACCOUNTING AND ACCOUNTING RESEARCH IN POLAND

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Accounting, regarded as an important contract enforcement mechanism, can help balance the expectations and self-interest of an organization’s participants through reduction of information asymmetry. Accounting monitors the input of each agent to the firm and the entitlements paid to participants. Through various disclosures, accounting informs participants about the extent to which other agents have fulfilled their contractual obligations and received entitlement. It also provides a pool of information to all participants in order to facilitate negotiation and contract formation (Sunder 1997). Since private disclosure does not necessarily make information common knowledge, public disclosure is important. However, disclosure by firms may create a moral hazard; since managers may not be interested in making all relevant information available, there is a need for another monitoring device: auditing.

Management of Polish companies, especially smaller companies, often strongly criticize public disclosure rules because they believe broad disclosure affects competitiveness by revealing too much about the company. As a result, many companies, including the big ones, make only mandatory disclosure and have little interest in additional voluntary disclosure. Most companies, then, provide a company history and profile, management names, articles of association and by-laws, but little information is publicly available on supervisory boards, strategies, missions, internal audits and governance solutions employed in the organization. Until 2005, when disclosure on managerial remuneration became obligatory, this piece of information, too, was almost non-existent, and, even today, information on golden parachutes, options and contingent liabilities is still missing.

For the corporate governance system to work well, there is a need for further development in accounting. The accounting and auditing profession in Poland has made a long and difficult transformation through an evolutionary process, but there is still much to do. The 2005 World Bank report on Accounting and Auditing acknowledged that although “recent Polish accounting requirements are generally in line with the Fourth and Seventh EU Company Law Directives, some fundamental differences with IFRS exist and Polish accounting requirements may not always provide the general public with sufficient information about *public interest enterprises*” (p. 23). Among those differences are valuation of property, plant and equipment, lease accounting, provisions for employment and agriculture accounting.

However, optimal development of accounting does not require blind adoption of the provisions and standards practiced in the developed market economies. Development of accounting in Poland must take place in step with changes in the culture and changes in the perception of the role of accounting and auditing, accountants and auditors and their role in the economy. Of course, better enforcement of law can increase compliance with disclosure requirements, but making disclosure a *social norm* will have a better and faster impact on the amount and quality of disclosed information.

There is a great deal of research in the history of governance and accounting in Poland that has not been addressed here. Archival studies of the corporate governance mechanism between the war periods may shed some light on the origins of present governance mechanisms and the behavior of Polish companies. Studies related to the perception of accounting and auditing in Polish society may provide us with better ideas about what has to be changed to increase trust in reliability of disclosed information. Other topics of interest are: the role of auditing and the credibility of the external audit function in the Polish society; the differences between disclosures made by small and large firms, private-private, private-public and state-owned companies and the origins

of those differences, the best practices of social, ethical and environmental disclosures, which could provide a good example and a driving force for the development and/or improvement of corporate transparency.

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**Marcin Jędrzejczyk**

# TRANSLATION OF ECONOMIC VALUES – CRITICAL APPROACH

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## Abstract

This paper presents theoretical and practical doubts connected with the direct use of the exchange rate in the value conversion. The leading thought concerns translation of assets. The negative analysis shows that the exchange rate should not be used in the conversion of assets in the consolidation process and in the single goods translation as well. The wage market analysis also reveals that exchange rate applied directly to wage comparisons in different countries is not applicable and brings misleading results. The new procedures are proposed and presented instead.

## 1. INTRODUCTION

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The role of the exchange rate in translation process has not been definitely explained in the accounting and finance theory. That is why the subject of conversion has been widely described in the latest papers. In practice exchange rate is the relation between two money units. For instance, one can buy specified amount of zlotys having particular amount of US dollars for example, he or she pays 1 dollar to buy 2.50 zlotys.

Economists are aware of the difficulties in using exchange rate to the international comparisons and try to find other methods that can be expressed as the PPP methods (Purchasing Power Parity) In many recently published papers the tendency to avoid the direct use of the exchange rate in the international comparisons is observed. There is a practice among the researchers of expressing GDP in dollars with the use of Purchasing Power Parity that is treated as a better method of showing the real value of income than the direct use of the exchange rate. This very parity constitutes the medium of calculating economic values, as the exchange rate is the medium to calculate money unit exchange.

However, in the International Financial Reporting Standards the exchange rate is the proposed method in preparation of the financial statements of the international capital groups. It causes serious problems because the translation process in the period of widely spread international cooperation is an extremely important tool. On the basis of the exchange rate the transactions are recorded and international comparisons are made. The motions formulated on the basis of the numbers calculated with the exchange rate method often decide about the prices on various markets, expected remunerations or can be a base for decision making on the international market.

In the period of continuing trends of globalization and integration of the world's economies there is a perceptible change in the means of accounting law standardization and unification of information presented in financial statements. It is connected not only with the necessity for international comparisons but also with a true and fair view of the statements made by international capital groups. In the present conditions the number of international capital groups is growing steadily and their statements constitute a key factor for investment decisions all over the world.

## 2. CONVERSION ACCORDING TO INTERNATIONAL FINANCIAL REPORTING STANDARDS VS. "TRUE AND FAIR VIEW" – CASE STUDY

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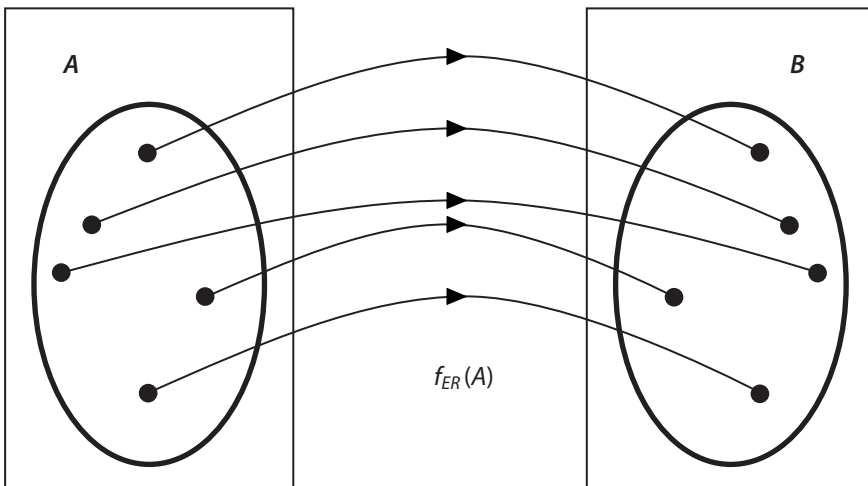
As it is commonly known International Financial Reporting Standards are aimed at meeting the demand for a true and fair view of assets reported in statements of international capital groups. It would be hard not to realize that in practice the exchange rate expresses the relation between money units (for example Euro and USD), understanding of which requires deep knowledge of nature of the money unit. This paper goes beyond the analysis of the existing international accounting rules, trying to formulate new methods aimed at avoiding theoretical inconsistencies present in the current accounting rules.

International Financial Reporting Standards in the standard number 21 (IAS 21) formulate the issue of financial statements of those companies operating abroad which form an integral part of the holding company that draws up the whole financial statement for the capital group (International Accounting Standards, 2004). According to this rule, the holding company should treat the transactions and activities of the companies belonging to the capital group as its own. Taking into account the superior accounting "true and fair view" approach, there is a question how to prepare the financial statement according to value concept.

In accounting there are two conceptual models that state the main purpose of the financial statement – the transactional model and the value model. In the transactional model the main aim of the accounting

system is the recording of the business transactions according to source documents. In the translation process it is enough to use exchange rate to compute the value of the transaction and to express it in the functional currency. In the value model the most important thing is appropriate fair value calculation of the elements of the financial statements. In this approach the main accounting rule is “true and fair view”. Nowadays in financial reporting the role of value concept is still growing that is why the procedure leading towards the proper valuation of the assets and liabilities of a single enterprise or the capital group should be focused. As to capital groups the conversion method must lead to the result consistent with the value model.

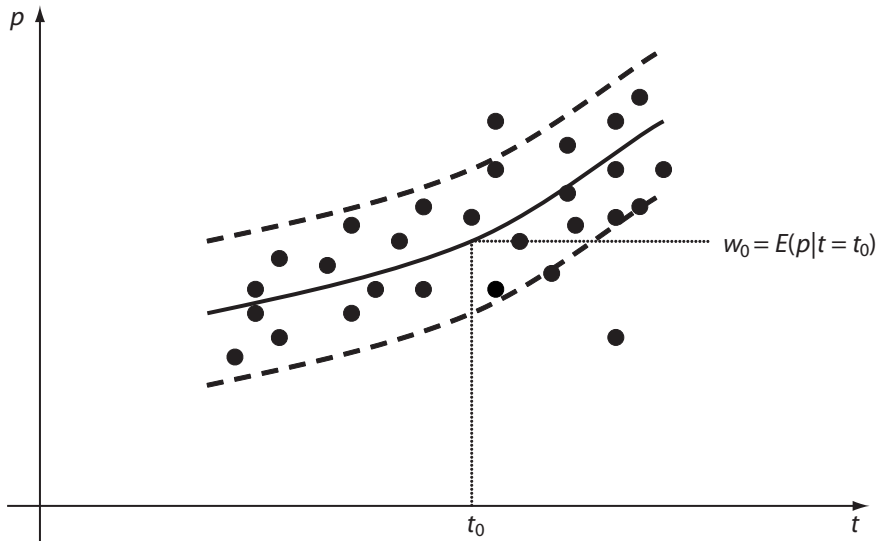
The conversion process, as the result of transformation of one currency to another can be mathematically treated as the image that transforms the value on one market into the value on the other market. Because prices, remunerations or GDP constitute the representation of value, they can be treated as the function of the time and space. Price, for instance, is deeply connected with the place and time of the transaction (see Figure 1).



**Figure 1.** Hypothetical function  $f_{ER}(A)$  transforming the elements of the A set to the elements of B set

A set of points shown in Figure 2 is a set of prices noted on the particular market. The expected price  $p$  in the time  $t_0$  in the given space is the representation of value. The value  $w_0$  expressed through the price in the time  $t_0$  that is converted with the exchange rate can be expressed by the following formula:

$$w_0 = E(p | t = t_0)$$



**Figure 2.** Set of prices on the given market in the given time period ( $t$ )

The exchange rate used to convert the price of goods from one currency to another should fulfill the demands of the image shown in Figure 1. So it is possible to verify the use of exchange rate for this purpose. As the counterexample the BigMac has been chosen. The procedure that has been used in converting the price of the BigMac can be expressed by the formula:

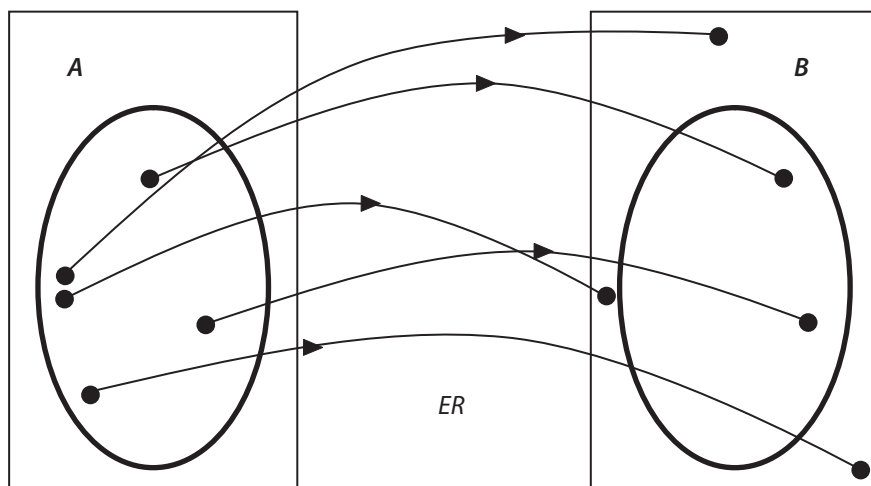
$$q_p = ER \times q_A$$

For instance, the BigMac's price on the US market accounted for \$3.10 (12.01.2007) and BigMac's price on the Polish market was 6.90 zł. Using the exchange rate that accounted for 3 zloty per 1 dollar, it is not possible to get the value of 6.90 zł. Instead, we receive 9.30 zł, which is simply not the right price on the Polish market.

$$q_p = ER \times q_A$$

$$6.90 \text{ zł} \neq 3 \frac{\text{zł}}{\$} \times \$3.10 = 9.30 \text{ zł}$$

This is the evidence that the exchange rate cannot be used in the consolidation process which uses value model. The results would not be consistent with the crucial accounting principle "true and fair view". This situation is shown in Figure 3. What is also worth stressing, the value calculated with the exchange rate is the figure that would appear, for instance, in the consolidated financial statement prepared according to IFRS or US GAAP rules.



**Figure 3.** The direct use of the exchange rate is not the mathematical transformation of the set of prices on market *A* to the set of prices on market *B*

The exchange rate as a result of the market relation of demand and supply has been adopted in accounting to the conversion processes. Prices of goods and services available abroad are translated to Polish prices. It is a commonly used practice that values computed with the use of exchange rate are used to create very general motions, as for example the profitability of purchase of the same product on a different market.

The problem seems to be much more complicated in case of conversion in the financial statements. An American advanced accounting handbook defines the conversion process as “restating an amount of foreign currency in terms of equivalent number of dollars” (Meigs 1986, p. 521). In consolidated statements it means also restating all the assets and liabilities present in the balance sheet into dollars. The authors stress that “... the accounting records of foreign subsidiaries generally are maintained in units of foreign currency. Obviously, we cannot add Mexican pesos, British pounds and U.S. dollars and come up with a meaningful total. Therefore, all of the amounts appearing in the foreign subsidiaries’ financial statements must be translated into U.S. dollars as a preliminary step in the consolidation process...” (Meigs 1986, p. 528). They focus on the annual average exchange rate as a medium of the translation process.

It should also be stressed that US Financial Accounting Standards Board believes that “... for an enterprise operating in multiple currency environments, a true single unit of measure does not, as a factual matter, exist...” (FASB, 1998, p. 520). In the passage that follows we can read: “... The temporal method obscures the fact of multiple units by requiring all transactions to be measured as if the transactions occurred in dollars...”. The method mentioned above seems to be treated as the

best of all known algorithms. "...The most relevant information about the performance and financial position of foreign entities is provided by the functional currency financial statements of those entities. Using the current exchange rate to restate those functional currency financial statements in terms of their current dollar equivalent preserves that most relevant information..." (FASB, 1998, p. 521). These quotations allow the conclusion to be drawn that one and only method of translation in the consolidated financial statements is based on the exchange rate.

As discussed above, we can state that all international rules accept and propose the translation on the basis of the current or average exchange rate. Current, in this case, means that the exchange rate that was in operation at the time of the transaction. To verify so formulated an algorithm, a quantitative experiment has been conducted which considered two cases. The first one assumes that the holding company is located in Poland and the second that the mother company is located in the USA.

The research concerned two electric engines – one produced in Poland by Tamel Company and the other produced in the USA by Baldor Electric Co. What is more, the users of these engines did not see any differences although the products had slightly different parameters. Table 1 presents technical specifications of the engines and selling prices in the domestic markets.

In the research the exchange rate was assumed at the level of 3 zloty per one dollar according to conducted market observation<sup>1</sup>. If we try to compute the value of the engine in Polish zloty we will receive a huge difference in the resulting amounts. The American price of the product and exchange rate between the US dollar and the Polish zloty gives 1140 zł. Therefore, preliminary analysis shows great inconsistencies with the law of one price which states that the price of the same or almost the same goods in the different markets should be equal. We might add that the law of one price is applied in every methodology specifying conversion rules, but it is not necessary a written law. Using the exchange rate which fluctuates, but still remains on the similar level, we can say that the law of one price does not work in this case at all. It means that the values on the international scale are incomparable.

The acquired data may be taken to exemplify balance sheet items in international statements. In Table 2, there are six theoretical variants concerning consolidated financial statements. In each case in the warehouses of the capital group two homogenous engines have been collected. The first three rows of the table show the situation in which the parent company has been located in the USA and three following in Poland. Furthermore, in the studied companies there was a change in the place

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<sup>1</sup> The exchange rate has oscillated around 3.3 zloty per one dollar starting from 2004 till 2007.

**Table 1.** Comparative analysis of the 1.5 kW engines manufactured in Poland and USA

Tamel	Baldor Electric
Power 1,5 kW Sg 90 L-4 B3 380 V 50 Hz Insulation class F 1200 rpm	Power 1,5 kW 4 Pole B3 Mounting 380 V 50 Hz Insulation class F 1160 rpm
Selling price	
312.32 zł	\$ 380
After translation (Conversion)	
\$ 104.10	1140 zł

**Table 2.** Set of data needed to draw up the consolidated statement including the location of the holding company

Case n°	Quantity of engines in Poland	Quantity of engines in the USA	Location of the holding company	Consolidated amount
1	2	0	USA	$624 \text{ zł} / 3 = \$208$
2	1	1	USA	$312 \text{ zł} / 3 + \$380 = \$484$
3	0	2	USA	\$760
4	2	0	Poland	624 zł
5	1	1	Poland	$312 \text{ zł} + \$380 \times 3 = 1452 \text{ zł}$
6	0	2	Poland	$\$760 \times 3 = 2280 \text{ zł}$

where the engines were stored. The exchange rate has been assumed at the level of 3 zł per one dollar. The results of the analysis in the aspect of quantity and value have been shown in the columns of Table 2.

Therefore, on the basis of the analyzed data we can formulate the conclusion that depending on the variant, there is a great difference between the data publicized in the consolidated statement. Overestimated value of the assets (stock) can lead to wrong interpretation of the financial standing of the whole capital group. And it is here where the main error lies. After all, isn't it "the most relevant information about the performance and financial position of foreign entities", and the most important



factor for the whole capital group? Unfortunately, going by the rules, which are in operation at present, we may arrive at misleading financial information.

Therefore, the information implicating the IAS 21 and FAS 52 is not acceptable from the point of view of financial reporting or financial auditing either. The problem seems to result from theoretical indigence which determines theoretical premises behind the accounting laws. Fortunately, the wage productivity paradigm can successfully provide fundamentals for formulating the new standard of translation which shall avoid the gap in the currently operating rules.

### 3. DILEMMAS OF WAGE CONVERSION

The similar situation appears on the employment market. In Poland employees very often convert the remunerations in the same sectors using exchange rate and treat the figure acquired in this way to set their pay demands. But this way of thinking is inappropriate. In order to make the right comparison of payments, human capital theory should be used. Following the basic capital theory, the expected remuneration of the Professor's Assistant with the 3-year-experience has been computed. The data in table 3 contains Polish and American employee pay.

The last line of the Table 3 presents the value of cost of labour per one month in Poland and in the US computed with the human capital model. The values considering four-persons-family are very similar. To estimate the net pay in Poland 40% of taxes have been subtracted. The

**Table 3.** Average pay estimation of the Professor's Assistant with 3 years experience in Poland and in USA

Values	Poland (in zł)		USA (in \$)
	From	To	From 350 to 450
Living costs	500	600	400
Education costs	300	400	800
Experience factor	15%		15%
Experience (years)	3		3
Human Capital (H)	453 772	546 330	423 141
Yearly cost of labour (H × 8%)	36 301	43 706	33 851
Monthly cost of labour	3 025	3 642	2 821
Net pay	1 815	2 185	1 692

results of the comparison are shown in the last line of Table 3. The lower range of Polish pay equals 1815 zł, the upper 2185 zł. As for the US, the estimated pay equals \$1692. The exchange rate, if used in calculation of Polish pay, would bring wrong and misleading value, which would be 5076 zł. It is worth stressing that this number is completely wrong and cannot be accepted<sup>2</sup>.

This situation is caused by the wage productivity difference between Poland and USA. The relation of hourly or monthly pays would be the good estimation of the exchange rate providing the wage productivity difference between two countries was minimal or none. We can include the difference in wage productivity using the relation of real GDP per one employee in dollars. Then to the right estimation of the average exchange rate for the given period the relation of hourly pays can be used ( $v$ ):

$$\overline{ER} \left[ \frac{\text{zł}}{\$} \right] \approx \frac{v_p [\text{zł}]}{v_A [\$]} \times \frac{PKBRE_A [\$]}{PKBRE_p [\$]},$$

where:

$\overline{ER} \left[ \frac{\text{zł}}{\$} \right]$  – average exchange rate for the given period.

Therefore, it is possible to calculate real Polish GDP per employed person in US dollars:

$$PKBRE_p [\$] = \frac{PKBRE_A [\$]}{ER \left[ \frac{\text{zł}}{\$} \right] \times \frac{v_A [\$]}{v_p [\text{zł}]}}$$

In Table 4 the results of computations have been shown. The numbers have been grouped by the wage productivity. In the first 2 columns there are countries with similar wage productivity. In the last three we can observe countries with much lower wage productivity.

The exchange rate calculated on the basis of the average hourly pays is acceptable in case of countries with similar wage productivity (USA and UK). But in case of other countries (Poland, the Czech Republic and Hungary) the difference is remarkable and accounts approximately for 65%. After implementing the relation of real GDP per one employee the differences between estimated and real exchange rate is acceptably low (0.9 to 5.3%).

On the basis of Table 4 the calculation of average exchange rate for the year 2005 has been made. The result shows that the average exchange rate should account for 3 zł 21 gr per one dollar. From the Polish National Bank Archives we know that the average exchange rate in the

<sup>2</sup> Exchange rate used: 3 zł per one dollar.

**Table 4.** Exchange rate estimation including wage productivity differences. Data from the year 2005

	Wage productivity parity			Lack of wage productivity parity		
	USA	UK		Czech Republic	Hungary	Poland
	(\$)	(£)		(CZK)	(HUF)	(zł)
1	16.5	9.51		136.76	1199.5	19.5
2	1	0.5764		8.2885	72.697	1.1818
3	<b>1</b>	<b>0.582</b>		<b>23.96</b>	<b>199.6</b>	<b>3.236</b>
4	–	<b>0.96%</b>	The difference between observed exchange rate (3), and the hourly wages relation (2) (in %)	<b>65.4%</b>	<b>63.6%</b>	<b>63.5%</b>
5	63 942		GDP per one employee in PPP (\$)	23 339	23 689	23 565
6	1		Relation GDP per one employee (U)	2.7397	2.6992	2.7134
7	–		Exchange rate calculated with the use of pay relation and GDP relation (2)×(6)	<b>22.708</b>	<b>196.22</b>	<b>3.2067</b>
8	–	<b>0.96%</b>	The difference between observed exchange rate and wages relation with real GDP per one employee included (in %)	<b>5.23%</b>	<b>1.69%</b>	<b>0.90%</b>

year 2005 fluctuated at about 3 zł 20 gr. The research shows that average pay relation including real GDP per one employee in dollars can be the good estimator of the exchange rate value. It confirms the general assumption of this paper that the exchange rate behavior can be explained by the wage productivity differences. Furthermore, the approach to the consolidation of the financial statements of the international capital groups must be changed.

#### 4. CONCLUDING REMARKS

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Because a negative analysis on the basis of currently observed regulations and practices brings the positive results, it is worth pointing out the accounting “true and fair view” principle is not applicable when it comes to the translation process in the consolidated statements of the international capital group. Current accounting laws are unacceptable from the point of view of the investors and financial information receivers. The right form of the exchange rate in the International Financial Reporting Standards includes only the information about the relation between money units in two countries. Thus, it cannot be applicable to the other balance sheet items, which are related to the wage productivity as the result of human work.

Although the exchange rate cannot be directly applied to the wages translation, human capital model can be used instead. The exchange rate estimation based on the average pays must take into account productivity differences. The relation of GDP per one employee is the main factor that implies these differences.

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PART III

PRACTICES & STANDARDS  
– INTERNATIONAL  
HARMONIZATION





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# COMPARISON OF US AND UK FINANCIAL REPORTING MODELS

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## Abstract

We compare US and UK models of financial reporting to identify differences in legal foundations, and the impact of these differences on financial reporting. Our objective is to increase directors' and executives' awareness of possible deficiencies in the US reporting system that could encourage inappropriate focus and inefficient business decision making.

Two separate governance issues are considered. One issue is whether financial statements offer an appropriate basis to value the shares of a company (fair financial reporting). A second issue is whether the company is efficiently using its capital resources (proper stewardship).

We compare US and UK models of financial reporting to identify differences in legal foundations, and the impact of these differences on financial reporting. Our objective is to increase directors' and executives' awareness of possible deficiencies in the US reporting system that could encourage inappropriate focus and inefficient business decision making. We also attempt to raise questions for consideration in improving the US financial reporting model. We use the term the "UK model". However, the UK model is a specific country approach that is representative of the broader and more general British model used in the Commonwealth<sup>1</sup> and also similar in terms of the issues discussed with respect to much of the financial reporting and corporate governance systems of Continental Europe. Therefore, for purposes of this discussion, the UK model is representative of Commonwealth and Continental European financial reporting models.

Under the UK model, financial statements are prepared for accountability purposes to owners (i.e., shareholders). Corporate governance is directly linked

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<sup>1</sup> Countries whose Company Law is based on Britain include Australia, Canada, India, Ireland, Hong Kong, and Malaysia.

to the objectives of the corporation and monitoring stewardship. The US model, under the 1933 Securities Act, requires financial reporting for stock market investors, but is not directed at corporate governance. As discussed later, due to US constitutional limitations, the focus of financial reporting is market pricing. Exhibit 1 contrasts key aspects of the two models.

The issues raised in our discussion should not be viewed as condemnation of the US reporting model, but should be viewed as identification of issues for consideration for improvement. Also, in contrasting the US with the UK model we do not mean to imply that either model functions in an ideal manner. However, for purposes of identifying potential improvements, much of the discussion assumes the UK model is functioning as intended and described below. The UK system has been influenced by a number of forces not least of which is the US economy and the weight of the SEC, PCAOB and other US participants in standard setting and regulation. Our objectives are to encourage thought about weaknesses of the US reporting system, potential improvements that could be made, and perhaps most importantly, provide shareholders, directors and managers a greater awareness of potential deficiencies to minimize inefficient or counterproductive behavior (Bush 2005)<sup>2</sup>.

## LEGAL FRAMEWORKS

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The US Constitution created a system of federalism allowing the federal and state governments to share power. Some powers are specifically delegated to the federal government while others are reserved to the states. Corporate law traditionally falls under state law and due to tradition and political opposition, there has been little action by Congress to completely federalize corporate law. If Congress wrote laws that further preempted state corporate law, it is expected that there would be constitutional challenges. To expedite discussion, for the remainder of this paper, we refer to Congress' avoidance of federalizing all corporate law as a constitutional limitation. As a result, corporate governance including the responsibilities and liabilities of corporate directors and officers are largely defined by state law. Delaware has become the most popular state for incorporation of public companies. It has a flexible, non-restrictive statutory framework and has a more established corporate law. However, relative to UK law Delaware has weaker shareholders' rights, minimal liability for corporate directors and officers, and lacks a framework for public or shareholder reporting (Bush 2005,

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<sup>2</sup> T. Bush, "Divided by common language", *Where economics meets the law: US versus non-US financial reporting models*, June 2005, Institute of Chartered Accountants in England & Wales <http://www.icaew.co.uk/index.cfm?route=115933> last downloaded on May 30, 2007. If interested in topics discussed in this article, the reader is encouraged to read Bush's booklet.

p. 9). Delaware has also become a model for other states' laws over corporations.

To address low investor confidence following the stock market crash in 1929, Congress enacted the Securities Acts of 1933 and 1934 to strengthen US capital markets. Because of the constitutional limitation, Congress does not directly address director and officer misconduct. The approach taken by Congress was to create a US regulatory model. In this model, financial reporting and corporate oversight are based on information needs for market-pricing of securities. Financial reporting is separate from shareholder-based oversight. Thus, the US model was developed to create a consistent national framework for financial reporting and, in part, to substitute for weak shareholder rights in state law. However, the model is based on information for pricing shares in primary and secondary markets and indirectly to support governance. Although, the 1933 Securities Act was modeled after the 1929 British Companies Act, shareholders' rights were not directly addressed (Bush 2005, p. 9). Thus, the SEC avoids matters directly related to shareholders' rights, corporate objectives and property rights.

There is no constitutional constraint influencing UK financial reporting. Both corporate governance responsibilities and market information needs are addressed under Company Law. Historically, preparation of annual financial statements for shareholders has been a basic requirement under laws of incorporation. This is not a requirement under many state laws in the US (Bush 2005, p. 9). In the UK, information needed to monitor director and executive performance, that is, information needed for stewardship purposes determined the earliest requirements for financial reporting.

In the UK, under section 235 of the Companies Act, a privilege of incorporation requires that auditors are appointed by and report to shareholders. This section is designed to address the agency problem, namely, that persons (directors<sup>3</sup> and management) responsible for other people's (owners' or shareholders') property should be accountable to the owners. It is understood that management has a natural bias (intentional or unintentional) to make estimates in their own best interests. The role of an auditor under this system is to remove this bias.

Tim Bush argues that the UK financial reporting framework "is civil law enforced by the public and protected by the judiciary and... US... is regulation enforced by government" (Bush 2005, p. 34). Thus, in the UK investor risk is not regulated but supported by strong civil law which requires substantial reporting in shareholders' interests. Most of Europe

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<sup>3</sup> It is the authors understanding that directors of UK corporations play a more hands on role in providing oversight and direction to UK than independent directors of US firms. So although, we use the same terms (directors and management or executives) for US and UK companies. Their roles may be different.

and the Commonwealth share the view that the primary purpose of financial statements is to serve company owners, the shareholders. US reporting, which is directed at unknown potential market participants, is monitored by regulators and requires a near-criminal burden of proof to be enforceable.

## OBJECTIVES OF FINANCIAL REPORTING

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As a result of the constitutional limitations on the US reporting model, emphasis has been on financial reporting that addresses the needs of stock market investors. The key question to be answered is: *do financial statements include information needed to properly value shares?* The question that has been deemphasized is: *do financial statements include information needed to determine how efficiently management has used the resources entrusted to it?*

Financial statements significantly rely on judgments of preparers. To properly serve shareholders, preparers and auditors should understand the context within which financials are prepared and the purpose for which they are prepared. Thus, under the UK model, an informational imbalance or asymmetry is assumed to exist between directors and shareholders. This imbalance results in informational bias. The UK model attempts to help overcome this informational bias as well as fraud. The US model is intended to address the informational asymmetry between the company and the secondary market. The emphasis is on preventing fraud and thus narrowing the range of risks to investors and owners. In the UK, the goals of a corporation are defined by the corporation's constitution. Company Law supports the shareholders' interests in holding directors accountable for all company activity.

Under the US model, unlisted corporations in states without financial reporting obligations view financial reporting as a private matter including private from shareholders of the corporation (but not private from the board). Thus, under the US model, a company that incurs expenditures unrelated to the economic needs of the company or in an inefficient manner, but properly prepares financials, would not be defrauding the secondary market even though the interest of the shareholders are not properly served. The distinction is between financial needs to properly value shares versus financial needs to monitor stewardship.

Bush (2005, p. 15) argues that the purpose and authority for financial reporting under the UK model, comes from corporate objectives and satisfying the shareholder base. Further, he argues that this view of financial reporting tied to corporate objectives more naturally leads to a principles-based approach to determining the most appropriate accounting treatments. The shareholder is the customer and the enforcement mechanism. Under the US model, governance is under generally

weak state laws. The SEC focus is on financial reporting matters for market pricing purposes.

Further, Bush (2005, p. 15) cautions that share price is the perception of value by market participants at a point in time and is a step removed from the underlying economics of the company. Focusing on share price creates unnecessary uncertainty in addition to judgment required in reporting already realized or completed transactions. Bush provides an example of an approach to risk disclosures that distinguishes the two models. Assume an insurance company is exposed to an unquantifiable amount of asbestos related liability. The US model requires disclosing the existence of the potential liability. Under a stewardship model, the fact that the liability arose as a result of recent acquisition by the current board would be relevant.

Although, both the US and UK have common law legal systems, there is a sharp contrast in case law on financial reporting matters. Note the difference in the logic used by the UK Law Lords and then a US Court in the following decisions.

*The members, or shareholders, of the company are its owners. But they are too numerous, and in most cases too unskilled, to undertake the day to day management of that which they own. So responsibility for day to day management of the company is delegated to directors. ... it would of course be unsatisfactory and open to abuse if the shareholders received no report on the financial stewardship of their investment save from those to whom stewardship had been entrusted.*

*It is the auditor's function to ensure, so far as possible, that the financial information as to the company's affairs prepared by the directors accurately reflects the company's position in order, first to protect the company itself from the consequences of undetected errors or, possibly, wrongdoing (by, for instance, declaring dividends out of capital) and, secondly to provide shareholders with reliable intelligence for the purpose of enabling them to scrutinize the conduct of the company's affairs, and to exercise their collective powers to reward or control or remove those to whom that conduct has been confided<sup>4</sup>.*

Compare the Caparo decision above to a recent US Court decision on alleged misreporting by (interestingly, a UK company) Cable & Wireless plc.

*Congress did not intend for the Securities laws to be used by investors to play "Monday morning quarterback" on the legitimate business decisions, however bad, of company officers and executives<sup>5</sup>.*

<sup>4</sup> *Caparo v Dickman* (1990) 1 All ER 568.

<sup>5</sup> *In Re Cable & Wireless, PLC*, Securities Litigation, 321 F. Supp. 2d 749, 759 (E.D. Va. 2004).

*... Defendants Lerwill and Wallace's behavior may reflect bad business judgment. However, as executives and officers of C&W, Defendants Lerwill and Wallace were within their rights not to publicize this information*<sup>6</sup>.

These decisions highlight differences in responsibilities of US (under securities laws) and UK directors and officers and role of the auditor. The US model adds a level of complexity by viewing damage from misreporting through the lens of share price and whether or not officers were aware of the misreporting. The UK model views misreporting through the lens of the owners of the corporation.

As indicated earlier, historically (at least since enactment of the Security Act of 1933) the principles under which accounting and auditing standards have been drawn up are different. The UK model answers the question "what would the shareholder want to know about how well the company is being run?". The US model answers the question "what does the market need to know?". This difference in approach is highlighted in another US court decision.

*Plaintiffs brought suit against the defendant and its directors and officers under Sections 11 and 15 of the Securities Act of 1933, and Sections 10(b) and 20(a) of the 1934 Securities Exchange Act. In support of their claims, plaintiffs asserted that the defendants employed a variety of improper accounting methods in order to conceal the true state of their financial results. First, plaintiffs alleged that defendants over-capitalized interest on debt. However, the court found that the complaint failed to allege how this practice violated any accounting standard, such as GAAP and, thus, the court could not determine whether this accounting practice was improper*<sup>7</sup>.

Bush (2005, p. 19) argues that because of a possibly flawed US model, gaps occur in financial accounting standards. As indicated earlier, a major missing piece in the US model is a lack of state law to ensure financial reporting is linked to the objectives of the corporation.

## PRINCIPLES VERSUS RULES BASED STANDARDS

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Peter Wyman summarizes a popular view of the debate.

*It is a brave standard setter indeed who can be certain to have covered every possible situation, both current and potential, and to have*

<sup>6</sup> *In Re Cable*, 758.

<sup>7</sup> *re Calpine Corp. Sec. Litig.*, 288 *F.Supp. 2d* 1054 (N.D. Cal. 2003) as quoted in *Securities Litigator Survey 2003–2004*, Joseph Allerhand and Paul Ferrillo, Weil, Gotshal and Manges.

*provided a detailed rule for it. A set of principles can cover every situation whether foreseen or unforeseen. ... rules encourage avoidance, whereas principles encourage compliance.*

*Unless International Accounting Standards are developed with a substance over form concept and on principles rather than rules based approach, there must be a significant risk that they will not be adopted in full in Europe, or alternatively, by adopting them the UK and, indeed, many other European countries, will see a significant step backwards in the quality of financial reporting.*

(Wyman 2002)

A similar criticism is raised over US auditing practice. “US-influenced audit standards are heavily influenced by the «tick box» approach which has the aim of demonstrating that the auditor has not been negligent. Some take the view that this reduces the technical quality of an audit” (The Association of Chartered Certified Accountants... 2004). The UK auditor is hired as an agent for the owners of the company. However, under the US model, there is greater emphasis on a regulatory audit that complies with detailed standards.

For listed companies in the UK (and the rest of the European Union), the role of accounting standard setting is in the hands of the International Accounting Standards Board, but the legal framework for corporate governance framework has not changed. Under the oversight of the SEC, the Financial Accounting Standards Board determines US GAAP.

Bush (2005, p. 21) argues that there are gaps in GAAP that can be exploited because of the absence of a guiding compass in federal law. Although the US government is subject to freedom of information, private corporations are allowed complete privacy even including relevant financial information to owners. Auditors are limited in their ability to address issues or information needs of owners.

Under the US model, auditors report to the audit committee of the board of directors. Under the British model, auditors report to and are responsible directly to the shareholders. It should also be noted that the US model (particularly federal securities laws) only apply to listed companies. The British model applies to all corporations. The Companies Act includes firm requirements to disclose financial information that may influence shareholders views to the company in which they have invested. Section 226(2) of the Companies Act drives a substance over form approach. Prior to the requirement of IFRS, accounting standards in the UK have been more for guidance than instruction. This was possible because of the more complete framework in which reporting takes place.

The principles based UK reporting model creates few contradictions. It is based on information relevant to owners and on actual economic out-comes. Some argue that the US environment of secrecy resulting from state law allowing high levels of privacy helps create Enron type failures.

## ROLES OF AUDITORS AND CORPORATE GOVERNANCE

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It is possible to correctly value shares of a company even though directors and managers are poor stewards over corporate resources. However, the result of the SEC emphasis on information for proper valuation in capital markets and weak shareholder rights has resulted in US auditors focusing overwhelmingly on market pricing. Little emphasis is placed on evaluation of management's stewardship.

The US audit opinion for a listed corporation, e.g., a Delaware corporation, expresses an opinion on the form of the financial statements and their compliance with standards (GAAP). UK auditors provide two different audit opinions, one on substance (Companies Act s226(2)) or appropriateness and the other on form of presentation (s226(3)).

According to Zeff, Arthur Andersen followed the two-opinion approach from 1946 to 1962. Arthur Andersen, himself, expressed concern that technical compliance with GAAP could be misleading.

*“The reputation and standing of the firm have been built upon a four-square policy of honesty and forthrightness. If, after the most thorough investigation and careful consideration, we are convinced that a certain accounting policy is fundamentally unsound and that its application will result in financial statements that are materially misleading, we must take exception to this policy in our certificate; we will not avail ourselves of the technicality that the principles to which we object may be quite generally accepted.”*

*This policy reflected the view of Arthur Andersen and the partners in the firm, no less than other members of the profession, should use their independent judgment when assessing the propriety of accounting principles, and should not unquestioningly subordinate their professional opinions to the rules and procedures approved by a committee.*

(Zeff 1992)

Zeff indicates that other firms did not support this approach and the SEC discouraged its continued use.

Earnings are a major focus for share valuation. Since the US model focuses on share valuation, great emphasis is placed on earnings. It is argued that having regulators focus on earnings may encourage the game of chasing earnings. Balance sheet and other substantive aspects of financial reporting fall under state law with its limited to no reporting requirements. Bush (2005, p. 28) argues that the UK model is equally balance sheet as well as earnings focused and risks are mitigated by its substantial governance framework.

Under the British model, bias is not viewed as a rarity or evil. It could result from an unintentionally optimistic view of management that is



sometimes too close or too hopeful to be objective. Under the UK model, auditors serve shareholders and not unidentified market participants. Auditor reports are directed toward providing owners with useful information to make decisions about the stewards of their resources. The focus is not share price and therefore the primary concern of auditors should not be a concern of the impact of the accounts or their reports on share price. If shareholders are provided useful information on management, they can mitigate their risk by changing management not just by selling their shares.

Having the auditors report to the board, as in the US, may exacerbate the agency problem of the auditors being too close to the board by further reducing independence. Auditors may be encouraged to support poor management because they hired the auditors.

As in Sarbanes-Oxley, the trend in emphasis of the SEC is towards increasing the role of the auditor in decreasing information asymmetry between management and independent directors of a company. The audit committee is required to be made up of independent members of the board. To decrease information asymmetry, communications between auditors and audit committee have been increased and the auditors report directly to the audit committee. This approach assumes independent directors are not part of the problem of poorly performing companies. In poorly performing companies, it seems reasonable to expect a higher likelihood that independent directors are part of the problem by not doing a proper job of oversight. Therefore, directors cannot be expected to be neutral towards reporting that reflects poorly on their stewardship. In other words, poor corporate performances are not random occurrences and are likely to reflect poor performance of directors.

Out of Congress's traditional deference to states' powers under the Constitution, SOX section 404 only addresses controls on the process by which financial reporting is prepared and communicated. Under the UK model, directors are responsible for internal controls over the safeguarding of assets in addition to financial reporting. Auditors are liable for controls if their performance is negligent.

Another issue with the US regulatory system is that the burden resulting from director and management wrongdoing is often paid by shareholders. For example, in 2004 Shell plc was fined for misstating oil reserves<sup>8</sup>. Thus, the owners had to pay for errors of their entrusted stewards.

Consistent with its constitutional constraints, the 1933 and 1934 Securities Acts and Sarbanes-Oxley Act of 2002 focus on reporting requirement rather than on running the business. This pushes the efforts of directors and management towards a higher duty of care on reporting rather than making substantive economic decisions. In the extreme, the

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<sup>8</sup> <http://news.bbc.co.uk/1/hi/business/6544057.stm> retrieved June 7, 2007.

efforts of independent directors are pushed towards compliance matters rather than substantive decision making. This tension does not exist in the British model.

Securities Acts shifted the most significant potential liability to auditors coming from precipitous share price declines. This could discourage auditors from requiring the reporting of bad news that potentially increases their exposure. UK audit liability arises from negligence coming from financials that do not provide a true and fair view to owners and directors.

The European Commission for some time has favored International Standards on Auditing (ISA) determined by the International Federation of Accountants (IFAC). These standards are similar to US auditing standards. Section 432(2) of the UK companies Act of 1985 requires consideration by auditors of “whether the presentation adopted in the financial statements may have been unduly influenced by the desire of those charged with governance ... to present matters in a favorable light”. Adding this requirement to converged international auditing standards may be prevented due to its inconsistency with US securities law and the US constitutional constraint. Trading in secondary markets is a zero sum game. Auditing for secondary markets as in the US is a different objective than auditing for current owners or shareholders.

## SHARING PROBLEMS OR SOLUTIONS?

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Congress’ creative solutions to “federalize” some corporate law in the US have created problems abroad. All SEC registrants, both domestic and foreign, are subject to SEC reporting requirements. Thus, through US securities laws including Sarbanes-Oxley, the US reporting model which attempts to compensate for weak shareholders’ rights with extensive regulatory requirements aimed at information appropriate for share valuation is being forced on companies in jurisdictions that do not have constitutional limitations similar to the US. Bush (2005, p. 32) argues rather than look at the cause, the US in SOX has attempted to resolve governance problems with burdensome processes.

## QUESTIONS AND ISSUES

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The preceding discussion raises a number of issues and questions about the US financial reporting model. In this section we list some of these questions. In the concluding section we present potential improvements.

- Have weak shareholder rights under state regulation (and US reluctance to further federalize corporate law) played a significant role in

inflating US executives' salaries or are executives' salaries driven appropriately by supply and demand?

- Does the US model help hide an inappropriate business model from owners until stewardship decisions unambiguously affect share value (which might be too late for recovery)? Enron could be an example of this situation.
- Should the role of the auditor be changed to include a role in reporting on the efficiency of the use of corporate resources in achieving corporate goals to help shareholders judge stewardship of their agents, directors and officers?
- Is there confusion over auditor accountability? Auditors report to shareholders in one capacity and to the board (audit committee) in another capacity.
- If a reporting model with greater emphasis on monitoring stewardship is desirable, how could the US move in that direction? Would states voluntarily strengthen shareholders rights? Should the US further federalize corporate law?
- Is the US reporting model and the challenges created by Congress and the SEC (Sarbanes-Oxley and SEC reporting requirements) driving foreign companies to rival global capital markets such as London and Hong Kong?
- There may be situations where independent directors performs poorly or with bias and the auditor reports to the directors. If auditors do not report to shareholders, but direct to audit committees, who oversees audit committees?
- Due to extensive guidance, have audit committees and auditors become process driven rather than focusing on business output relative to company objectives?

## FINAL THOUGHTS

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Capital market regulators and others that affect US corporate governance should not assume the US model is the only model. As the world moves towards convergence of accounting and auditing standards as well as corporate governance policies, we should consider strengths and weaknesses of the US as well as other models. Improvements could result from more principles-based accounting and auditing standards that require preparers and auditors to consider objectives of the corporation as well as needs of the owners. Exhibit 2 identifies changes that could move the US financial reporting model in this direction. These changes cannot be easily accomplished. And, one need only consider abuses that have occurred with U.S. principles-based standards, such as SFAS #5, *Accounting for Contingencies*, to realize that change can be a daunting process.

**Exhibit 1.** Comparison between US and UK Financial Reporting Models

	US	UK
Primary laws affecting financial reporting	Federal securities laws and regulation <ul style="list-style-type: none"> <li>■ Securities Acts of 1933 and 1934</li> <li>■ Sarbanes-Oxley</li> </ul>	UK Company Law <ul style="list-style-type: none"> <li>■ Civil law</li> <li>■ Contract/property law.</li> </ul>
Primary purpose of audited financial statements	Pricing of shares	Accountability (Monitoring stewardship by directors & management)
Purpose of audit	Reduce information asymmetry between company & secondary market, that is, prevent conveying false information to market	Reduce information asymmetry between directors & shareholders, that is, ensure unbiased information to owners on stewardship of company
Who is required to be audited?	SEC listed companies	All companies
Who are auditors acting for?	For shareholders	For board
Approach to accounting standards.	Principles <ul style="list-style-type: none"> <li>■ Substance</li> </ul>	Rules <ul style="list-style-type: none"> <li>■ Compliance</li> </ul>
True and fair override?	No	Yes
Primary Auditor liability	Tort	Contractual

**Exhibit 2.** Potential Changes towards Outcomes

- State law laws of incorporation requiring financial reporting to support shareholders.
- Individual corporations requiring financial reporting in Articles of Incorporation.
- Federal regulatory system supporting the principle of shareholder interest.
- SEC deregulates as states increase support of shareholder rights to financial information.

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Željko Šević

# RE-BUILDING THE ACCOUNTING PROFESSION IN SERBIA: A STORY OF THE ZIG-ZAG PATH

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## Abstract

This paper explores the recent development of the Serbian accounting profession in the last two decades. The paper focuses on the transition from a wide membership organisation to a professional body, with a delegated quasi-public authority. The problem emphasised in this paper is that even in socialist times, the Association of Accountants and Auditors, that is its predecessor, had public authority to regulate accounting and the Yugoslav accounting standards, developed by the profession (although at the time most of the characteristics of the professional body were not met) were guaranteed and enforced by the Government (State). Although the capacity of the profession has been on the rise in the 1990s, the most recent Law signifies a serious setback with far-reaching negative implications to the accounting profession in Serbia.

## 1. INTRODUCTION

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In the process of globalisation many convergences take place, although often we would label them as harmonisation. In fact, the best practices are observed and then through a somewhat lengthy process others try to implement those standards, which are deemed to be high and/or leading. In accounting, the literature process is mainly focused on the harmonisation issues (see: Doupnik and Salter 1995; Gray 1988; Mueller 1967, Ding, Jeanjean and Stolowy 2005, Salter and Niswander 1995), whilst the accounting profession and its convergences amongst the countries have not been studied. To a large extent, we are somewhat used to the

differences in treatment of professional accountants across national jurisdictions. In Continental Europe, universities have been producing professionals in the field of accounting, as they have done for centuries creating lawyers, teachers, etc. and many other professions. Whilst a certification process may have been established for some professions (lawyers), other professions were not regulated, although professional associations have attempted to control the overall quality of work rendered by its members.

However, the nature of these organisations was rather populist and in the case of Central and Eastern Europe (CEE), it would be illusionary to talk about their independence and impartiality, as in those societies until the late 1980s the Communist parties have had not only a political, but also a societal monopoly. With the fall of the communist regimes and the promotion of market-orientated economies, the need for delivering professions became extremely important. Therefore, there was a strong drive to promote an independent accounting profession, or more importantly – an audit profession. To a large extent the results were positive in most of the countries. However, the model that was applied differed widely. In a number of countries, the ones that were the first to open their borders, the inflow of Western accountants has largely dictated the development of the accounting profession, in other words, the transformation happened with the dominance of Western accountants and the appreciation of their competencies is still very high. In other countries there is high regard for Western-chartered accountants, but the domestic laws are fairly limiting when it comes to practising their licences. But despite that, the Western accountants are allowed to work on the audit documents preparing them, but only a locally licensed auditor will be the (main) signatory. And finally, we have the countries where the domestic accounting profession has always been rather strong and even Western trained accountants would usually seek to have a local recognition and license. Serbia would certainly be in the last group.

At the times of the initial transition (the late 1980s and very early 1990s), it was trumpeted loudly that the profession had to be independent (of the government), not serve as a relay of information to tax authorities and that it had to be largely self-regulatory. In theory this may have sounded very attractive, but in practice very little was effectively done to promote self-regulation and to ensure the necessary capacity building. Initial region-wide actions were taken in that direction, but the strength of national accounting organisations has remained questionable in a number of countries (Czech Republic, Poland and Slovakia, in the first instance), as the strong presence of a local accounting base was not in the interest of large foreign-owned accounting firms. Also with the large corporate scandals in the USA (Enron, WorldCom, just to name a few), the attitude towards self-regulation in accounting

has changed, if not dramatically, then at least – significantly. Under the strong pressure from the disillusioned markets, the fifth big accounting firm Arthur Andersen ended their activities and the US Security and Exchange Commission (SEC) resumed the role of accounting regulator. This would change the face of the profession that we know in the USA and in the UK – the leading countries of the Anglo-Saxon world (see: Liesman et al., 2002; Economist, 2002).

Although the current trends are clearly known and can be logically followed through, it is, in all fairness, difficult to speculate as to future developments in the regulation of the accounting profession. At present, American regulation is more interested in delineating conflicting interests and preventing situations where accountancy services may lead to more ‘inter-twined’ relations and lucrative non-accounting contracts provided by the professional accounting firms.

In this paper we will focus on the main aspects of the development of the accounting profession in Serbia, primarily in the last decade. As Serbia was a republic in the former Yugoslav federation, the story over there is significantly different to other Central and East European countries (CEECs) that closely followed the Soviet socialist blueprint. In the case of the former Yugoslavia, the reforms initiated in the 1950s and especially the 1960s led to a specific hybrid planned-market economy underlined by workers’ self-management as a dominant model of economic governance.

## 2. BUILDING A PROFESSIONAL ASSOCIATION IN SOCIALIST AND POST-SOCIALIST CONTEXTS

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Yugoslavia was the first country to break away from the dominant Soviet economic blueprint and to try to build some kind of a hybrid system, which would take into consideration the powerful market forces, but also take care of interests of society with some social planning, done in a fairly consultative way. The Yugoslav *plan-market economy* intended to combine the advantages of both the main models and to eliminate all the known shortcomings. The plan was to steer the economy in a desired direction and through pro-active industrial policies ensure that the duplication of production and waste of social capital would not emerge. Theoretically, the markets were there to relay information, but in practice they had secondary importance and this emerged even more in the times of serious economic crisis in Yugoslavia in the 1980s. The actual model was theoretically feasible, but in practice it did not work. This was mainly because of the predominant role reserved for a strong political factor, expressed through the overall supremacy of the Communist party (the Union of Communists). Being moderate, the Yugoslav



communists did not completely destroy the foundations of “free professions” that existed prior to the “socialist revolution”, i.e. before WWII.

To a large extent, the development of the modern Yugoslav accounting profession was heavily influenced by the political development and the changes of direction in the Yugoslav social development. Immediately after the war, the profession was not regulated and one may say that it was treated just as a handicraft. Everyone was able to become an accountant, as particular education and training was not formally required. However, in practice, firms looked for a number of years of practical experience. For a number of years, no (good) university graduate would pursue a career in accounting. During the years of the first Five Year Social Plan (1945–1950), which was prepared following a Soviet blueprint, the accounting role consisted in recording the changes and reporting the physical output. The obsession with physical production, rather than efficiency and effectiveness, which already dominated the Soviet economy, was to be introduced in the Yugoslav economy. The strong waves of agricultural collectivisation meant that agricultural co-operatives were treated as regular enterprises and an accountant had to record transactions and ensure that there were enough resources to fulfil the allocated plan. Due to a soft-budget constraint (see Kornai, 1986), when resources were needed for the fulfilment of the plan, they were given without a question.

The formal role of the Chief Accountant was pretty much a charade, as in fact that person did not have any power and was simply a senior bookkeeper. Entry to the profession was mainly by allocation, rather than choice. Usually a trainee would be allocated arbitrarily to different departments within an organisation and they (the trainees) were able to do very little to change what seemed to be destiny. A prospective accountant was put into an accounting department and usually started with handling the so-called “material accounting” (accounting of supplies and material reserves), which was followed by training in the ledger-book division. Occasionally, this may have been accompanied by some general accounting training, but very rarely. The main focus was put on the accuracy of work carried out and the experience that a trainee obtained performing the *routine* operations. There was no need for the use of analytical financial information, due to the neutrality of money (that is the use of money just as a unit of account (see: Šević 1995; Šević 1999). In the very early post-revolutionary years (1945–1950), the main criterion for entering into accounting was that the person was regarded as honest and had respectable integrity.

The situation began to change, although very slowly, after 1948 and with the break-up with the other socialist countries (at the time called the “peoples” democracies) and the USSR. Yugoslavia looked for an alternative model of socialism that would be more worker-centred. In 1950 the Workers’ Councils were introduced, primarily in the industrial

enterprises. This was followed, in 1953, by the introduction of *social self-management*, which became a social model and the basis for the emerging political regime. Workers (formally) got the power to make necessary decisions and the classical rigid Soviet blueprint became a thing of the past. The rapprochement with the USA, which began in the early 1950s, meant a wider opening of the country and additional financial injections that initiated an accelerated growth. The reforms instigated in the 1950 were accelerated, with a view of creating a new economic system, not allowing shortages of goods. The formal post-war reconstruction process ended in the mid-1950s and the industry was allowed to move from the production of capital investment goods to producing consumer goods, or anything that they could find customers willing to buy (see: Šević 1996).

When the process of deregulation and liberalisation accelerated, the Association of Bookkeepers of Serbia was established in 1955. The Federal Yugoslav Association followed later that same year. It is argued that it was the first case of self-organising of bookkeepers in Serbia (Milošević 2000) and indicated a realisation that in the new market-plan conditions this profession would become more important. Initially, the Association was regarded as a so-called “social organisation”, that is a society whose goals, aims and objectives were beneficial to the society as a whole. The Association did not have any self-regulatory powers. It tried to promote the profession and professional behaviour and to work on the organisation of continuous professional development (CPD) of its members. There were no formal membership criteria set. Anyone who worked in accounting was eligible to be a member, or in fact anyone who was interested in accounting and wanted to join, as it was against the law for a social organisation to deny membership to an interested party. The freedom of self-organisation of citizens was guaranteed by the Constitution and the norm was literally interpreted that no one, except the court, can deny the right to any citizen. As in all socialist countries, the Association and its social position were heavily influenced by political shifts in society.

With the introduction of an advanced concept of “workers’ self-management’ named “*associated labour*”, the Association renamed itself, using at the time popular political jargon. From 1972 to 1991 the Association operated under the name the Association of Accounting and Finance Workers<sup>1</sup>. The legal status did not change much, although the Association was required to re-register with the Ministry of the Interior a few times. The favourable status of a “social organisation” was kept, which meant that the organisation was not a subject to direct taxation and enjoyed many financial advantages. In organisational terms,

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<sup>1</sup> Often in literature published in the West the term “expert” is used (Association of Accountants and Financial Experts). See: Petrovic and Turk 1995.

it spread widely and all people working on accounting and bookkeeping posts were encouraged to become members. The practice of organising seminars and other forms of CPD was further emphasised and it became a norm to organise an Annual Congress of Accountants in the last week of May; with a selection of chosen professional and academic papers addressing many burning issues facing the accounting theory and practice, and with a large number of delegates/participants in attendance.

The Association performed its functions through extensive publication activities, the development of a very strong pool of lecturers who delivered courses across the country and through joint ventures with other interested parties. For instance, the Association was one of the co-founders of the College of Economics and Commerce in 1956. Today it is an independent College of Business, an integral part of the Serbian system of higher education. The College initially offered associate degrees in Economics, Finance, Insurance and Accounting. The recruited staff was very good and many of the professors were prominent researchers, although they taught at a two-year College. Interestingly, the College attracted many pre-WWII (and pre-Communist) scholars, as somehow it was perceived as a non-state initiative and therefore welcomed by those who were not of left-leaning. The study at the College initially lasted four and later five semesters. All students were asked to take a compulsory dissertation unit and to prepare and defend a *viva voce* dissertation at the end of semester five. Also, each of the students had to undergo a semester long work placement (as a part of a separate course called “Professional Practice”). This practice has remained until today and the College is the major national provider of non-degree economists (of which over half specialised in accounting and related disciplines).

Moves to seriously reform (or actually abandon) the socialist system were first made in 1988, with the introduction of a set of reform laws. However, these laws were not very far-reaching, but nevertheless set the stage for further changes. The Association perceived opportunities and took an active role in supporting the changes. Luckily, the Association had a well-established material base and in the early 1990s began the work of re-establishing the profession. The Federal Law on Accounting introduced in 1993 laid good foundations for the creation of the accounting profession. For the first time since the end of WWII, the Law explicitly stipulated that keeping the books and the preparation of financial statements must be done by a professional (Art. 6/1). A professional has to be of Yugoslavian nationality, with a professional qualification and not sentenced for any criminal offence, which would make him or her unfit to practice accounting. The law classified these professionals into three classes: 1) accountant (*računovodja*), 2) autonomous accountant (*samo-stalni računovodja*) and 3) certified accountant (*ovlašćeni računovodja*). An accountant in the Yugoslavian classification would be equivalent to

an “accounting technician” in the UK accounting terminology. Namely, a person who is allowed to sit an examination in order to get a professional title of an accountant must have a secondary school leaving certificate where the programme of the study had a significant element of economics and accounting, and must also have substantial professional experience (minimum three years).

A candidate for an independent accountant must have an associate degree in economics and have three years of professional experience in accounting. In order to get the professional title of a certified accountant, a graduate with an economics degree has to sit a fairly complex professional examination, after three years of experience in accounting. The candidates for all three professional titles have to gain at least three years of supervised professional experience. There is no specific regulatory requirement regarding the professional experience. However, it is assumed in practice that all candidates will be given the opportunity to work on all the aspects of accounting work that is covered by the study programme. The idea is that a successful candidate will possess the capacity to keep the books and prepare financial statements alone and to practice the profession without any formal supervision. As the professional examination focuses on a list of competencies that a prospective professional accountant must have, those competencies must be achieved through individual study, attendance of lectures organised by the Association and finally through professional experience.

The Law explicitly requires that a company decides internally what the requirements for their accountants will entail. However, large firms can entrust their accounts only to a certified or independent accountant. Also, there is a provision for a company to contract-out accounting services, either to a company registered for accounting services or to an individual with the appropriate professional qualifications. However, large firms, insurance companies, banks and other financial institutions cannot contract an outsider to keep their books. They have to organise their own accounting departments or sign a contract with an accounting firm. However, in practice only SMEs contract-out their accounting function and in most cases they have their own individual taking care of their books.

The Law established the right of “public authority” to the Associations of Accountants and Auditors. In fact, the Law authorised the Federal Association to set accounting standards, to prepare a programme for professional qualifications and to fix the examination fee, to establish a Commission for the recognition of professionals titles, to issue a certificate to professional accountants and to produce and maintain a list of professional accountants. The Law requires an accountant to be a Yugoslavian citizen, in the first instance. Foreign nationals could practice accountancy in Yugoslavia under the condition of reciprocity;

that is to say if a Yugoslav accountant is also allowed to practice in that particular country. Therefore, the Association's Commission for Professional Training should be in a position to licence a foreign accountant and allow him or her to practice the profession in Yugoslavia. The Law also gives the power to the Federal Ministry of Finance to supervise the Association in performing these duties and if necessary, to inform the Federal Government of all shortcomings detected during inspection visits.

The Federal Ministry usually performs its duties through occasional administrative inspections and following these visits, all eventual shortcomings are to be addressed within a given period of time. Of interest to us is, also, the transitional provision of the Law that all the people who had the required educational qualifications and more than 15 years of professional experience in accounting were to be given a professional qualification, without needing to sit an examination. However, this was not done automatically, as the prospective professional accountant was required to prepare a portfolio confirming that he or she met the standards and had to apply personally to the Association to have the qualification bestowed. The Law also fixed a cut-off date of six months from the day of the enactment. The process of granting initial professional qualifications based on prior extensive experience was ended on 30 June 1997.

Nowadays, prospective accountants are usually "produced" by a number of secondary economics schools, a few Colleges offering only associate degrees and five economics faculties in the country (Belgrade, Kragujevac, Niš, Subotica<sup>2</sup>, Priština<sup>3</sup>). The entry quotas for the number of pupils in secondary schools and students in Colleges and Universities are set by the Government. Basically, it is assumed that the Government will take into consideration different criteria when deciding on a number, but research has shown that there is very little rational behaviour in setting entry targets for educational institutions (Šećibović, et al., 1993). Therefore, a large number of students will study in the field of social sciences, business and law, as these academic disciplines require a relatively low investment per student. The government is usually fairly

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<sup>2</sup> I.e. '*Szabadka*' in Hungarian. Subotica is a major city in Serbia with predominantly Hungarian population that played a prominent role in economic developments of Vojvodina (Northern Serbian Province) in the late 19th and very early 20th century. This is still an important border town on the border with Hungary.

<sup>3</sup> There are currently two Universities of Priština, one Albanian speaking in Priština itself and another one relocated to the northern part of Kosovska Mitrovica, which is the only remaining significant Serbian enclave in Kosovo. The Serbian authorities technically recognise both "Universities", although it is clear that they do not have any control over the Albanian speaking one. With the Kosovar declaration of independence on the 17th of February 2008, we are still to see what will effectively happen with the Serbian-speaking University of Priština.

reluctant to increase the entry quotas for medicine, technical disciplines and basic sciences, but many of these disciplines had recruitment problems anyway in recent years.

The Yugoslavian Universities are still run in a traditional *Humboldtian style*, with the focus on research and scholarship, and collegial management. There is very little, if any, contact with future employers, professional organisations, associations of businesses and so on. In other words, the Universities are still the “Ivory towers” that do not consult with their stakeholders. Students are heard, but usually the student organisations are interested in themselves and professors have an almost exclusive authority in the class. There are of course exceptions, but those are few. Not having close contact with all these social stakeholders tempers the quality of programmes and their modernity. Our recent look at the literature listed for accounting and finance courses at a few Universities in Yugoslavia disclosed that many courses are taught in an old fashioned manner with very little practical elements. In fact, most courses have a complicated theoretical content, which is of very little use for a modern accountant. Traditionally, the Association does not have any input in the process of designing and revalidating programmes. Usually programmes are reviewed every ten years, although minor changes can be made at any time. However, the latter possibility has been exercised only rarely and if done, it was usually to meet the wishes of a professor who would like to teach a course in the area of his or her *specialism*. In most cases the course syllabi remained unchanged for a number of years, the list of readings included.

However, changes have happened most recently. In 2007 the Association of Accountants and Auditors signed contracts with all the Universities in the country concerning the conditions of recognition of the examinations passed at the Universities when a graduate registers for professional qualification training with the Association. In fact, this is a replication of the current UK model, where there is a general agreement between individual University and professional accounting bodies (except for two “old” institutes – The Institute of Chartered Accountants in England and Wales and the Chartered Institute of Accountants in Scotland, which traditionally do not make any exceptions). It seems that this move has improved the relationship between the Association and the Universities and will be an important building block for future collaboration.

As a consequence of the highly theoretical approach to teaching, graduates are well-read and educated, but with very little ability to fit into the day-to-day business practices. This is a problem that the Association has been trying to address in recent years since the professional examinations were introduced. The preparation for professional examinations is more *competence based* and it is expected that a successful candidate is able to keep the books autonomously and competently.

### 3. SITTING EXAMINATION AND BEING CERTIFIED

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After being employed as an accountant for at least three years, a person can apply to sit a professional examination. The application is to be lodged with the Association with the supporting documents. After the supporting documents are examined, the candidate will be officially registered and will be sent an examination schedule. The Association offers a preparation programme of 120 hours for all interested and the programme is free of charge for all members of the Association. It is usually expected (at least after 1993) that all people working in the accounting profession are members of the Association. On the 31st of December 2001, the Association had 13,564 members who were professionally qualified as “accountants”, 7,265 who qualified as “independent accountants” and 6,855 who qualified as “certified accountants”. Under the previous Law on Auditing, 143 people acquired a professional qualification as auditors and 42 as “certified auditors”.

The candidates are required to sit a number of exams depending on the type of professional qualification sought. All exams are sat in one day, but if a candidate fails one of the exams he or she can retake it in the next examination period. Usually exams are sat in April and October, in a few major cities across the country. There is no flexibility in the examination arrangements. The examination is organised by the Association in compliance with ROS 31 (Računovodstveni obrazovni standard – Accounting Educational Standard No. 31). The Standard clearly specifies the programme of study that a candidate should follow for each of the professional qualifications. Although the programme takes into consideration the developments in theory, it is very practical and competence based. All prospective candidates are required to complete a case study and to hand it in before taking the examination.

The purpose of the oral examination is to establish whether a candidate did the work himself and whether he or she is capable of communicating effectively about accounting and finance matters with outsiders. The ability to communicate effectively and present accounting information in a useful manner has become a very important issue that the Association has been trying to address. As we have already said, the Association promotes competence-based training and it is the first time that a professional organisation in Yugoslavia has endorsed this methodological approach. The Bar and medical associations are more focused on assessing the candidates’ overall (mainly theoretical) knowledge, whilst accountants are required to perform their duties in an effective and efficient manner satisfying both the legal requirements and their customers. In order to promote competence-based training, the Association, in JRS 31, clearly stipulated the

outcomes of the training programme and what a successful candidate must demonstrate. It seems that the Association applied *educational benchmarking* in setting the standards for a successful candidate, which is again a novel approach for Central and Eastern European Countries (CEECs).

In 2003 the national accounting education standard introduced the examination in the Serbian language, which in fact fully aligns with the programme offered by ACCA. The only difference is that traditionally in Serbia there have been three classes of professional membership, depending on the entry qualifications. These classes are: an entrant with a completed secondary school, an entrant with completed college (associate degree) and an entrant with a 4-year University degree. As a rule, each entrant could qualify for the responding professional qualification and there was no opportunity for progress. At the moment, Serbia is in the midst of the HE reform, in order to introduce the Bologna Declaration criteria. It has been decided to move to the classical model of 3+2+3 years and consequently the reform of professional qualifications took place. At present, 'accounting technician' will remain the qualification for those with a secondary school, certified accountants will be professionals either with a college or a university degree and finally certified public accountants will be only those with a university degree and significant experience. In other words, CPA will be primarily engaged in audit business. The Association will phase out the old title "independent accountant", i.e. *samo-stalni računovodja*, which was the qualification targeting only those with a college (associate) degree. Now, the certified accountant qualification will be for the candidate completing both college and University, although over time it is expected that they will converge and very little differences will remain in place.

A candidate to sit for the Accounting Technician (accountant, i.e. *računovodja*) qualification will be required to pass the following examinations:

- 1.1 Recording of Financial Transaction
- 1.2 Information for Management Control
- 1.3 Preparing Financial Reports
- 1.4 Cost Accounting
- 1.5 Application of Audit Procedures
- 1.6 Tax System
- 1.7 Human Resources and Systems Management
- 1.8 Financial Reporting
- 1.9 Planning, Control and Performance Management

A prospective candidate for a professional qualification – certified accountant (*olašćeni računovodja*) should successfully complete the following examinations:

- 2.1 Preparation of Financial Statements



2.2 Financial Information for Management

2.3 Human Resources Management

2.4 Information Systems

2.5 Corporate and Business Law

2.6 Tax System

2.7 Financial Management and Control

2.8 Financial Reporting

2.9 External and Internal Audit

A “certified accountant” is defined as a professionally qualified person who possesses the necessary level of professional and practical knowledge and experience for the independent keeping of “business books”, the preparation of accounting statements, the general organisation of the accounting function, the internal control (audit), the organisation of accounting function in a multi-cultural environment such as joint-ventures, foreign direct investments and the organisation of the accounting function in parts of a company or separate legal entities owned by the mother company abroad. For a certified accountant, it is clearly stated that he or she must have *advanced knowledge* of the principles of accounting in different types of business systems (corporations, holdings, groups, etc.), the theory and policy of capital structure, the financial analysis and methods of business organisation, the complex asset valuation and portfolio theory and practice. The candidate’s competence for independent work will be primarily assessed through his or her ability to apply in practice the methods of company and share valuation, to prepare and defend capital investment decisions and prepare accounting information necessary for the management decision-making. A “certified accountant” has a legal right to sign all types of accounting and financial statements, and therefore he or she performs an important public function. They guarantee with their signatures that the Law and the Yugoslavian accounting standards are respected and that information contained in the statements is true and fair, giving a correct picture of the financial situation of a particular legal entity.

A candidate for CPA (*olašćeni javni računovodja*) should also pass the following exams:

3.1 Audit and Assurance Services

3.2 Performance Management

3.3 Strategic Business Planning and Development

3.4 Advanced Corporate Reporting

3.5 Strategic Financial Management

Certified public accountants should master the knowledge of auditing, both practical and theoretical. They also have to have professional experience in performing audit before they have their qualification confirmed. At the end of 2007 there were just over 85 CPAs in Serbia, which is generally a small number taking into consideration that

the Association has some 16,000 members and associates (students, lay members, etc.).

In 2007 the Association translated all the books published by Kaplan for the ACCA professional programme study and these texts were used for the first time for the December 2007 examination. The Association has also abandoned the old practice of allowing six examination periods per year and now follows the ACCA standard of two examinations per year. This has proven a good decision, as more students opt for professional training offered by the Association and other private and/or public providers and the overall results are much better compared to the previous years, although the pass rate is highly comparable to the one in the UK for ACCA examinations.

The professional examining has also been reformed. In the past, the lecturers and examiners were recruited at the Universities. At present a number of them come from the University, but not all. More professionals are used for training and it certainly improves the professional component of examinations. The translation of Kaplan's professional titles has also contributed to the preparation for the examinations and the move from University textbooks and workbooks as the principal material for the preparation of the examinations. The examinations are marked under full anonymity and usually done in teams, ensuring that there is double anonymous marking applied. The National Examination Committee looks at the marks and ensures the moderation in the first instance, whilst a selection of papers is translated into English and submitted for scrutiny to the International Assessment Board that generally looks at the materials and ensures that there is consistency in marking and that the candidates have been treated evenly. Until now, in the first year of operation, the International Assessment Board did not once intervene formally, although they have made a number of suggestions as to the improvement of the overall process and focusing on enhancement of the individual candidate's experience with examinations.

In order to improve the public presence, the Association has begun publishing the list of successful candidates and making the presentation of certificates an event, looking for very prestigious places to do so. The Association has also worked very carefully on improving the public awareness of the accounting profession and the problems that are facing the accountants. To a large extent, the transition from a membership body to a full professional organisation has been rather successful, as now gaining the professional qualifications is just an initial step for a professional, as the Association has a wide range of courses for continuous professional development (CPD). The Association is becoming very strict when it comes to professional development and recently there were cases reported where the practising licences have been revoked, as the criteria were not being met.

#### 4. THE MOST PROBLEMATIC NOVELTY: CONTINUOUS PROFESSIONAL DEVELOPMENT

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In contrast to the last federal law on Accounting and Audit (2002), the current Serbian Law on Accounting and Auditing (2006) does not regulate accounting profession at all. It is primarily, if not only, interested in securing a comfortable position for the very powerful lobby of audit firms in Serbia and to a large extent it can be regarded as the Law on the Chamber of Auditor. Wrong labelling does not harm, the old legal maxim says. Therefore, there are no specific, either implicit or explicit, requirements to regularly update the knowledge of already registered accountants. However, the Association sets and controls the standards of entry and is also empowered to re-examine the ability to act as an accountant. While the last federal Law implicitly acknowledged that practising the accounting profession is a ‘quasi-public service’ and therefore being executed in the interest of the public; the current law does not recognise the problem of the profession. In fact, under the extreme libertarian school, it is left to the market to recognise professional organisations and regulate the profession. In fact, even in the 19th century the US situation was not so liberal.

In order to maintain its position as a leading professional accounting organisation in Serbia, the Association is re-focusing on the organisation of different programmes for the professional development of accountants. The CPD activities are grouped into a few clusters: 1) professional publishing; 2) annual congress and symposium; 3) conferences and seminars and 4) professional consulting. The publication of professional material can be divided into six groups: a) publication of the compulsory and optional material for the professional qualification examinations; b) publication of advanced professional material, dealing with recent developments in national and international accounting, c) publication of research studies, d) publication of comments on the recent Law and by-laws related to accounting, e) publication of the templates of the accounting statements and f) publication of academic and professional journals. In the past, the Association was commissioning the textbooks for professional examinations and was also forced, under the strong influence of the professorial lobby, to subsume and accept that the University textbooks (usually the ones that students had already used, but in a new edition) are to be used as compulsory literature, along with the more practical titles commissioned by the Association. However, with the signature of the contract with Kaplan, the situation has radically changed. The Kaplan ACCA books are exclusively used compulsory literature, whilst the University textbooks can be on the list of wider literature and the examinations (only the written ones now) are to be exclusively based on Kaplan’s materials. The plan is to translate

the workbooks as well, to support effective problem-based learning. In parallel, the Association has developed very rich publishing activities, translating over 10–15 major titles a year, which makes it the most serious accounting/finance publisher in the country.

The Association publishes comments on the recent Laws and by-laws regularly, as well as opinions of the respective Ministries of Finance. This is an important activity, as laws are amended fairly often in Serbia and sometimes opinions issued by the Ministry of Finance can limit the reach of the Law, although *stricto lege* this should not be possible. There are also a few serious *systemic* problems. For instance, until recently opinions issued by the Ministry of Finance were not applied by the Republican Public Revenue Administration (which until recently operated as an independent government agency), requiring a so-called “authentic interpretation of law”, which can only be given by the legislator. This created a lot of problems in consistency of the application of the law. Since the Association focuses on all sources of law related to accounting, it can be said that their commentaries are the most comprehensive in the country. Also, in this field there is a lot of competition from the private consultancy firms. There are at least two other companies that regularly publish commentaries on the changes in accounting and financial legislation. As one of them was doing this before the Association, it still has a fair share of the market, although it seems that the Association may take over the primacy in the years to come. With aggressive advertising campaigns and personal calls to companies, the Association is succeeding in attracting more subscribers. This is an important activity, as it can be the main source of revenue for the Association, with membership fees accounting for a fairly small portion of the Association's annual revenue. The Association is trying to entwine this activity with the organisation of regular seminars and conferences devoted to the current issues in accounting and financial legislation. Connected with this activity is the publication of templates of financial statements and other reporting forms that are required by the authorities. However, this is not the primary activity of the Association, as many publishing companies are authorised to publish and retail those forms, including the government-owned Stationary Office that publishes the Official Gazette and other documents for and on behalf of the Government.

The role of the Association in maintaining the professional standards is paramount. As the legislator regulates only the basics concerning the accounting profession, the Association, in executing entrusted functions, can and does set the minimum requirements for professional development of practising accountants. However, due to the ongoing lack of capacity of local chapters, the main duty rests with the Association headquarters, which in turn cannot really effectively serve the entire country. There have been some actions undertaken recently to improve

the ability of local chapters and to delegate CPD duties to them. This has given some results, but the main CPD activities are still carried out by the Association headquarters through regular ‘travelling seminars’ and long lecture tours.

## 5. CONCLUSION

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The accounting profession in Serbia is slowly gaining social prestige and it seems that society recognises its importance. This is certainly the result of the good work done by the Association, but most recently the Serbian government has seriously undermined this profession and the impartiality of it being practised in public interest. The trend is certainly reverse, as unfortunately the current Law of 2006 is by far less prominent and quite backward compared to the again fairly setback Federal Accounting and Auditing Law of 2002. The full recognition of the accounting profession occurred late compared to lawyers and the medical profession, and despite of the positive developments in the 1990s, the previous Government (under the same Prime Minister) has done very much to undermine this profession and promote the interests of large audit firms.

The accounting profession in Serbia dates back to the late 19th century, although professional organisations have not always been highly empowered, as their existence and rights were regulated by law and the law was more or less directly executed by the public bodies. Between the two world wars, some steps were undertaken to develop a more independent accounting profession and this was done mainly through the Chamber of Commerce and Industry, although the main emphasis was given to the auditing profession rather than accounting. The socialist revolution represented a setback, but in contrast to other “socialist countries”, the former socialist Yugoslavia followed, from the late 1940s, its own fairly specific socialist development path. Professional organisations were encouraged to be formed again in the mid 1950s and the national association of accountants was re-born, but with no power to regulate the classical professional issues (primarily the entry to and exit from the profession). Right up to the 1990s the accounting profession was perceived as offering different forms of education and ensuring that those without proper academic qualifications for performing accounting duties would acquire them through approved degree programmes or through non-degree courses offered by the Association or some of the institutions of higher education. This particular role was played by Colleges of Economics/Business, which offered accounting (focussed on economics) degrees emphasising the role of bookkeeping. Therefore, the accounting profession prior to the 1990s was essentially a bookkeeping profession.

With the changes in the political system and the emphasis on building a market-oriented economy, an independent accounting profession gained currency and accounting laws introduced at the time emphasised the role of certifying those undertaking accounting work and ensuring that they had the necessary professional and other qualifications. Following the introduction of the Yugoslavian Accounting Standard No. 31 and with the break up of Yugoslavia, the Accounting Educational Standard No. 31 (ROS 31) had been set, which was the minimum criteria for entering into the accounting profession. The entry is still largely based on the education of potential entrants and the membership grade depends on their highest level of education. However, the professional examination is highly dependent on the initial entry criteria.

The development of the accounting profession in Serbia has been initiated by two different forces. Firstly, the strength of the Association itself played an important role in steering the desired changes, but also the entry of foreign investors and funding agencies triggered the speed in the development of the profession. The initiation of SEEPAD (The South East European Programme for Accounting Development) played an important role in bringing the accounting professions in different countries in the region together to consider mutual recognition of certificates, enabling the members to practice in different national jurisdictions. Taking into consideration that many countries in the region share the same language (which now has a number of various names), have common legal experience and finally were interconnected for many years, emphasises the practicality of such an action even further. Certainly, the Serbian Association is at the forefront of developments, which facilitates such moves of mutual collaboration and recognition.

Nevertheless, it is fairly difficult to firmly state what the future developments will be. However, it is certain that the accounting profession is there to stay and survive, contributing significantly to the changes in the national economies and facilitating professional communication with other countries. Over the last 50 years, the Association property was fully or partially nationalised four times and the Association is still financially very sound. This generally shows how resilient the accounting profession in Serbia really is.

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Renata Dylağ

# FAIR VALUE IN COMPANIES' FINANCIAL REPORTING

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## Abstract

The valuation rules that are contained in IAS/IFRS show that the fair value pricing model could be applied to nearly all items of financial statements. However, this method is highly controversial. On the one hand, the need is noted to apply this method in order to make information in financial statements more useful; on the other hand, it is noted that the negative consequences of the fair value method provide information that is unstable, which makes it more difficult to make a proper assessment of financial statements. Opponents of the fair value method point out the subjectivity of those who make the valuation. As a consequence, discussions concerning the justifiability of the scope of application of the fair value method are becoming ever more frequent. Attempts are also being made at creating a new standard that would contain a precise definition of fair value as well as a set of universal guidelines setting forth techniques of determining it in particular cases so that the reliability and credibility of the data in a financial statement would not be controversial and difficult to interpret.

The article scrutinises solutions that are contained in IAS/IFRS by showing the main areas of application of the fair value method. Based on specific selected IAS/IFRS solutions, a review was made of allowable methods and techniques for determining fair value and a hierarchy of applications was suggested that would ensure correctness and reliability of the valuation of the components of financial statements. At the same time, the findings of previous studies on the practices of the application of the fair value method as a basis for pricing and presentation of the components of a financial statement were reviewed.

## INTRODUCTION

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With the accession of Poland to the European Union, both the regulations and local practices of companies need to be changed in many areas.

Regulations concerning the reporting practices of public companies and banks are one of these areas. In accordance with art. 4 of ordinance 1606/2002 of the European Parliament and Council of 19.07.2002 on the application of International Accounting Standards in companies that are subject to the law of a Member State, starting from 1 January and thereafter for every financial year, such companies shall be required to prepare consolidated financial statements in conformity with IAS/IFRS if on the balance-sheet day their securities were admitted for trading on a regulated market of any of the Member States. Under Art. 5 of the ordinance, member countries are permitted to extend the scope of financial statements in accordance with IAS/IFRS to:

- individual financial statements of securities admitted for trading on a regulated market of any of the Member States,
- consolidated financial statements and/or annual financial statements of other companies.

The change of the Accountancy Act (AA) of 27 August 2004 introduced regulations specifically concerning obligated entities and entities that may prepare financial statements in accordance with IAS/IFRS. What is the effect of the implementation of IAS/IFRS in financial entities and what is their financial and material situation reflected in the financial statement? Studies comparing the principles of AA with IAS/IFRS (see ROSC, 2002, 2005; Krzywda, Schroeder 2007) have shown that one of the most serious limitations of the application of AA is the impossibility of pricing some components of financial statements, including tangible fixed assets, in terms of fair values. This problem is extremely important. Under the conceptual assumption of IAS/IFRS, the objective of financial accounting is to supply useful information for consumers of financial statements. This information is useful when it is understandable, helpful, credible and comparable. The choice between fair value and historical value to price components of financial statements boils down to a choice between usefulness and reliability of the information generated by the accounting system. Conceptual assumptions among the limitations pertaining to the usefulness and reliability of financial information mention the need to weigh the benefits against the costs of attaining an optimum reporting model and therefore balancing the individual features of the financial statement.

This article analyses the solutions contained in IAS/IFRS by examining the major areas of application of fair value pricing. Based on a number of selected solutions of IAS/IFRS, the admissible methods and techniques for determining fair value were scrutinized, indicating a hierarchy of applications, ensuring correctness and reliability of the pricing of items of financial statements. The article also reviews the results of previous studies of practices of the application of fair value as a basis for the pricing and presentation of items of a financial statement.

## FAIR VALUE AS A BASIS OF PRICING ACCORDING TO IAS/MSL

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Fair value is the sum for which, in market conditions, a component of assets could be exchanged and liabilities satisfied between interested, unaffiliated and well-informed parties of a transaction (Adamkiewicz 2001, p. 562 ff.) Such a definition of fair value is contained in many international accounting standards (see IAS 2 “Inventories,” par. 6, IAS 16 “Tangible Fixed Assets,” par. 6, IAS 17 “Leasing” par. 4, IAS 18, “Revenue,” par. 7 and others). IAS/IFRS mention it many times as a basis for pricing different items of financial statements. The widest application of fair value is contained in ISRF 3 “Merger of companies”, which recommends that fair value should be established for nearly all items in transactions of the merger of companies. According to ISRF 3 all mergers of companies to which it applies should be settled by the purchase method. According to this method the acquiring entity should be indicated in every merger. The acquiring entity is the entity taking control over the fused entities or firms. The acquiring entity is required to price the cost of merging economic entities as the total of the fair value at the moment of the exchange of assets, liabilities and capital instruments issued by the acquiring entity in exchange for control over the entity taken over and other costs directly related to the merger. At the moment of the takeover the acquiring entity has the obligation to separately express the assets, liabilities and conditional obligations that can be identified. The acquiring entity always fixes the initial pricing of the identifiable assets, liabilities and conditional obligations taken over in the fair value established at the moment of the takeover.

Expression of the merger of companies by the purchase method also entails establishing the goodwill of the firm resulting from the merger. The goodwill of the firm is the difference between the purchase price (the price that the acquiring entity must pay for taking control over the net assets of the company to be taken over) and the fair value of the net assets of the company taken over. Analysing the solutions contained in IFRS 3 it should be noted that goodwill ultimately is a product of the process of identifying the assets and liabilities of the entity taken over, that is, the process of allocation of the purchase price. The purchase price paid for the entity taken over is divided into individual assets and liabilities, including conditional ones, according to their fair values, while the remaining undivided sum is treated as the goodwill. In the allocation of the purchase price, IFRS 3 makes it necessary to separate and price assets in order to meet the definition of intangible assets. The criteria for their expression are regarded as met for intangible assets if their fair value can be established and these assets are identifiable, i.e. they meet at least one of two conditions: they either result from the company statute of association or other rights or they can be separated

– that means they can be sold, leased or utilised in some other way. Examples of items taken over in the merger of companies that meet this definition of intangible assets are: trade marks, company names, service names, certificate names, names of internet domains, newspaper headlines, agreements prohibiting competition, agreements with clients and relations with clients, intangible assets resulting from agreements concerning licenses, advertising, building, leasing, patented and non-patented technologies, trade secrets, etc.

The following areas in which the application of fair value as a required or optional basis of pricing may be mentioned:

#### IFRS 2 “Payments made on the basis of shares”

The purpose of this standard is to express transactions in which a company receives or acquires goods or services, either as a payment for its own capital instruments or by contracting obligations for amounts based on the price of shares or other capital instruments of this entity. According to the rules of the standard, all payment transactions based on shares must be expressed in fair value. Goods or services received as a payment for the capital instruments of a given company should be priced according to the fair value of the goods or services received. If the fair value of the goods or services cannot be determined reliably, the fair value of the capital instruments given in exchange should be determined. The fair value of the capital instruments allocated should be based on market prices, if available, and should also consider the conditions in which the instruments were allocated. If there are no market prices, the appropriate model should be used for estimating the price of capital instruments on the day of pricing within a transaction conducted between well-informed, interested parties (see IFRS 2, par. 10, par. 16–18, par. 30, par. 35–43).

#### IFRS 5 “Fixed assets for sale and cessation of business activity”

The standard sets forth the rules for expressing assets for sale and the rules for the presentation of facts concerning the cessation of business. Assets or groups of assets for sale are priced in the lower amount of their balance-sheet value and the fair value reduced by the sales costs. No amortisation write-offs are made from these assets. The component of assets classified for sale should be expressed separately in the balance sheet (IFRS 5 par. 15).

#### IAS 16 “Tangible fixed assets”

IAS 16 sets forth the rules for pricing components of tangible fixed assets. The fair value as the basis for pricing is mentioned in this standard primarily in the context of balance sheet pricing. Pricing after the initial fixing may be made on the basis of one of two pricing models: the cost model, in which a component of assets is expressed in the balance

sheet as the amount of the cost (purchase price) reduced by depreciation and impairment losses; or the model according to which a component of assets is expressed in the balance sheet in an amount resulting from reappraisal, which is the fair value from the day of updating the pricing reduced by subsequent depreciation and impairment losses (IAS 16, par. 31).

Also, when tangible fixed assets are acquired through exchange or partial exchange in return for another item of tangible fixed assets or another component of assets, the purchase price of such an item is priced in the fair value of the component of assets conveyed in the exchange, adjusted by the sum of the conveyed pecuniary means or pecuniary equivalents (IAS 16, par. 24).

### IAS 17 “Leasing”

The standard lays down the accounting rules that the entity must apply in order to express in the financial statement the results of operational and financial leasing agreements it has entered into. The application of fair value in the aforementioned standard pertains primarily to the pricing and expression of financial leasing in the balance sheet of the lessee, as a component of assets and liabilities in sums equal to the current minimal value of lease payments, if it is lower than the fair value (IAS 17, par. 20).

Another aspect of the application of fair value concerns the problems connected with expressing sales and reverse leasing, which generally require fair values to be fixed to the items that are subject of these agreements (IAS 17, par. 61–63).

### IAS 18 “Revenue”

According to standard 18, revenue from transactions and events that come under this area should be priced in the fair value of the remuneration that has been received or is due (IAS 18, par. 9).

### IAS 19 “Employee benefits”

IAS 19 defines the rules precisely for the expression and presentation of information on employee benefits, both current and old age pensions; life insurance policies and post-employment medical benefits and other long-term employee benefits (additional holiday leave for seniority, invalid benefits, deferred remuneration, long-term payouts from profit and bonuses). Fair value as a basis for pricing in the aforesaid standard is applied primarily in retirement programs with specific benefits. In respect to these programs, the net value of the obligation is expressed in the balance sheet of the employer: the current value of the obligation resulting from the benefit (this is the current value of the anticipated future payments that are required to discharge an obligation arising from the work performance of an employee in the current period and future

periods); deferred profit and actuarial losses and deferred costs of the work performance from previous periods; and the fair value of assets of the benefits program on the balance sheet day (IAS 19, par. 54).

#### IAS 20 “State subsidies and disclosure of information on state aid”

In accordance with the IAS 20 standard, subsidies awarded in non-pecuniary means should be expressed in fair value (pricing in nominal value is also admissible – IAS 20, par. 23).

#### IAS 26 “Accounting and reporting retirement benefits programs”

The standard lays down the rules for pricing the disclosing information of retirement benefits for financial statements (both for particular premiums and particular benefits). For programs for particular benefits it is necessary to apply fair value in pricing investments of a retirement program (IAS 26, par. 32).

#### IAS 38 “Intangible assets”

Intangible assets can be priced and presented according to the cost model, or in certain cases the reassessment model can be used. In the cost model assets are expressed in costs that are reduced by previous depreciation and eventual impairment losses. On the other hand, if for a given component of assets the price on an active market can be determined, the company may price a given item by using the reassessment method, in which a component of assets is shown in the reassessed value, that is, the fair value on the reassessment day reduced by depreciation write-offs and impairment losses after the reassessment date (IAS 38, par. 75).

In accordance with IAS 38, fair value is also the basis for pricing components of intangible assets acquired through a merger of companies (IAS 38, par. 35–41).

#### IAS 39 “Financial instruments – expression and pricing”

IAS 39 requires all assets and financial obligations to be expressed in the balance sheet, together with all derivative instruments and some built-in instruments. The basis for the initial pricing of these instruments is their fair value on the day of acquisition or expression (IAS 39, par 43). Financial assets priced according to fair value through the profit and loss statement, including those put up for sale to earn short-term profits and other financial assets so classified by the company (so-called “fair value option”), as well as financial assets available for sale, are all priced on the balance-sheet day at fair value (if it can be determined, otherwise at cost – IAS 39, par 46). Balance-sheet pricing at fair value is also used for financial obligations such as: obligations resulting from derivatives, obligations set aside for trading (short-term sale) as well as all obligations designated by the company upon issuance for pricing at

fair value through the financial result (IAS 39, par 47; IAS 39, annex A, par OS69–) S82).

#### IAS 40 “Investment properties”

The standard IAS 40 enables a company to choose between pricing investment properties according to the fair value model or the purchase cost model. According to the fair value model, investment properties are priced at fair value, and fluctuations of fair value are shown in the profit and loss statement (IAS 40, par. 32A and 33–35). If the purchase cost model is chosen, information on the fair value of the investment property must also be provided (IAS 40, par. 79).

#### IAS 41 “Agriculture”

In accordance with IAS 41, in most cases all biological assets (plants and animals necessary for conducting commercial farming) as well as agricultural products must be priced at fair value reduced by expected selling costs on the balance-sheet day (IAS 41, par. 12–13). As a rule, the market price quoted on an active market is the best measure of the fair value of a component of biological assets or agricultural products (IAS 41, par, 17). If a given item is not traded on an active market, IAS 41 sets forth guidelines for the procedure of pricing in another manner (IAS 41, par. 18).

## METHODS AND TECHNIQUES FOR ESTABLISHING FAIR VALUE IN THE LIGHT OF SELECTED IAS/IFRS SOLUTIONS. A HIERARCHY OF SOLUTIONS

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According to the definition of fair value in point 2, in many cases fair value is an abstract concept, because it is based on the prediction of hypothetical transactions in market conditions. Consequently, in addition to its many merits, fair value as a category for pricing components of assets and liabilities also gives rise to many problems stemming mainly from a credible and reliable interpretation. Neither IAS/IFRS nor the accountancy act lay down a general hierarchy of methods and techniques to be followed when applying fair value in individual cases.

An analysis of international standards, especially IFRS 3 but also IAS 39 and IAS 40, enables one to attempt to draw up a hierarchy of the rules of procedure in determining the price at which freely acting and well-informed parties could agree to carry out a transaction:

- If on an active market the market prices of a given item can be observed on the pricing day, these constitute fair value.
- If observation of the market price on the pricing day is not possible, fair value is based on the market prices of the most recent transactions.

- If there is no active market for a given component of assets or liabilities, fair value is estimated on the basis of market transactions for similar items.
- If the determination of suitable market prices is not possible, techniques should be used that enable a credible estimation of fair value, namely income or cost methods. Among cost methods the most frequently used is the method of estimating future and discounted cash flows when pricing a component of assets or liabilities. An example of a rarely used cost method is the depreciated replacement cost of a given item.

An analysis of methods and techniques to determine fair value shows that they suffer from subjectivity in various degrees. Thus the credibility of these valuations is not the same. The income and cost methods are the most subjective ones. Hence the credibility of these valuations is lower than of the valuations based on market parameters. It is worth noting, however, that the methods and techniques for estimating the fair value that are presented, as well as the pricing parameters resulting from their application must be properly documented. After all, the acceptance of the fair value model does not mean departing from the standard accounting practices, including the principles of verifiability of data contained in the financial statement.

## FAIR VALUE AND THE EXPERIENCE OF COMPANIES

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The pricing rules contained in IAS/IFRS show that the fair value method may be applied to nearly all items of financial statements. However, this method is highly controversial. On the one hand, its supporters argue that this method should be employed to increase the reliability of information contained in financial statements, while its critics stress the negative consequences of this method such as providing unstable information, which makes it harder to make a credible assessment or analysis of financial statements. Opponents of the method single out subjectivity on the part of those employing it. Previous studies of the practice of the fair value method emphasise the negative consequences of the widespread use of this method, especially the instability of the information contained in financial statements, which makes it hard for the consumers of these statements to interpret them (Enria 2004; Barth 2004). Given the ever-wider use of the fair value method as well as the numerous estimates in accounting, the financial result shown by companies oscillate around the real value of the appreciation of assets but on the other hand vary ever-more from the value of the profit determined by the cash approach. This gives rise to discussions on the justifiability of such a division of the financial result.



This problem appeared in the studies of international harmonisation of accounting and the implementation of IAS in individual countries. These studies show that the justifiability and effectiveness of the implementation of IAS in countries in transition depend on general and specific factors. Among the general factors one can mention: the role of the minister of finance in initiating and coordinating the transition to IAS, the role of individual consumers of financial statements, and the relations between financial and tax reporting (Seal, Sucher, Zelenka 1995).

The specific factors affecting the effectiveness and the possibility of implementing international standards in individual countries include the credibility and availability of market information, which is the basis for the fair value pricing of the components of financial statements. In a report published in 1998, based on literature about accounting in developing countries, Nobes pointed to important questions connected to the implementation of IAS by these countries. According to him, one of the obstacles in adopting international standards is the shortage of qualified specialists. Such specialists are indispensable for the application and interpretation of the IAS solutions, which require making decisions based on their own assessment and are based on a wide range of market data (Nobes 1998). Later studies stress that in countries that are in transition the credibility of data in financial statements that are prepared in accordance with IAS might be flawed on account of the absence of an active market and due to widespread corruption (EBRD 2000; Sucher, Bychova 2001).

Studies carried out in Russia and the Czech Republic in companies that voluntarily decided to apply IAS demonstrated that the implementation of international standards was exceptionally complicated. This was due to a shortage of properly prepared specialists, the complexity of some standards compared to the previously used national ones and the necessity of determining fair value for components of financial statements (Sucher, Aleksander 2002).

In 2006 a team of PricewaterhouseCoopers experts conducted a survey among professional investors in the world on the significance of information contained in a balance sheet in order to assess the value of publicly traded companies. The conclusion was that there is indeed a general agreement on the fact that the fair value of liquid financial assets is useful. That does not imply readiness to accept fair value in all areas. Investors emphasise that the rules that are followed in order to arrive at the balance sheet value have a direct influence on the numbers shown in the profit and loss account. Investors raise concern that a more widespread use of fair value could make it more difficult to comprehend the real operating results of companies. The greatest advantage of investors is their capacity and skill in assessing the value of companies. To do this properly they require credible and useful information that gives

them an insight into the quality and durability of financial results. If the fair value method were adopted for non-liquid assets and liabilities, investors would like to see the initial data that the management board used in order to arrive at the fair value. Investors stress that only then can they make an independent assessment of such values (PricewaterhouseCoopers 2007).

The experience of companies employing IAS/IFRS shows that provisions concerning fair value are scattered in different standards and are often mutually inconsistent. That is why the International Accounting Standard Council (IASC) is now working on resolving this problem. There are few supporters of a return to the valuation model according to historic cost, but also only few experts support adoption of the full fair value model. Thus it is necessary to accept a mixed solution and formulate an accounting standard that will contain a clear definition of fair value and guidelines for determining it. The starting point of Isaac's work in this area is SFAS 157 "Pricing at Fair Value". The provisions of SFAS 157, which are mandatory for most American companies since 2008, are mostly based on the current IAS/IFRS guidelines. The goal of the new standard is to improve the consistency of pricing at fair value, which would simplify IAS/IFRS and improve the quality and consistency of fair value information. IASC stress the need to formulate a concise definition of fair value and a single source of guidelines for all measurements of fair value that are required to be used by IFRS as a basis for discussion of SFAS "Pricing at Fair Value". SFAS 157 contains a single definition of fair value and a scheme for the measurement of fair value for the needs of financial statements that are prepared in accordance with US GAAP. It is not the Council's intention to introduce new requirements concerning pricing at fair value. On the contrary, IASC is scrutinising various standards in order to determine which of those that are currently using fair value could be excluded from the present standards in effect and expressed in a new IFRS (IASB, 2006; Rachunkowość 2007, p. 20 ff).

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**Marzena Remlein**  
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# ACCOUNTING POLICY — A MATTER OF CHOICE OR NECESSITY?

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## Abstract

Corporate accounting is construed as a source of information used both by a substantial number of external recipients and by the management of the reporting entity. Although the boundaries of accounting are strictly determined by the balance sheet law, it is essential for every company to enhance and tailor them according to its own information needs. Accounting is not a universal system and must be individualized, as well as targeted. The latter seems especially important as it determines the final shape of accounting policies followed. Hence, the accounting solutions adopted by a given business depend on the individual strategy defined by its management.

The current accounting act together with the secondary legislation thereto, largely based on the solutions specified in the International Financial Reporting Standards, determine the accounting procedures applied by Polish business entities.

Nevertheless, the Polish balance sheet law and international regulations do not provide for everything and do not regulate all aspects of the accounting system. They create a sort of a framework to be “filled in” by a reporting entity in a way determined by the policy letter in general and an adopted accounting strategy in particular. The Polish balance sheet law provides for such a state of affairs, because on the one hand, it is virtually impossible to regulate all the eventualities occurring within a business, and on the other hand, thanks to such a solution companies are free to choose a strategy that is most favorable from their point of view. Thus, a question arises: Is accounting policy development and application a necessity imposed on business units or rather a prerogative the companies can avail themselves of?

This dissertation aims at finding an answer to the above problem. To reflect its main goal, the dissertation is divided into four parts, each respectively devoted to: the essence, the instruments and the documents of the accounting policy as well as its influence on the business entity standing shown in the presented financial statement.

## 1. THE ESSENCE OF ACCOUNTING POLICY

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What makes the essence of accounting policy is choosing the right solution out of various alternatives the balance sheet law provides for. However, there are certain issues which are not precisely specified and their legal boundaries are obscure or blurred. Consequently, reporting entities have at their disposal a wide spectrum of accounting policy instruments to fall back on in order to project a desired corporate image.

The deliberations lead us to yet another question, i.e. whether the possibility of choosing an accounting strategy collides with the fundamental accounting concept of rendering a reliable and faithful presentation of the reporting entity.

According to Jarugowa, accounting policy consists in application of specific accounting rules, conventions and practices by the management of a given entity in the process of making its financial statements. The company adopts such accounting solutions so as to reflect its actual condition with respect to its finances, income and achievements (Jarugowa, Walińska 1997, p. 23).

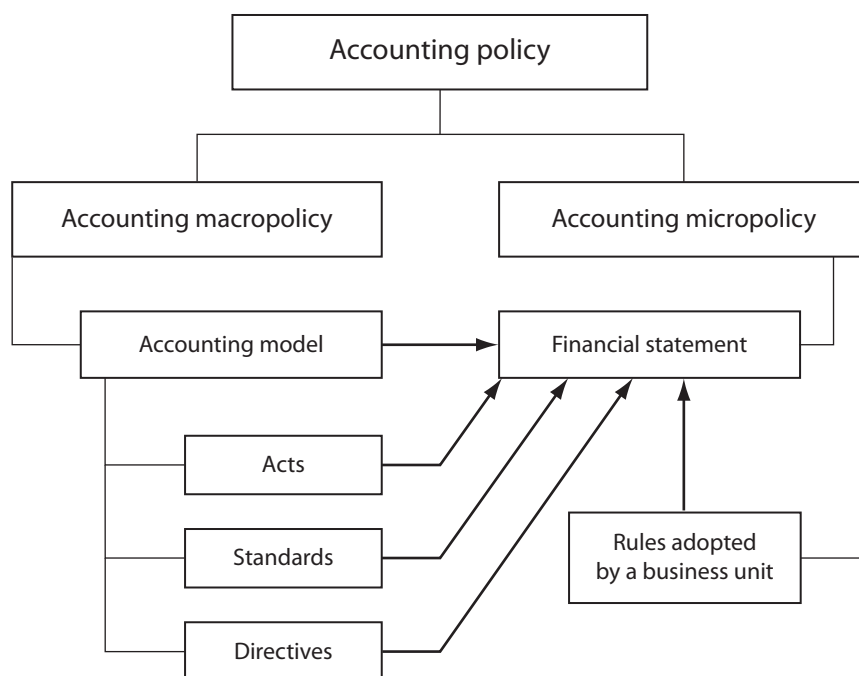
The accounting policy definition by Brzezina is different. According to him, accounting is about the “entire scope of activities performed by state institutions (e.g. the Accounting Department of the Ministry of Finance) or organizations established by domestic or international accountants’ associations that aim at standardization of accounting” (Brzezina 1995, p. 32). According to the author, accounting policy can be divided into macro- and micropolicy.

The accounting macropolicy is targeted at objectivization of accounting figures by means of regulations and standards minimizing individual entry-making and reporting solutions (Brzezina 1995, p. 25). Accounting standards, both national and international, as well as relevant legislation serve as accounting macropolicy instruments.

Accounting micropolicy, on the other hand, aims at drawing up company reports in accordance with:

- current legislation,
- resolutions adopted by the given reporting entity.

According to Hendriksen and von Breda (2002, p. 250), accounting policy is defined by a collection of accounting standards, opinions, interpretations, rules and regulations applied by companies to draw up their financial statements.



**Figure 1.** Accounting Policy – macro- and micropolicy

Source: own research.

Polish balance sheet law identifies accounting policy with accounting regulations and defines it as solutions selected and applied by a business unit, yet remaining within the framework of Polish legislation, including those specified in the International Accounting Standards, ensuring the required quality of financial statements<sup>1</sup>.

The analysis of the above definition points out two issues. The first one is the “required” quality of a financial statement, and the second one is the equality of solutions provided for by the Polish acts of law and those specified by the International Accounting Standards.

What does the “required quality of financial statements” stand for? Is it objective, i.e. does it refer to presentation of a company in accordance with the material truth and accounting regulations? Or can the „required quality” be „the quality required by the makers of the financial statement”?

The second issue touched upon in the statutory definition of the policy is the necessity to incorporate the International Accounting Standards’ solutions into one’s accounting system.

<sup>1</sup> Journal of Laws, 1994, No. 121, item 591 as amended, article 3 section 1 point 11.

Accounting policy is discussed in IAS 8 – “Accounting Policies, Changes in Accounting Estimates and Errors”. In view of the standard, accounting policy is determined by specific rules, methods, conventions, regulations and practices adopted by a reporting entity for the purpose of drawing up and presenting its financial statements (Międzynarodowe Standardy Sprawozdawczości Finansowej 2004, p. 818).

It is worth emphasizing that the definition provided for by IAS 8 refers to specific rules, methods, conventions, etc. applied by a unit. Does it mean they are discretionary, just like the statutory definition suggests, or merely adopted with the choice made outside the reporting entity?

Summing up, one needs to stress that accounting policy is defined by the provisions of the accounting act, and unless there is an accounting policy in force, the correctness of book-keeping might be questioned. Proper definition of accounting policy is crucial both for external and internal accounting information recipients, and its knowledge allows one to understand the content of the financial statement.

## 2. ACCOUNTING POLICY INSTRUMENTS

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Accounting policy instruments are used to induce the desired behavior on the part of external and internal units of the reporting entity. On the one hand, such behavior should be in keeping with the management’s intentions in order to achieve the entity’s goals. On the other hand, the said behavior is influenced by the information in the financial statement, which reflects the results of the adopted accounting policy. This indicates that accounting policy goals are set in accordance with the behavior of financial statement recipients, seen by the management as desirable, i.e. contributing to the pursuance of the main goal (Sawicki 1995, p. 207).

In such a context, it seems well-justified to believe that accounting might be used not only to objectively reflect the real corporate situation in terms of the company’s assets, sources of financing and financial results, but also to present the data in a biased way so as to respond to the specific needs of an entity. Depending on the goal, the actual condition might be “doctored”, both downwards (in order to e.g. lower the taxes) or upwards (in order to e.g. take bigger loans). Yet, it must not be forgotten that the balance sheet law and the conflicting goals of various groups of accounting data users form a natural border for accounting policies (Szmerekietą 1999, p. 62).

In the light of the above discussion one may conclude that the core of the issue of accounting policy rests in its basic dilemma, and the management of a company has to resolve whether the company’s assets and financial standing should be presented in the most positive or critical manner.



It is tough to immediately find an answer to this question, but what appears to be the best accounting policy to follow is one that projects a relatively positive corporate image.

This means that the board needs to reject the extreme approaches (positive or negative) and adopt a solution that forms no ground for conflict of goals of various groups of accounting data users. Successful implementation of such a solution is possible if (Pfleger 1991, p. 26–27):

- the supreme (main) goal implementation priorities are defined,
- necessary agreements are reached if there are many conflicting goals (which must never be ignored),
- a number of various financial statements for various recipient groups are drawn up.

The desired effects of an accounting policy can be obtained by using various types of instruments. However, a financial statement data user can read only some of them as the rest remains unidentifiable. On the other hand, transparent accounting policy instruments limit its efficiency.

The accounting policy instruments can be grouped according to the subject they relate to:

- material instruments,
- formal instruments,
- time-related instruments.

Material instruments pertain to two areas – assets and liabilities value as well as financial result. In particular, they cover the activities that influence:

- amount of assets and liabilities,
- value of income and expenditures,
- valuation of fixed and current assets,
- prepaid and accrued expenses,
- provisions and write-downs.

In the framework of the material instruments, two groups of activities might be distinguished (Weber, Kufel 1993, p. 190–191):

- activities that take place prior to the balance sheet date and which consist in postponement of business operations, thus influencing the company standing at a given moment;
- activities that take place after the balance sheet date, which take advantage of one's right to choose the valuation and estimation methods.

The second group of material instruments comprises the right of choice granted by the lawmakers and delineated fields (areas) of free activities. In practice, these instruments are most widely used and thus are the most important out of all material instruments<sup>2</sup>.

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<sup>2</sup> The research conducted by Küting (1994) showed that all German enterprises surveyed by him, shaped the size and structure of the property, equity, and financial result through the balance sheet policy. In most cases, material instruments of the balance sheet policy were applied.

Formal instruments of accounting policy are used to (Sawicki 1996, p. 23):

- influence the capital structure (e.g. assignment of receivables between affiliated entities),
- enhance the solvency of an entity (e.g. transfer of resources between affiliated entities),
- influence the “sensitive” financial statement items (e.g. transfer of claims between affiliated entities).

Formal instruments are based on the right to choose the system and degree of detail used in making financial statements. These include in particular:

- method of data presentation in a financial statement,
- format of profit and loss account,
- method of drawing up profit and loss account,
- degree of detail in the notes to the financial statement,
- method of dividing profits.

The most popular formal instruments of accounting policy consist of choosing the format of profit and loss account, the method of drawing up cash flow report and the degree of detail in the notes.

The time-related accounting policy instruments form the final group. The most important ones include (Weber, Kufel 1993, p. 190–191, p. 188):

- the choice of the balance sheet date,
- the choice of the deadline for approving and publishing the financial statement.

### 3. ACCOUNTING POLICY DOCUMENTATION

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The accounting policy of an entity should be evidenced in documents describing which accounting rules have been chosen. In accordance with the accounting act, companies should make a declaration concerning the four basic issues<sup>3</sup>:

- determination of the fiscal year and its reporting periods,
- methods of assets and liabilities valuation and financial result calculation,
- book keeping method,
- data and database security system.

It needs to be pointed out that the issues mentioned above are the basic elements which should be decided upon prior to all other matters. Yet, the above list is non-exhaustive. By saying that the above elements are required “in particular”, the legislators obliged reporting entities

<sup>3</sup> Journal of Laws 1994, No. 121, item 591 as amended, article 10 section 1.

to include them in their policies, but also allowed to add individualized solutions.

What appears to be the most crucial is the choice of the valuation method which to a large extent is dependent on the characteristic features of the entity itself as well as on the type of its business. This aspect of the accounting policy requires a detailed elaboration of the selected valuation method for those assets and liabilities where the statutory regulations leave a freedom of choice. In particular, business units must decide upon the following:

- depreciation methods for specific type groups of fixed and intangible assets as well as determination of a border value for one-off depreciation write-downs<sup>4</sup>,
- valuation methods for non-financial investments with reference to which one can opt for fixed and intangible assets regulations or valuation based on market price (or an alternative way of estimating fair value),
- valuation method for tangible current assets, which can be valued according to their purchase price or manufacturing costs which, however, must not exceed their net sales price at the balance sheet date. As part of the accounting policy, a unit should decide upon both the revenue valuation method (purchase price) and the expenditure valuation method (FIFO, LIFO, average prices or detailed identification of real prices).

The above described example of the accounting policy elements collection does not include all possible solutions, which should be incorporated into the documentation of the chosen accounting policy mode. Every business entity, depending on its own specificity, presents all the valuation methods that are not regulated by the balance sheet law and hence provide an entity with a freedom of choice.

In brief, one may say that on the one hand, the accounting act requires each reporting entity to develop certain accounting policy documents, but on the other hand, there is still room for alternative solutions offering some freedom of choice.

#### 4. ACCOUNTING POLICY VS. CORPORATE PROJECTION

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Every company presents its standing and business activity results in a financial statement in a way aiming at a faithful and transparent presentation of the above described categories. Such a goal definition can be found in IAS 1 “Presentation of Financial Statements” (Międzynarodowe

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<sup>4</sup> When setting the border value of one-off depreciation write-down the regulations of fiscal law are very important: unlike the balance sheet law, they provide a specified value.

Standardy Sprawozdawczości Finansowej 2004, p. 712.) as well as in the Polish accounting act. If a company follows its own accounting policy, one can be sure that the above goal is achieved. However, some accounting rules constitute unquestionable requirements and hence their adoption is not a matter of choice. As a result, data are presented in a comprehensible, faithful and comparable manner. Simultaneously, in preparing a financial statement, reporting entities have at their disposal a wide spectrum of data calculation, valuation, classification or presentation methods. By choosing suitable accounting policy aspects companies can project the desired corporate image and business results.

The natural borderline for the freedom of choosing accounting policy solutions is its “readability” by way of financial analysis, carried out by financial statement addressees. However, its efficiency might be limited by the scope and availability of reporting information (Cembrowska 2003, p. 203). The accounting policy solutions the business unit decides to apply should be included in the “Introduction to the financial statement” and in the “notes and explanations”.

At this point a question arises – should the information entirely reveal the goal of the accounting policy adopted by an entity, or does it suffice to present the applied solutions so that they are readable and allow e.g. for comparing data coming from various companies?

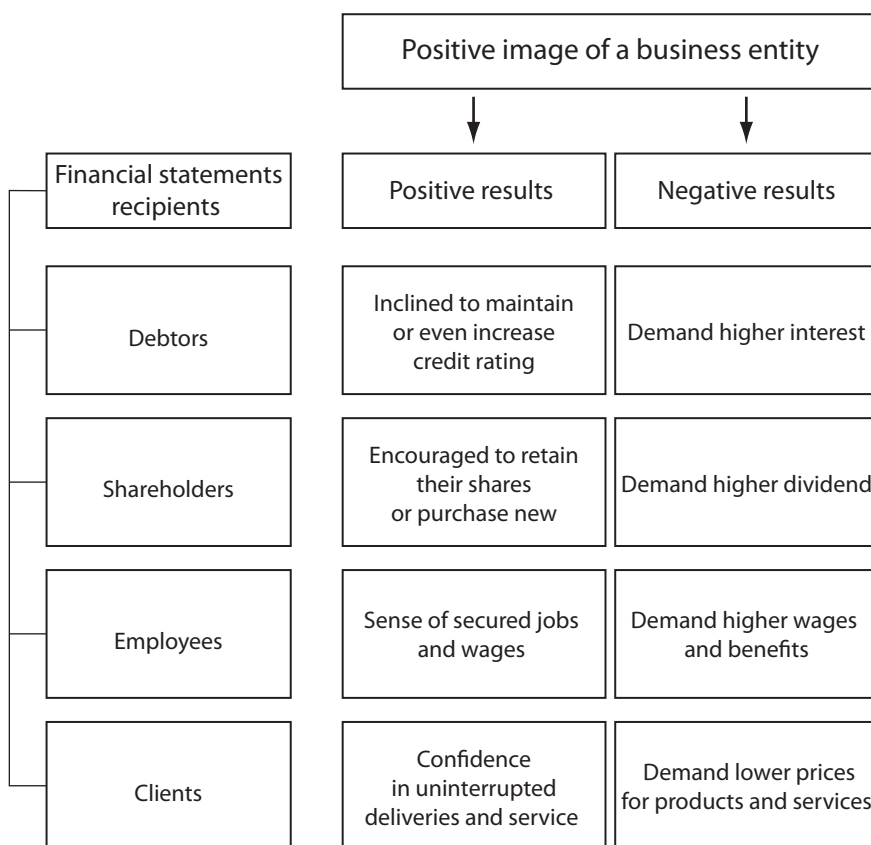
What rules and solutions to apply in order not only to bridge in the gap between the reporting information demand and supply, but also to increase its transparency and minimize the possibilities of manipulating with financial statements (Cembrowska 2003, p. 204)?

The choice of the right solution equals the possibility of influencing the corporate image. If the choice is made in accordance with the law, then it should be construed as a creative accounting element. If the law is violated, it should be considered as financial statement falsification. It might seem that a company should be interested in projecting a positive image of its business. However, the adopted accounting instruments may have the opposite effect.

Figure 2 presents the possibility of influencing a corporate image perceived by various groups of reporting data recipients.

On the basis of the above chart one may conclude that the most optimal accounting policy is one that presents a relatively positive corporate image. It means that extreme approaches (whether positive or negative) are rejected and replaced with solutions that allow to avoid cross purposes between various groups of accounting data users. In order to adopt such a solution it is necessary to (Pfleger 1991, p. 26–27):

- prioritize the supreme (main) goal,
- reach the necessary agreements if there are many conflicting goals (which must never be ignored),
- draw up a number of various financial statements for various groups of users.



**Figure 2.** Accounting Policy Dilemmas

Source: own research on the basis of Kuhlman 1994, p. 47.

## 5. CONCLUSIONS

The above deliberations point to the fact that finding an answer to the question posed in the introduction is not an easy task. By virtue of acts of law, companies are obliged to develop an accounting policy. The same applies to its basic elements, specified in the accounting act, which must be incorporated into an accounting policy. On the other hand, many issues which need to be included in the company's accounting policy are defined by the act as alternatives, which means that businesses enjoy a freedom of choice and their decisions will determine the accounting policy and the corporate image. It must be stressed that fiscal laws largely influence the solutions adopted in the framework of accounting policy. In Poland there is a duality of balance sheet and fiscal laws and in many cases accounting solutions are adapted to fiscal requirements,

since accounting is governed by a matter of choice and fiscal solutions are strictly regulated.

Is it therefore possible to develop an individual accounting policy? The balance sheet regulations seem to provide ample ground and hence business units enjoy some freedom of choice in this respect.

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**Paweł Oźga**

# EFFECTIVENESS AS THE KEY DETERMINANT OF IMPLEMENTING HEDGE ACCOUNTING UNDER IAS 39 AND FAS 133

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## **Abstract**

The paper discusses one of the key matters of implementing hedge accounting for derivative instruments, namely the effectiveness test. It presents all requirements as well as some problems that may occur while testing. Possible reasons of ineffectiveness were underlined as well as the moments of performing tests. The article is based on regulations of International Accounting Standard 39 Financial Instruments: Recognition and Measurement (IAS 39) and Statement of Financial Accounting Standard No. 133 Accounting for Derivative Instruments and Hedging Activities (FAS 133), which are the two most developed and commonly used accounting standards concerning derivative instruments. In the second part, examples of methods that can be used for assessing hedge effectiveness are presented as well as some simplification allowed by the mentioned regulations.

## **1. CONDITIONS OF APPLYING HEDGE ACCOUNTING**

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Hedge accounting is a set of rules that can be implemented to derivative instruments intended to hedge against market risk. It is not mandatory, it is a privilege that can be used after accomplishing certain requirements.

One of the basic and most difficult conditions that must be fulfilled before applying hedge accounting is the effectiveness of hedge created by a specific financial instrument. Standards claim that the relationship, regardless of its type, qualifies for hedge accounting only if<sup>1</sup>:

- there is a formal document in which an entity describes its exposure and risk management strategy,
- there is a formal documentation for hedging relationships,
- for cash flow hedge, a forecast transaction (hedged position) must be highly probable and exposed to variations in cash flows,
- the hedge is expected to be highly effective,
- the effectiveness can be reliably measured,
- effectiveness is tested on an ongoing basis and hedge is highly effective during the whole time period for which it was designated.

Half of the conditions mentioned above concerns effectiveness measurement. That realizes how important issue it is for the application of hedge accounting. It validates the implementation of hedge accounting at the moment of designating a hedging relationship and can also be the reason of discontinuing it, and reclassifying all derivatives to category “held for trading”. In case of the cash flow hedge, it can result in high correction of equity and financial costs and profits.

## 2. MOMENTS OF TESTING EFFECTIVENESS

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The above conditions require that the effectiveness tests must be assessed in two different ways:

- in prospective consideration (*ex ante*),
- retrospective evaluations (*ex post*).

The *ex ante* test must be performed at the moment of designating the hedging instrument. In this step the entity must prove that this hedge will be effective and will not exceed the range of 80–125 per cent. The difficulty is caused by the fact that changes in hedging and hedge positions in the future are not known. IAS 39 says that the expectation of high effectiveness can be demonstrated by comparing the past changes in the fair value or cash flow of the hedged items with the past changes in the fair value or cash flows of the hedging instruments or by the statistical correlation between the fair value or cash flow of the hedged items and those of the hedging instrument<sup>2</sup>. In this method a company must assess future value of hedging and the hedged position using hypothetical risk factors (e.g. interest rates) and compare its changes. It can be simplified with regard to some instruments with symmetric risk distribution such as swaps or forwards. In this case it is enough

<sup>1</sup> IAS 39, p. 88.

<sup>2</sup> IAS 39, AG 105.



to demonstrate high correlation between the historical values of variables (e.g. between future prices of COMEX copper and LME copper when hedging physical sales based on LME copper average price with COMEX copper futures).

In most cases the high correlation is true because the cash flow connected with the hedging instrument are derived from the risk factor against which a company hedges (e.g. foreign exchange rate). A problem may occur if the basis is different (e.g. using EUR/USD forward for hedging GBP/USD sale) or the maturities of the hedging instrument and the hedged position differ.

The next difficulty may arise when options are used for the hedging purposes. These are instruments with a non-linear risk distribution and their fair value is assessed with advanced mathematical models. So it can be difficult and time-consuming. This problem can be omitted in a very simple way. Both standards allow to divide the fair value of option into the intrinsic and time value and designate only the intrinsic value for the hedging relationship. Thus the ex ante test is simpler, because the intrinsic value of an option changes similarly to instruments such as swaps and futures. This is not obligatory and if the entity decides that excluding the time value from the hedging instrument does not reflect the economical sense of its hedging, it will be forced to prove the high effectiveness of options in a different way. For this purpose, Greek risk measures (delta) can be used. If an option's delta equals 1, it means that for every 1 unit the underlying increases, the option value will increase also by 1. So if delta is between 0.8 and 1.25, the hedging relationship created with this instrument is considered to be effective.

The ex post testing is much easier to perform and document because it relates to the past, so all risk factors and market data are known. At this point the past changes in the fair value or cash flows of the hedging instrument should be compared to changes in the fair value or cash flows of the hedged item. That answers the question whether the hedging relationship has been highly effective in offsetting changes in the fair value of the hedged position or the future cash flows and if hedge accounting may be used further.

Regarding the frequency of testing effectiveness FAS 133 requires the entity to assess it at least quarterly<sup>3</sup>. IAS 39 presents a different approach. It says the effectiveness should be tested, at a minimum, at the moment of preparing the annual or interim financial statement<sup>4</sup>. In that case there might be a situation that this assessment would be made only once a year. It is in the entities' own interests to measure the effectiveness as often as possible because if it shows the relationship is ineffective, hedge accounting should be discontinued from the last date on

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<sup>3</sup> FAS 133, p. 490.

<sup>4</sup> IAS 39, AG 106.

which hedge effectiveness criteria were met. In practice this will be a date of the last test. Considering this, the approach under FAS 133 is better than the one under IAS 39.

### 3. QUANTITATIVE MEASURE OF EFFECTIVENESS

The hedging relationship is considered to be highly effective (prospectively) only if both of the following conditions are met<sup>5</sup>:

- at the inception of the hedge (a moment of designating a financial instrument for the hedging position) as well as during its life, the hedging instrument is expected to be highly effective in offsetting changes in the fair value or cash flow caused by the hedged risk.
- the effectiveness is within a range of 80% – 125%.

**Table 1.** Hedge effectiveness under IAS 39

Effectiveness rate ( $Er$ )	Hedge type	Implementation of hedge accounting
$Er = 100\%$	Perfect hedge	Possible
$80\% \leq Er \leq 125\%$	Effective	Possible with obligation of recognizing ineffective portion of hedge
$80\% \geq Er$ or $Er \geq 125\%$	Ineffective	Not possible

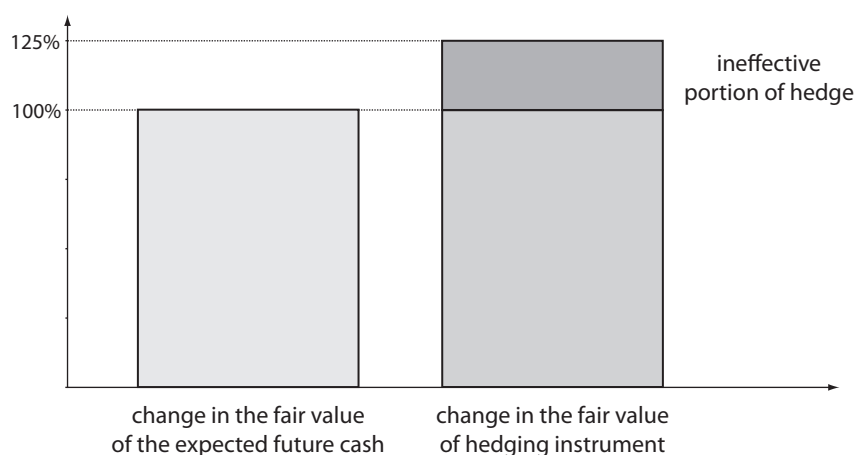
Source: Helin, Drabikowska, Sztuczynska 2005, p. 109.

At this point it should be stressed that FAS 133 does not provide any quantitative measure of hedging relationships, as it is defined under IAS 39. Considering this, an entity preparing a financial statement under FAS can define itself in its accounting policy effectiveness range. Of course, it should be a reasonable assessment close to 100% with some admissible deviations. Anyway, that approach can cause some problems with comparing different entities if they have chosen different effectiveness limits. This means that a hedging relationship created with the same instruments can be effective for one company while ineffective for another. This arbitrariness in defining effectiveness range generates a risk of manipulating company's earnings and deforming its financial statements. It may occur when an entity changes its accounting policy with respect to effectiveness range only to adjust it to hedging relationships. That suggests that the approach used under IAS 39, namely the range 80% – 125% as a definition of an effective hedging relationship should be applied under FAS 133 (Epstein, Nach, Bragg 2006, p. 233).

<sup>5</sup> IAS 39, AG 105.

## 4. INEFFECTIVE PORTION OF EFFECTIVE HEDGE

A very important issue connected with the cash flow hedge effectiveness is the distinction between the effectiveness of the hedging relationship and the effective portion of the hedging instrument. It sounds similar but there are two different matters. The relationship can be assessed as effective, but some portion of the fair value of the hedging instrument can be ineffective. It occurs during performing the ex post measurement when the effectiveness rate is higher than 100% and less than 125%. In such a situation the effective portion of the hedging instrument, which is recognized in equity, is adjusted to the cumulative change in the fair value of the expected future cash flows from the date of designating the hedging relationship<sup>6</sup>.



**Figure 1.** Ineffective portion of effective hedge

Ineffective portion of the hedging instrument is treated as “held for trade” and hedge accounting does not apply to this part. Therefore it should be excluded from equity and recognized in the profit and loss account. In conclusion, changes in the fair value or cash flows of the hedging instrument, considered as effective and recorded in equity, cannot exceed changes in cash flows of the hedged item.

## 5. SIMPLIFIED APPROACH WITH RESPECT TO EX ANTE TESTS

FAS 133 allows a company to use a simplified approach with respect to testing effectiveness of the fair value hedge as well as cash flow hedges.

<sup>6</sup> IAS 39, p. 96.

It can be implemented to a relationship created by the interest rate swap (IRS), because it significantly simplifies all computations necessary to prepare accounting entries. It consists in presuming that this hedge is always effective. Considering the fair value hedge, the assumption of no ineffectiveness can be made only if all of the following conditions are met<sup>7</sup>:

- The principal amount of the interest-bearing asset or liability (hedged item) and the notional amount of IRS match,
- the fair value of the swap is zero at inception,
- the net settlements under the swap are computed using the same formula on each settlement date,
- the financial instrument is not prepayable, but this condition does not apply to a hedged instrument that is prepayable only due to embedded call option when the hedging instrument is a compound derivative composed of a swap and a mirror-image call option, and
- the terms are typical for those instruments and don't invalidate the assumption of effectiveness,
- the maturity date of the hedged item and IRS match,
- no floor or ceiling on the variable interest rate of the swap exist,
- the interval (three to six months or less) between repricings is frequent enough to assume the variable rate is a market rate.

The assumption of no ineffectiveness, as far as the cash flow hedge is concerned, can be made only if all of the following conditions are met:

- The principal amount of the interest-bearing asset or liability (hedged item) and the notional amount of the swap match,
- the fair value of the swap is zero at origin,
- the net settlements under the swap are computed the same way on each settlement date,
- the financial instrument is not prepayable, and
- the terms are typical for those instruments and don't invalidate the assumption of effectiveness,
- all variable interest rates payments or receipts on the instrument during the swap term are designated as hedged and none beyond that term,
- no floor or cap on the variable rate of the swap exist unless the variable rate instrument has one,
- repricing dates match,
- the index base for the variable rates match.

If the above conditions are met, the company does not have to perform any calculations to show that the specific relationship is highly effective. It is enough to document that these conditions are fulfilled.

IAS 39 does not include such conditions but it does not mean it forbids a similar approach. By showing that the above assumptions are met, a company can document high effectiveness of IRS.

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<sup>7</sup> FAS 133, p. 68.

Both FAS 133 and IAS 39 allow to assume there will be no ineffective amount during the hedge if the fair value of the hedging instrument at inception is zero and critical terms of hedging and hedged positions are the same. These are<sup>8</sup>:

- quantity, notional and principal amounts,
- base (e.g. LME copper price, EUR/USD rate etc.),
- terms,
- repricing dates,
- benchmark for valuation (changes in the fair value of both hedging and hedged instruments must be measured to the same spot or forward price/rate/index etc).

If only one of the above conditions is violated, the entity must prove that this relationship is highly effective.

## 6. METHODS OF ASSESSING HEDGE EFFECTIVENESS

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IAS 39 does not specify any method of testing the hedge effectiveness. But FAS 133 contains some examples and suggestions how it can be performed.

The simplest and therefore the most frequently used method of measuring the hedge effectiveness is “dollar offset”. It consists in calculating the past changes in the fair value of the hedging instrument between the dates of measurement, and then comparing them to the past changes in the fair value of the hedged item or the changes in cash flows. It uses the data, which must be prepared to properly account for the hedging instrument, so it doesn’t require any additional work to be performed and that is the main reason of universality (Bonham, Curtis, Davis 2005, p. 165).

The other model is the linear regression. Using the least squares method one must find the equation of the linear function of two variables. The function looks as follows:

$$y = a \times x + b$$

where:

$y$  – changes in fair value or cash flows of hedging instrument

$x$  – changes in fair value or cash flows of hedged item

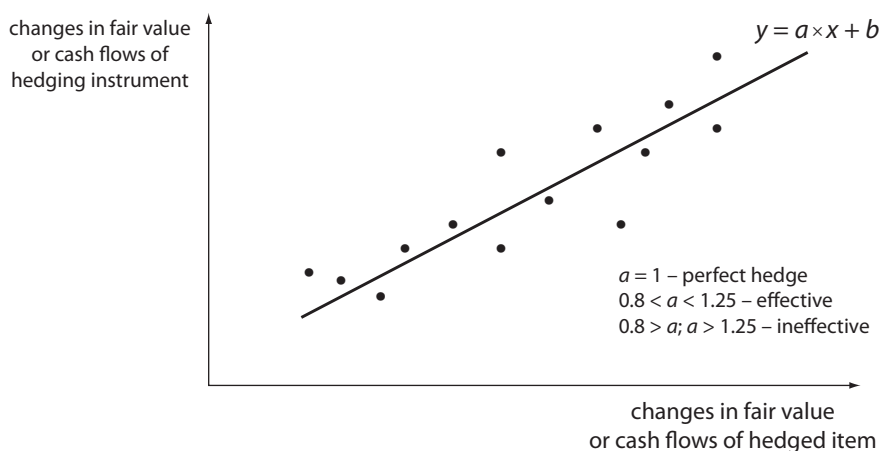
$a$  – linear regression coefficient (hedge effectiveness rate)

$b$  – constant coefficient

The linear regression coefficient ( $a$ ) measures the effectiveness of a hedging relationship and can be used for prospective as well as for retrospective tests.

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<sup>8</sup> IAS 39, AG 108.



**Figure 2.** Using linear regression for effectiveness test

Of course, there are many other, more sophisticated methods that can be used for these tests such as the Value at Risk, but they are beyond the scope of this paper.

## 7. CONCLUSION

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Regulations under FAS 133 and IAS 39 concerning measuring the effectiveness of hedging relationships are mostly consistent. There are slight differences regarding:

- defining effective range (IAS 39 describes is as percentage),
- the assumption of no ineffectiveness of the hedge created with the interest rate swap,
- frequency of testing.

FAS 133 describes some methods that can be implemented to measure the hedge effectiveness and presents a situation when a high effectiveness can be presumed.

Both standards are based on the same key assumptions and can supplement each other in many issues. The prospective test may be questionable because it is based on predictions. Some of them can be mathematically proved, but some may be controversial. The ex post test is easier to understand and interpret because it is based on the past changes in the fair value or cash flows. Nevertheless, the ex ante test should be performed to answer the question if a specific instrument will not fail the effectiveness test in the future, and if preparing all documentation required by the hedge accounting is justified.

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**Tatiana Zhilinskaya**

# THEORETICAL BASIS OF FINANCIAL REPORTING IN BELARUS: CONTEMPORARY STATE AND THE FUTURE PERSPECTIVE

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## Abstract

Since 1998 the process of reforming the financial reporting system reminded from the times of the Soviet Union existence has been conducted in Belarus. The main objective of this process is to make financial reports of Belarusian companies similar to those which are based on IAS (IFRS). Unfortunately in spite of all efforts taken to reform financial reporting in Belarus the financial statements are still of quite low quality, not transparent and they don't truthfully enough reflect the results of the company business activities. To improve the situation and to create the reports conforming to IAS (IFRS) the author suggests working out the certain financial reporting conceptual framework.

At all times in any country of the world the main goal of starting and running business is to make profit. Several tens of years ago the necessary condition of making it happen was the presence of the required quantity of the certain economic resources in the company. The times have changed. Now we live in the age of hi-tech and amazing scientific achievements where having the economic resources is necessary, but in itself cannot guarantee that the company will succeed in its capital preservation and profit making.

Nowadays, the effective realization of any business activity is impossible without having a certain volume of reliable economic information



that thoroughly characterizes both the activity of a company for the certain period of time and the received financial results towards the end of the same period. The examination of such information gives the opportunity to determine the basic tendencies of development of the company's internal economic processes that play a key role in making profit and their relationship with external environment of the company. Furthermore, this information analysis can help to determine both the main sources of earnings and expenses, their amount and a probable amount of the expected profit or loss. As a result, the company gets a real chance to reduce a degree of uncertainty and to lower the level of an existing risk of making mistakes while working out and accepting business decisions, especially those which deal with choosing the most profitable variant of the allocation of the company economic resources.

All information necessary for effective running of the company business activities can be received from its accounting system. Today, the diffused opinion is that all information necessary for managing the company can be received from management accounting reports. To some extent it is true. However, it is important to take into account that management accounting reports information is usually suitable only for everyday decisions making for optimizing current activity. In majority of the situations it cannot be used for long-term strategic planning and tactical schemes, which must be accomplished mainly on retrospective and reliable information from financial reports.

Except for that, it must not be forgotten that the company managers, while carrying out their duties, face the following problems:

- providing the acceptable level of return on shareholders' and owners' investments which is the long-term objective of the company's existence and at the same moment the basic goal of its management;
- holding a sufficient level of the company liquidity to provide at every moment the amount of cash that is enough to cover all current expenses and liabilities. This is the short-term goal of the company management.

For that reason the company managers of all levels and kinds need not only efficient information provided by management accounting, but very reliable information to substantiate both investment decisions in short-term periods of the company working and its long-term investment policy. Such information is usually included in financial reports, so they are of great need and interest for the managers of the company, too.

The information from financial reports is used not only by internal, but also by many external users such as shareholders (owners), investors, creditors, business partners, officials, stock market participants and others.

Shareholders are interested in the information that makes it possible to evaluate the managers' ability to save and increase front-end

investments and the return on them. They are also interested in the information on net profit distribution, the company ability to generate cash flows, its value as the object of making investments, the level of market capitalization increase and the amount of created added value.

Owners are interested in information that helps to evaluate the effectiveness of management, the intensity and expediency of economic resource allocation, the total amount of generated cash flows and the increase of value of the company as the object of investments.

Investors are mainly interested in the information that shows the level of financial stability and liquidity of the company, the current and the future return on investments made. They also want to know the data that makes it possible to understand whether the risk of losing the investments is equal to the expected return on them. They carefully study the financial data describing both the process of net profit distribution and the changes in the company value as the object of making investments.

Creditors are interested in the information that allows them to evaluate the company credit capacity and shows the extent to which the company can fulfill its obligations to return debts and carry out interest payments by a specified date.

The company business partners (i.e. suppliers and buyers) are interested in the estimation of the company financial stability as a supplier of goods and services and as a permanent purchaser of goods and services offered by them.

Officials are interested in the information which is necessary for:

- analyzing the whole economic system development, planning and forecasting at the macro level;
- determining the observance of adopted laws and economic practicality of accomplished business transactions.

They also want to know whether all the earnings and expenses were shown in accounting system, the taxes were calculated correctly and paid on time, and what tax burden and financial stability of the company is.

Stock market participants are interested in the information that shows profitability of the business activities, the value of the company as the object of investments for those who would like to participate in it through investing. Using financial reporting data they calculate the current and the future level of the risks of losing investments offered by the company level of the future profitability.

Other external users include financial analysts, auditing companies, employees and their legal representatives, insurance companies and so on.

All of these external users can neither get financial information from the sources different from financial report nor require the company to present the specific information they need. Accordingly, for them the only available source of financial information are the company financial

reports. They use information from financial reporting to settle a wide range of questions and to assist the economic decision-making process.

Taking into account all of the above, one can be sure that all over the world having and using financial reports is particularly of importance today, especially for all those who act in business environment. It may be caused by the fact that nowadays financial reports become not only the information resources, but they have also acquired the status of the numerical models of the company. They describe the company financial position, financial results, cash flows and changes in equity, and they contain all the main economic information about the past and the present of the company. The more accurate the model, the better it describes the company financial position and financial results.

Launched in 1991, the process of transition of the Belarusian economy into the social-oriented model of free market economy has caused serious changes in the monetary, credit, budgetary, tax, insurance, productive, banking, social and political spheres and has led to the origin, establishment and development of the variety of property forms and business methods.

Except for that, acquiring the sovereignty was the reason for activating Belarus foreign-economic interactions with other countries of the world. This has increased Belarusian companies' economic cooperation with business companies of other countries.

All these facts together brought about the necessity to re-examine and improve Belarusian accounting and financial reporting system which had to meet the new and more serious requirements of their users, both inside and outside the country.

Since 1998 the process of reforming the financial reporting system developed in the times of the Soviet Union has been conducted in Belarus. It started with the preparation of the "The Development of the Accounting and Reporting Concept in Republic of Belarus". This document was not just the official document for practical use which could guarantee automatic compliance with any acknowledged accounting and reporting standards. It was actually a conceptual framework for adapting the national accounting and financial reporting system of Belarus to the modern business reality taking into account all of the remarkable and useful things of the international accounting and reporting. However, this concept did not call to reject all the good things in Belarusian accounting and reporting. Unfortunately, this document hasn't been used in a proper way.

The next step in the reform process was the preparation of the "State Program of Transition to International Accounting Standards in Belarus" which was adopted by the Council of Ministers of Belarus on May, 4th 1998. The main objectives of reforming the accounting and financial reporting system of Belarus, its goals and implementation stages were indicated in this document.

According to the above-mentioned state program, the main objective of the reform of the accounting and financial reporting system is to create financial reports of Belarusian companies similar to those based on IAS (IFRS).

It is necessary to notice that under reforming process the majority of changes and improvements have been made in the “Balance Sheet” and the “Total Profit and Loss Statement”. In Belarus they are considered to be the main financial reports. “Total Profit and Loss Statement” takes the central place in Belarusian financial reporting system as it is regarded as the principal reliable source of information about earnings, expenses and total (net) profit (loss) for the certain period of time.

Although the reforming process has been continued, the present financial reports in Belarus still do not conform to the chosen patterns based on IAS (IFRS). The main reason for this is the fact that during reforming the financial reporting system in Belarus only their appearance has been changed, while their content and conceptual framework remained almost the same.

The lack of any perceptible changes in the conceptual framework of financial reporting in Belarus at the time of the reform of the accounting and financial reporting system probably results from the improper state of scientific research in accounting theory.

*Working up in the sphere of accounting theory is different from practical difficulties and problems. The need for significant accounting practice after industrial economy has increased.*

*Nowadays, teaching accounting theory is predominantly based on showing the accounting techniques: double-entry on accounts, documentation, accounting forms, etc. The essence substance and contents of accounting are almost not studied.*

(Palii 2007, p. 3–4)

As a result, the financial reports in Belarus are of quite low quality, they are not transparent and they do not reflect the results of the company activities. The main disadvantages of the present financial reports in Belarus are:

- two or more methods of accounting the same facts and drawing up financial reports are accepted;
- absence of interesting and necessary for the financial reporting information users data;
- more readiness to admit earnings and assets rather than expenses and liabilities;
- reserves are used to smooth income fluctuations artificially;
- net loss is usually covered by the sums of tangible assets overestimation;

- government grants received for a partial recovering of operation losses are shown as part of revenue from the company business activities instead of a part of recovered losses;
- the main objective of accounting in Belarus is to calculate all taxes correctly;
- the most popular method used for evaluation of the elements of the financial reports is historical cost method.

To comply with the present requirements of internal and mainly external users, Belarusian financial reports must have solid theoretical basis (i.e. conceptual framework) which corresponds to IAS (IFRS) and can provide all financial data necessary for the company management and decision making for all interested users of financial reports. Preparing the conceptual framework for financial reporting will also help to eliminate the existing disadvantages of present financial reports and accounting practice. As a result of making financial reports more useful and clear for their users, the financial position, profitability of many companies in Belarus and the total amount of investments (both foreign and domestic) will significantly increase. All of this will certainly promote the economic growth in Belarus.

The conceptual framework used now for drawing up financial reports consists just of three goals of accounting and financial reporting, two compulsory conditions and several qualitative requirements of accounting information.

According to the Statute of Belarus “About Accounting and Reporting” adopted in 1994, the goals of accounting and financial reporting in Belarus are:

- to provide full and reliable information about a company activities and its financial positions, earnings and expenses incurred;
- to provide the internal and external users of business transactions with the updated information about availability and changes in assets and liabilities and the information on material, human and financial resources under planned rates and estimates;
- to prevent negative results of running the company business activities and to reveal the reserves of the company financial stability (Statute of Belarus... 2007).

The compulsory conditions for drawing up the financial reports in Belarus are:

- to provide the complete reflection of all business transactions and results of an annual inventory of assets and liabilities in the current reporting period;
- to provide analytical and synthetic accounting data identification for the current reporting period as well as financial reporting, analytical and synthetic accounting data identification (Statute of Belarus... 2007).

There is one fundamental qualitative requirements for accounting: all material information about assets, liabilities, earnings, expenses and business transaction must be disclosed separately in financial reports. The information is considered material, if without knowing it, all the interested users cannot evaluate the financial position or financial results of the company. Financial reporting indicator is considered material if its sum ratio to the total sum of the company “Balance Sheet” is more than 5 per cent. According to the law, companies can vary the above-mentioned materiality criteria used in their financial reports.

The theoretical essential principles of financial reporting in Belarus currently in use should be revised “on the basis of new conceptual frameworks and scientific summarizing” (Palii 2007, p. 4). For example it is necessary to carry out research on the development of the financial reporting objectives. Nothing in this sphere has been researched in Belarus, while in the USA such research was carried out in April 1971. As a result, the “Trueblood Report” was issued.

It included the following objectives of financial statements (Riahi-Belkaoui 2004, p. 169–172):

- to provide the base for economic decisions;
- to serve primarily those users who have limited authority, ability, or resources to obtain information and who rely on financial statements as their principal source of information about an enterprise’s activity;
- to provide investors and creditors with useful information for predicting comparing, and evaluating potential cash flows in terms of amount, timing and related uncertainty;
- to provide users with information for predicting, comparing and evaluating enterprise earning power;
- to supply information useful for judging management’s ability to utilize enterprise resources effectively in achieving the primary goal of an enterprise;
- to provide factual and interpretive information about transactions and other events that is useful for predicting, comparing and evaluating enterprise’s earning power. The basic underlying assumptions of interpretation, evaluation, prediction or estimation should be disclosed;
- to provide a statement of financial position that is useful for predicting, comparing and evaluating enterprise earning power. This statement should provide the information concerning enterprise transactions and other events that are part of incomplete earning cycles. Current values should also be reported when they differ significantly from historical cost. Assets and liabilities should be grouped or segregated by the relative uncertainty of the amount and timing of prospective realization or liquidation;

- to provide a statement of periodic earnings that is useful for predicting, comparing and evaluating enterprise earning power. This net result of completed earnings cycles and enterprise activities resulting in recognizable progress toward completion of incomplete cycles should be reported. Changes in the value reflected in successive statements of financial position should also be reported, but separately, since they differ in terms of their certainty of realization;
- to provide a statement of financial activities that is useful for predicting, comparing and evaluating enterprise earning power. This statement should report mainly on factual aspects of enterprise transactions having or expected to have significant cash consequences. This statement should report data that require minimal judgment and interpretation by the preparer;
- to provide information useful for the predictive process. Financial forecasts should be provided if they will enhance the reliability of users' predictions;
- (for governmental and non-for-profit organizations) to provide information useful for evaluating the effectiveness of the management of resources in achieving the organization's goals that are primarily nonmonetary. Performance measures should be expressed in terms of the non-for-profit organization's goals;
- to report on the activities of the enterprise that affect the society and which can be determined, described or measured and which are important for the enterprise in its social environment.

Generally, the conceptual framework for financial reporting in Belarus must include such elements as objectives of financial reporting, its purpose, goals and content, definitions of the elements of financial reports, general assumptions, qualitative characteristics of reporting and accounting information, recognition criteria, adopted measurement methods.

It is important to notice that the preparation of each element of the conceptual framework for financial reporting in Belarus must be conducted according to one of the possible approaches to formulation of accounting objectives. They are (Riahi-Belkaoui 2004, p. 165):

- firm-oriented approach which deals with the set of information that the company is ready to disclose and attempt to find the best means of measuring and verifying it;
- professional-oriented approach which deals with the information that the professionals are capable of measuring and verifying and attempts to assist users and companies through various accounting options;
- user-oriented approach which views the set of information deemed relevant by users as central and encourages the professionals and companies to produce and verify that information.

The user-oriented approach is the most suitable for drawing up the conceptual framework in Belarus and at the same time it can meet the requirements of today's economic development. Taking this into account the main purpose of drawing up the financial reports in Belarus should be to satisfy the informational needs and demands of the users. In this way, the main objective of financial reporting should be indicated as follows: to provide all those interested in the company activity and its result users with useful, relevant and necessary for economic decision-making financial information in order to determine the future effectiveness of the company and the level of profitability of participating in it.

To compare, the particular objectives of financial statements given in APB Statement No. 4 are presented fairly and in conformity with generally accepted accounting principals, financial position, operations results and other changes in financial position (Riahi-Belkaoui 2004, p. 166).

*Framework for the Preparation and Presentation of Financial Statements (further – IAS Framework) states that the financial statement objective is to provide information about the financial position, performance and changes in the financial position of an entity which is useful for wide range of users in marketing economic decisions.*

(Framework for the Preparation...)

The IAS 1 states almost the same:

*The objective of financial statements is to provide such information about the company financial position, its financial results and cash flow that is useful for the wide range of users for making economic decisions.*

(International Accounting Standards 2007, p. 3)

Thus, the goals of financial reporting in Belarus should be the following:

- to provide reliable information about the economic resources and the liabilities of the company in order to evaluate its strengths and weaknesses, show its financing and investments; evaluate its ability to meet its commitments and to generate cash flows; show its resource base for growth;
- to provide reliable information about the changes in net resources resulting from the company profit-directed activities in order to show expected dividend return to investors, to demonstrate the operations ability to pay creditors and suppliers, to provide work for employees, to pay taxes and generate financial sources for expansion, to provide management with information for planning and control, to show its long-term profitability;
- to provide financial information that can be used to evaluate the earning potential of the company;



- to provide other necessary information about the changes in economic resources and liabilities;
- to disclose other information relevant to statement users' needs.

Financial reports in Belarus should include such statements as the “Balance Sheet”, the “Total Profit and Loss Statement”, the “Cash Flow Statement” and the “Changes in Equity Statement”. All these statements must be accompanied by detailed notes which will help to achieve the right understanding of the company, its activities, the results of its work and its future.

The elements of financial reporting in Belarus, as in the financial reports of other countries of the world, should consist of assets, liabilities, equity, earnings and expenses.

It is worth paying attention to the fact that according to the Statute of Belarus “About Accounting and Reporting” *assets* are property including rights of property and incorporeal rights that are taken account as the results of business transactions (Statute of Belarus... 2007).

*Liabilities* are ordinary debts resulting from business transactions that have been performed before the current reporting date and whose offset will cause either assets attrition or equity increase (Statute of Belarus... 2007).

*Equity* is the assets remained after deducting all company's liabilities (Statute of Belarus... 2007).

*Earnings* are either the assets increases or the liabilities decreases that lead to the equity increase (Statute of Belarus... 2007).

*Expenses* are either the assets decreases or the liabilities increases that lead to the equity reduction (Statute of Belarus... 2007).

These definitions are not perfect and they “require examination and research as theoretical and applied categories of accounting” (Palli 2007, p. 6). For the purpose of the development of Belarusian conceptual framework for financial reporting it is necessary to examine GAAP and ISA (IFRS) issues. For example, in SFAC No. 3 the elements of financial statements are defined as follows (Palli 2007, p. 188):

*Assets*: probable future benefits obtained or controlled by particular entity as a result of past transactions or events.

*Liabilities*: probable future sacrifices of economic benefits arising from the present in the future as the result of past transactions or events.

*Equity*: residual interests in the assets of an entity that remains after deducting its liabilities. In the business enterprise, the equity is the ownership interest.

*Revenues*: inflows or other enhancements of the assets of an entity or settlement of the liabilities of an entity (or a combination of both) during a given period that result from delivering or producing goods, rendering services, or carrying out other activities that constitute the entity's ongoing major or central operations.

*Expenses:* outflows or other using-up of the assets of an entity or incurrance of the liabilities of an entity (or a combination of both) during a given period that result from delivering or producing goods, rendering services, or carrying out other activities that constitute the entity's ongoing major or central operations.

In IAS Framework these financial reporting elements are defined in another way: *an asset* is a resource controlled by the entity as the result of past events and from which future economic benefits are expected to flow to the entity (Framework for the Preparation...).

A *liability* is a present obligation of the entity arising from past events, the settlement of which is to result in an outflow from the entity of resources embodying economic benefits (Framework for the Preparation...).

*Equity* is the residual interest in the assets of the entity after deducting all its liabilities (Framework for the Preparation...).

*Income* is increase in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants (Framework for the Preparation...).

*Expenses* are decreases in economic benefits during the accounting period in the form of outflows or depletion of assets or incurrance of liabilities that result in decreases in equity, other than those relating to distributions to equity participants (Framework for the Preparation...).

The definitions given both in SFAC No. 3 and in IAS Framework are not perfect, but seemingly they are much better than those used in Belarus. Therefore, the Belarusian definitions should be revised to improve and develop the conceptual framework and to make it correspond more to the international accounting practice. On the basis of the definitions of financial reporting elements given in IAS Framework and SFAC No. 3, their meaning for conceptual framework in Belarus should be the following:

*An asset* is a resource controlled by the company as the result of past events and from which future economic benefits are expected to flow to the company.

A *liability* is a present obligation of the company arising from past events, the settlement of which is to result in an outflow from the company of resources embodying economic benefits.

*Equity* is the residual interest in the assets of the company after deduction all its liabilities.

*Earnings (income)* are the results of the company's business activities that have cost or value, that can be measured with reliability and accounted for the company assets inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants

*Expenses* are all the costs and losses that took place while the acquisitions of earnings (income) are to be deducted when the amount of the net profit (loss) is calculated.

The general assumptions of financial reporting in Belarus should be the following:

- all business transactions of the company that have an attitude toward the current reporting period during which they took place must be taken into account while drawing up the financial reports regardless of the moment of making or receiving payments;
- the company will continue its activities in the foreseeable future and it has no reasons neither to decrease its activities nor to end them entirely.

It is evident from what was said above that nowadays there are no specifically defined qualitative characteristics of reporting and accounting information in Belarus. For that reason it is necessary to examine international accounting practices.

The “Trueblood Report” mentions seven qualitative characteristics of reporting:

- relevance and materiality;
- form and substance;
- reliability;
- consistence and understandability (Riahi-Belkaoui 2004, p. 172).

According to SFAC No. 2 the qualitative characteristics are (Riahi-Belkaoui 2004, p. 186):

- relevance (that is expressed in predictive value, feedback value and timeliness) and reliability (that is expressed in verifiability, neutrality and representational faithfulness);
- comparability and consistency.

Furthermore, the reporting information should fit the cost-benefit considerations, should be material, useful for decision making and easy to understand.

According to IAS Framework (Framework for the Preparation...) the qualitative characteristics of accounting information are:

- comparability;
- understandability;
- relevance that is expressed in materiality;
- reliability that is expressed in fair representation, the priority of the substance over the form, neutrality, prudence and completeness.

According to IAS (IFRS) reporting information must be timely, fits the cost-benefit considerations and has a qualitative characteristics ratio.

On the basis of the above-mentioned issues of international accounting practice and taking into consideration the national peculiarity of the level of the Belarusian economy development, the financial reporting and accounting information in Belarus must have the following qualitative characteristics:

- usefulness that is expressed in materiality and decisions-making value;
- comparability;
- reliability that is expressed in credibility, neutrality, priority of the substance over the form, prudence, verifiability.

Moreover, the financial reporting information must be timely and economical.

IAS Framework indicates that an item should be recognized in financial statements if:

- it meets the definition of an element;
- it is probable that any future economic benefit associated with the item will flow to or from the entity;
- it has a cost or value that can be measured with reliability.

The recognition criteria for the conceptual framework for financial reporting in Belarus must be the following:

- definition – the item meets the definition of an element of financial statements;
- measurability – it has a relevant attribute measurable with sufficient reliability;
- relevance – the information about it is capable of making a difference in user decisions;
- reliability – the information is representational, faithful, verifiable and neutral.

Now the following measurement methods are used in Belarusian accounting system:

- for assets: historical cost, replacement cost, depreciated cost, actual cost;
- for liabilities, earnings and expenses: method that proceeds from contract prices.

There are seven measurement methods in international accounting and reporting practice. They are: fair value, historical cost, current replacement cost, current market value, net realizable (settlement) value and present (or discounted) value of future cash flows.

Not all of these six measurement methods can be used in Belarus. For example, there is no open stock market in Belarus. That is why there is no need for using the fair value. As the mechanism of assets depreciation hasn't been prepared yet, there is no need for using the present (or discounted) value of future cash flows (Lashchenko 2007).

Under the circumstances, for our country the most suitable measurement methods are: current replacement cost, current market value, net realizable (settlement) value.

Summing up all mentioned above we would like to notice that putting to practice all our suggestions about contents of conceptual framework for financial reporting in Belarus will lighten the work for reforming

Summing up, it is worth pointing out that putting into practice all the suggestions mentioned above about the contents of conceptual framework for financial reporting in Belarus will:

- Marshal and lighten the work for reforming the accounting and financial reporting system;
- Help to make financial statements of Belarusian companies conform to IAS (IFRS), it will make them more clear, self-descriptive and useful for decision-making process
- Enrich accounting theory in Belarus by presenting a new view of theoretical basis of financial reporting.

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**Małgorzata Kucharczyk**

# MEASUREMENT SYSTEM OF FAMILY FARM ECONOMIC REVENUE<sup>1</sup>

## Abstract

The market treats family farms as if they were enterprises like all other. Consequently, reliable information is required on their economic results. The information about their economic and financial position can be provided by accounting. Thus, family farms are in need of an accounting system that suits their needs. Such a system should conform to the main principle of accounting, a true and fair view, but it should also provide additional information regarding the farm and the household.

This paper presents a model for family farm accounting, which is an attempt at reconciling the theoretical concepts of accounting with the actual needs and abilities of family farms. The paper contains a description of this model and how it can provide information on economic results and additional information needed for the efficient management of the transformation of biological assets, and how it can help to account for the value of labour utilised by the farmer and his family.

## INTRODUCTION

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Agriculture has been a domain present in human history since the creation of the first settlements and communities. Civilisation development has always gone hand in hand with agricultural progress. Increased specialisation in plant cultivation and animal breeding in particular geographic regions led to the expansion of trade and the exchange of goods. With time, thanks to the advancements in agriculture, it was possible to

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<sup>1</sup> Work financed with study funds as research project No. N11503931/1597.

achieve increasingly better results with respect to the quality and quantity of crops from the same area of cultivation. It was easier to breed animals effectively. Agricultural development made it possible for towns and culture to flourish. At the same time, in the course of civilisation progression, agriculture – as one of the major economic and social human activities – was becoming increasingly more important. Finally, it became necessary to have access to reliable information on the economic farm results.

Literature on farm economics began to be available on the market quite early because of the information needs of farmers as well as of state and local administration officers. In Europe, the first thesis on agriculture was written in 550 BC by Magon. This work was composed of 28 books containing advice on how to run a farm (Mikołajczyk 2004, p. 52). Later on there were obviously more books describing agrarian techniques, farm management methods and economic farm issues, most of them however, were of mediocre value. The Roman Empire saw the real heyday of agrarian literature. The most important works include:

- *Oikonomikos* – usually translated as *Farmer* or *Economist* – the book was written by Ksenofont in praise of agriculture and contained practical advice on how to run a farm effectively and how to achieve positive financial results (Stacha 1998, p. 18).
- *De agri cultura*, written by Mark Parthenius Caton in the second century BC, is one of the oldest relics of Latin prose, dedicated to agricultural economics (Mikołajczyk 2004, p. 33). It advises to register financial inflows and expenses in order to improve the rationality of expenditure, to develop plans and to organise fund settlements (Stacha 1998, p. 20).

After the Roman period, there was a long time during which no new agrarian economic work was created. In Europe it was only in the 14th century that a new manual became available. It was entitled: *Agrarian Volumes*, and written by Pietro Crescenzi (Stacha 1998, p. 20). It goes without saying that agriculture continued developing all the time, even in the absence of literary achievements on the subject. In Poland there are accounting registers prepared by farmers dating back to the 11th century. It is worth mentioning at this point that Polish economic ideas on farming were highly appreciated all over Europe. The past saw many outstanding works on farm economics written in our country. They were popular both in Poland and abroad.

Today only a small fraction of Polish farmers keep their accounting books. The National Agrarian Census, conducted in 2002, found that only every 36th individual farm deals with systematic accounting registers and sets financial targets (GUS, 2002, p. 19). There have been numerous social and economic reasons for the present general lack of economic knowledge among Polish farmers and the fact that so few family farms register their financial matters in accountancy books. The Second World War brought about political and economic changes that refrained

individual farmers from further developing their economic culture. The communist authorities in Poland did not need to, or even want to (depending on the period) know anything about the economic results obtained by family farms. The difficult situation during and after the war does not however, justify the dolefully low number of individual farms that register their revenues and expenses in the books today. Today's conditions are all the more surprising given that for so many centuries Poland was making great contributions to the European legacy of agrarian economics.

The National Agrarian Census showed how little value is attributed to accountancy in the process of family farm management. It is quite a pity seeing as appropriate accounting registers would greatly increase the efficiency of the farms and would be of invaluable help to those who would decide to make use of them. The GUS (Central Statistical Office) data presented in studies on individual farms in Poland, show very clearly that family farms that are running accountancy books are more effective in using their assets and financial resources. Farms that keep written records of their finances are beyond doubt more competent and operative than the ones without any accounting registers. Farms taking proper care of their accounts are also more willing to make investments and look for additional, external financial sources (GUS, 2002, p. 59–60). The Polish Institute of Agricultural and Food Economics confirmed that family farms that run accounting registers obtain better economic results (Bernacki 2000, p. 13–16).

Accountancy as a system of economic information identification, measurement and communication is a very useful instrument allowing for a successful family farm management. Especially today, now that family farms are expected to be economically self-supporting and competitive. One of the aims of the Common Agricultural Policy of the European Union is the liberalisation of agrarian markets. At the same time, family farms are expected to provide consumers with proper quantities of high quality farm products. That is why there are increasingly more farmers whose information needs are well based and clear-cut. They need reliable information on the economic results of their farms in order to be able to face the market requirements and earn enough money for themselves and their families. The whole society and individual national institutions are deeply interested in the economic and financial issues related to agriculture. The need for information stems from the rationalisation of the agrarian policy, subsidies and compensations, attempts at raising farmers' incomes to the level of the so-called "fair revenues" and plans related to the modernisation of fiscal systems<sup>2</sup>.

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<sup>2</sup> In Poland there have been various discussions going on for a number of years on how to change taxation forms for farmers in order to link their real revenue with the value of their tax burden.



Family farms, both in Poland and abroad, should function according to the rules of the market economy. Thus, it is absolutely necessary to develop tools that will help farmers to be successful. One of the key conditions that has to be fulfilled in order for a family farm to function properly in the free market economy, is to possess proper knowledge on the economic results of its activities. Therefore, it is necessary to work out an adequate system for family farms to measure their economic results. In other words, an accounting system that is capable of generating information needed by farmers, government institutions, banks and the society as a whole. The lack of an accounting model that is adapted to the specific needs of family farms is a serious problem faced by the farmers themselves and by other users of the accounting data. The demand to create a model that measures the financial results of family farms is generated from multiple economic and social factors. It is crucial to take into consideration the information needs of the actual farmers, so that real efforts can be made aimed at supporting the family farm development in Poland.

The family farm accounting model should fulfil all the theoretical and practical criteria. Considering the characteristics of Polish family farms, the practical usage of the suggested accounting system is of crucial importance. First of all, the model should be informative regarding the basic economic values of family farms.

## THE CHARACTER OF FAMILY FARMS

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The term “family farm” occurs frequently in scientific and popular literature. It is rather widely used and understood, even though it has no single definition. The character of Polish family farms is the main reason for the lack of a proper definition. It seems impossible to come up with a unified definition that would cover all the aspects of these economic entities. However, it is possible to indicate the most important features that characterise Polish family farms.

The most characteristic feature of a family farm, making it different from other farms, is the structure of its ownership. Family farms are privately owned. They belong to the farmers and their families who run the farms and derive revenue from them (ERS, [http](#); Duffy, [http](#)). The family nature of owning and running these farms is an extremely important factor and it influences these farms significantly. It is even reflected in their name. The family farm ownership structure is also related to the management of such a farm. Most of the work in a family farm, including management, is done by the owner and his family. That is why a farmer that is responsible for his own farm feels a strong connection with it and usually decides to do all the work himself, with the help of the members of his family (Richardson, [http](#); Tomczak 1988,

p. 1). Family farms are therefore a specific form of a family business, in which the managerial control is executed by the farm owner (*Structural...*, [http](#)).

The fact that it is the owners and their families that run these farms, creates economic and social problems that are characteristic for these entities. The active participation of many family members on a given farm can result in numerous dependencies and bring about internal conflicts and collisions. There are also economic relations between farms and households. The complexity of the relations between family farm „employees” and the lack of remuneration measurement tools that should calculate the amount of money earned by each individual person involved in the farm production process, also make family farms different to other agricultural farms. The economic results from running family farms by owners and their families are problematic from the point of view of the financial revenue earned by these entities. All the revenue, or most of it, is derived from the farm (Richardson, [http](#)). The farm is the only or the main place of work of the farmer and his family. According to Polish statistical data, three out of every four people involved have only worked on the farm (74.2%) and one out of four (24.1%) treats farm work as an additional (supplementary) professional activity (GUS (b), p. 100). That is why it is utterly important for the correct functioning of family farms to undertake proper actions that will indicate the exact revenue levels<sup>3</sup>.

Since family farms are run by the owners and their immediate families, there is a close connection between the farm ownership structure and the household (Richardson, [http](#)). Within family farms, the economic activity intermingles with the household enterprise. Assets such as buildings, agricultural equipment, means of transport, tools, stock elements used both on the farm and in the house are often necessary both for the farm and for the household. Therefore, it is intensely difficult to indicate the assets of the owner. Family farms and respective households are characterised by a peculiar unity of notions such as ownership, management, work effort and production (Tomczak 2004, s. 117). This unity greatly facilitates the exchange of goods and services between the farm and the household. The household itself will usually make use of the products generated from the farm. The farm and the household keep mutual accounts and spend money on both entities. Family farms share many costs with their respective households. Energy, gas and water bills do not differentiate between the household and the farm. These are the most typical and frequent examples of a unity between family farms and

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<sup>3</sup> The problem of fair revenue of family farms is complicated and puzzling. It makes us face different dilemmas regarding multiple issues of family farm economics (for example its size and efficiency) and social problems. Therefore, this subject is not discussed in depth in this thesis.

their respective households. This is a good demonstration of one of the main characteristics of the discussed economic entity.

Taking all the above into consideration when giving a definition of family farms, we can say that they are economic entities that:

- are privately owned;
- are managed by the owner (or in special cases a user) of the farm;
- are a place of work for the family of the farm owner;
- are normally run by a married couple and their children (it is very rare for family farms to employ outsiders and if they do so, it is just for seasonal work);
- deal with agricultural activities of a highly dispersed character;
- are the main source of income for the farmer and his family;
- form a group of small to medium size economic farms;
- do business based on traditional farming methods;
- normally function as the so-called “traditional farms”, cultivating certain agrarian traditions;
- are perceived to be harmless to the environment;
- are focused on multiple family and social occurrences;
- are characterised by close relations and dependencies between the farm and household assets.

## DETERMINANTS FOR A MEASURING SYSTEM OF THE ECONOMIC REVENUE OF FAMILY FARMS

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The abovementioned characteristics give a specific nature to family farms. They are their most important features and must be taken into consideration when creating a measurement system of the economic revenue of family farms. Developing such a system, we cannot forget about the other elements that should be included in this accountancy model: the nature of the economic activity, the complexity of the production processes and the biological assets – the main subject of agrarian accountancy. Family farms deal with agricultural activities. Agricultural production is defined in various ways, depending on the economic publication. Below are some of the definitions:

- Agricultural production – “...a production activity (agricultural production process), an agricultural manufacturing process defining economic activity aimed at producing agrarian goods and services...” (Adamowicz; Economic Agricultural Encyclopedia, 1984, p. 575),
- Agricultural production process – „... a procedure of processing diverse matter elements into agrarian products by means of biological processes taking place in the organisms of plants and animals (the so-called converters), with an active participation of heterogeneous elements from the natural surroundings (biosphere). These processes

are started, supplied and run (regulated) by people who perform organised tasks, using proper tools...” (Zegar, Economic Agricultural Encyclopedia, 1984, p. 570),

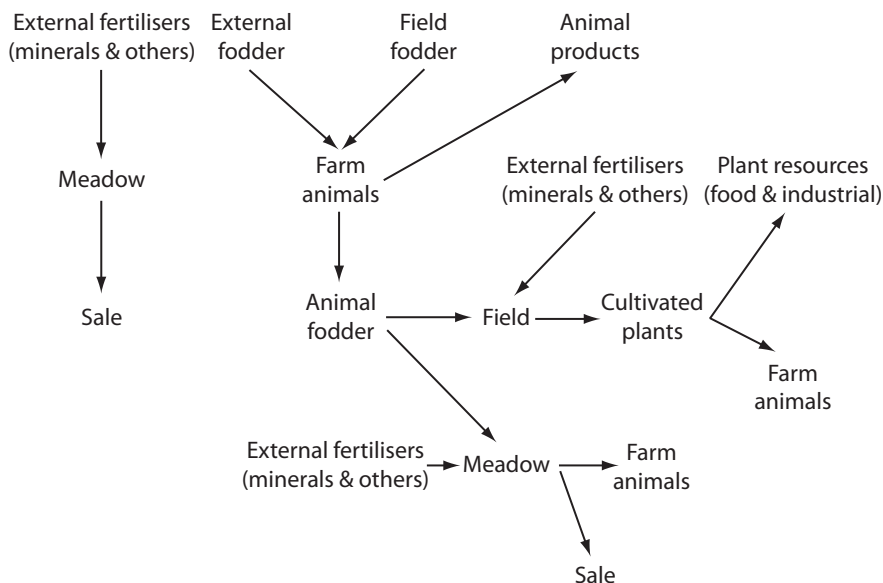
- Agricultural production process – „... a conscious action undertaken by men using tools and nature forces in order to change the physical, chemical or biological characteristics of work objects, making it possible to obtain agricultural user values fulfilling social needs in a direct or indirect manner...” (Nieżgoda 1996, p. 12),
- Agricultural Production Process – „... a set of conscious and intentional actions performed on soil, animals or other work objects...” (Rychlik, Kozieradzki 1981, p. 185).

The above definitions clearly show what is meant by economic activity executed by family farms. This economics activity as a whole has been specified as the International Accounting Standard No. 41 – *Agriculture*. According to the definition presented in the IAS, it can be stated that agricultural activity is understood as the management of the biological transformation of biological assets (living plants and animals) into agricultural produce (the harvested product of the biological assets of the enterprise). Farmers should thus focus on the management of the growth processes, degeneration and procreation of biological assets. New biological assets and agricultural products should be created as a result of quantitative and qualitative changes occurring in the harvested plants or bred animals. Farmers are supposed to be in charge of the natural power of animals and plants to grow and reproduce.

Typical biological assets of a family farm are the harvested plants, fruit trees, shrubs and the animals that are bred. The thing that differentiates these elements from the other assets is their natural ability to change internally. This ability to change is subsequently reflected in their growth, reproduction, degeneration and the capacity to be transformed into agricultural products. Due to the transformation capacity of biological assets, it is advisable to treat them differently in the accounting system than all the other resources. For example, the historical cost should not be applied in their case since this would lead to dishonesty of financial statements. Biological assets are also related to the occurrence of new assets, such as agricultural products. In order to specify them correctly in an accounting system, it is necessary to use proper tools allowing for the right assessment. Biological assets in family farms make it hard to use accrual accounting methods. Individual identification, measurement and communication tools need to be developed.

In family farms, the management process of biological change is difficult and complex. Its essence is not only related to the specific characteristics of biological assets, but also to the nature of the family farm. One of the typical features of family farms is the complexity and unity of production processes taking place on the farm. The „self-sufficiency”

phenomenon is common for family farms. It means that family farms produce agricultural products used within the same farm for the purpose of other production processes. R. Manteuffel made an attempt at describing agrarian production processes and talked about the unusual “circulation of family farm matter”, an example of which is shown in the Figure 1.



**Figure 1.** The circulation of family farm matter

Source: Manteuffel 1987, p. 163.

This scheme clearly shows that family farm production processes intermingle with one another. A working farmer transfers his work effort into multiple processes. The final products of one process are used to run another one and the borders between the processes disappear.

Because of all the abovementioned facts, it is extremely difficult (if at all possible) to use traditional accounting systems in family farms. The introduction of a traditional accounting model in order to analyse family farms would go against the principle of advantages over costs. Therefore, it would be useful to develop an accounting model that reflects the nature of a family farm and that presents the economic values that represent the economic entity that is being analysed. A family farm accounting model should fulfil the following conditions:

- a generation of the basic information relating to the economic profits and the speed with which the farm capital is multiplied;
- a transparent and simple construction that could be used in family farms;

- a generation of essential information on the work effectiveness of the people employed on a family farm;
- a generation of the indispensable information needed by all users interested in the farm activities in order to make proper decisions.

## A MEASUREMENT MODEL FOR THE FAMILY FARM ECONOMIC REVENUE

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The development of industry has made economists pay special attention to the nature of capital and its functions. One of the most important functions is the one of creating „revenues“. Many capitalist experts have tried to describe the notion of capital. For example: Turgot (*Réflexions sur la formation et la distribution des richesses*), Smith (*Wealth of Nations*), Ricardo (*Principles of Political economy*), Senior (*Political Economy*), Mill (*Principles of Political Economy*), Kleinwächter (*Grundlagen des Socialismus*), Böhm-Bawerk (*Positive Theory of Capital*), Marks (*Capital*), McCulloch (*Principles of Political Economy*), Knies (*Das Geld*), Hermann (*Staatswirthschaftliche Untersuchungen*), Walras (*Éléments d' economic politique pure*), Jevons (*Theory of Political Economy*), MacLeod (*Dictionary of Political Economy*), Clark (*Capital and its earnings*) (Fisher 1896). The abovementioned economists are only a small fraction of those dealing with the notion of capital. This is simply an attempt at specifying a few economists that have set the trend for the development of the capital theory. There are many other scientists that have been analysing the nature and behaviour of capital.

At the turn of the 19th and 20th century, along with the development of mechanical sciences, economists compared capital to the notion of energy in physics. Capital in economics is just as important as energy in physics. Both values make it possible for work to be performed. That is why the two concepts are believed to be similar to each other. Of course this does not mean that both categories are equal. There are analogies between capital and energy. In his works, M. Dobija (2007) analyses the energy laws in physics and the capital laws in economic and social sciences. Capital, just like energy concentration, is subject to the natural and spontaneous diffusion process, so for both a similar form of lossiness occurs ( $s$ ). This lossiness is compensated by the risk bonus ( $p$ ). Below is a model that specifies the nature of profit:

$$I = C = C_1 - C_0 = C_0 + C_0(p-s) - C_0 = C_0(p-s)$$

This formula clearly represents the nature of profit and its sources (activities performed with the use of initial capital, management aimed at decreasing the diffusion of natural capital and risk bonus brought about by the market) (Dobija M. 2006a). From the historical point of view, accounting systems have always been dependent on profit measurement

methods based on transfers (temporary accounts) and conditions (permanent accounts). At the turn of the 12th and 13th century, a double-entry accounting system appeared in Europe. It was based on a dual understanding of capital and assets. According to the dualism principle, the capital and assets of an economic entity are registered dually. It becomes impossible to increase the initial capital as a result of entering up operations that occur inside an economic entity. Double entries allow to register only the increases of initial capital that result from external operations (Dobija M. 2006).

It is crucially important to understand the double-entry principles in order to be able to conduct solid economic measurements. Pursuant to the theory of capital, advocated by I. Fisher – an outstanding economist that analysed the nature of capital and profit, capital reflects the value of resources that exist at a given moment. Thanks to the capital recognised in the assets, there is a transfer of services that can facilitate an increase in the initial value of the capital. I. Fisher claims that this transfer of services is equal to profit. An economic entity, which works on the basis of certain economic resources (capital), generates two flows that cancel each other out. An economic entity generates both a revenue flow and a cost flow. The initial changes of the capital value are caused by the fact that these flows exert influence upon the property resources of an economic entity. Therefore, the initial capital can rise provided that the volume of the revenue flow is greater than the volume of the cost flow, which decreases the initial capital value (Dobija D. 2003, p. 118). This phenomenon can be demonstrated by means of the following formulas:

$$\frac{\Delta E}{\Delta t} = Q_s - Q_k$$

$$\frac{\Delta E}{\Delta t} = \frac{S}{\Delta t} - \frac{K}{\Delta t}$$

where:

$E$  – equity capital, recognised as a difference between assets ( $A$ ) and liabilities ( $L$ )

$S$  – revenues

$K$  – costs

$Q_s$  – revenue flow

$Q_k$  – cost flow

$t$  – period

That is why accounting systems define profit as:

$$Profit = I = \Delta E = \Delta A - \Delta L = S - K$$

The analysis of formulas that describe the nature of profit and its relation with capital shows that the accounting of economic results can

be performed in two dimensions<sup>4</sup>. In one-dimensional accountancy it is performed through balance sheets, whereas in two-dimensional accountancy registering economic operations is done by means of two accounting systems – permanent and temporary.

As for the family farms, the measurements of economic results should be performed on the basis of the principles of one-dimensional accountancy. The selection of a measurement method of the economic profit of a family farm should be conscious, rational and decided upon in accordance with the key principles of economics. Since accounting makes it possible to measure economic results by means of two different systems (one-dimensional and two-dimensional), it is recommended to select a measurement method that will provide solid information on the profits of an economic entity and that at the same time will allow for the measurement costs to be as low as possible. Since family farms are characterised by the phenomenon of “unity” with respect to management, work and assets, as well as by the notion of “self-sufficiency” closely related to the multitude and complexity of the production processes, a two-dimensional accounting system would entail high costs of acquiring information needed to define economic profits. One-dimensional accounting of economic result does not take into consideration the economic operation entries based on temporary accounts. Thus, a complicated system of individual calculations of the costs of the production process can be eliminated. It is by all means a good solution for family farms in Poland. Thinking about the quality of family farm management, it is not necessary to possess information on the costs of every single activity undertaken in a farm. It is enough to know the final economic result of a farm as a whole in order to make the right decisions on the management of biological assets. At the same time, information on the final economic result of the whole farm is required by external users such as banks and the state. That is why it is by all means appropriate to measure the economic results of family farms on the basis of the values of economic resources.

In the one-dimensional accountancy system, the operation results of economic activity are represented by permanent account arrangements. The outcomes of economic events are registered as decreases or increases of economic categories such as capital and assets. In this system, it is much easier to enter up economic operations than in a two-dimensional system. The economic result, calculated by means of a one-dimensional system, is a value that represents all the changes of the equity capital value.

$$I = \Delta E = E_1 - E_0$$

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<sup>4</sup> It should be remembered that income measurement is also possible in the third dimension. Three-dimensional accountancy has been examined in the studies of Y. Ijiri.



Due to the nature of their functioning, family farms find it sometimes difficult to assess equity capital values. That is why, in the case of these economic entities, equity capital is marked as a secondary quantity. The assessment of the equity capital value of a family farm is possible because of the dualism principle, according to which capital quantities are equal to assets. The capital can be divided into two groups – equity capital and borrowed capital (depicting family farm liabilities to third parties). Equity capital can be assessed as the difference between assets and liabilities, and the economic result can be calculated as the difference between the increment of assets and liabilities.

$$I = \Delta A - \Delta L$$

A measurement model of the economic profit of a family farm should measure the economic result adequately and concordant with the economic reality. Therefore, the final measurement system of family farm profit should account for three quantities – the value of money assets (*SPN*), the value of other assets (*PA*) and the family farm liabilities (*L*). The accounting model of the family farm calls for gathering data by means of three record tools: a cash register, a register of common services and an inventory sheet that comprises assets and liabilities. Each of these tools functions on the basis of specific characteristics based on the nature of the quantities they refer to. The measurement formula of family farm economic profits looks as follows:

$$I = \Delta SPN + \Delta PA - \Delta L$$

At the end of each accounting period, a list of the property components of the family farm and the family farm liabilities to third parties should be created. This list will serve as a basis for preparing an asset and liability inventory sheet, a key element to the measurement of economic profit. It is from this sheet that the final quantities will be drawn that are used in the formula that measures the economic results of the family farm. Thus, the asset and liability inventory sheet must be prepared very carefully. This sheet will also allow to create a family farm balance sheet and to calculate the equity capital. However, making these calculations will not be possible without two other record tools – the cash register and the common services register.

Cash registers are used to register cash. The following operations should be recorded: cash sale revenues, reception of due balances, reception of loans or subsidies, cash purchases, loan repayments, and other expenses and cash inflows. Cash register information is supposed to make it possible to assess the quantity of benefits acquired by a family farm in the form of goods and services purchased for its needs. This information is absolutely crucial to the farmer and everyone involved in the farm work in setting the family farm payment liabilities. One of the biggest problems facing family farm accountancy is the assessment of

remuneration figures that should be paid to the farmer and his family. Cash registers indicate how much cash has been taken from the common family farm (and household) funds, how it has been spent, whether it has been used in order to fulfil the family farm needs, the farmer's needs or the needs of his family.

At the same time, cash registers control the levels of cash recorded in the asset and liability inventory sheet, created on the basis of a physical count. Apart from all that, cash register data may be used to prepare various comparisons. Not only is it possible to divide expenses into household costs and family farm costs, but also to divide family farm expenses into operational activities, investment and farm finances. Therefore, it is possible to draw up a cash flow report.

A common services register is the third record tool in the family farm accounting model. It exists because of the specific characteristics of family farms. Since there are close relations between family farms and their respective households, it is necessary to register operations related to the exchange of services. Should this exchange of services fail to be assessed, it will be impossible to determine the final value of family farm payment obligations to the farmer and his family members. This register displays services executed by the farmer and his family members for the benefit of the farm. At the same time, it shows the value and kind of goods that are collected from the farm and used in the household. Its construction makes it possible to register all economic operations with respect to common services. It is the key to making specific settlements, which exist within a family farm and that result from the unity of ownership, management, work, production processes and household. It may serve as a basis for determining family farm liabilities to individual family members. It shows the quantity of remuneration values collected from the farm in a form other than cash.

It is possible to determine family farm liabilities to the farmer and his family members thanks to the assessment of remuneration values that should be paid to the farmer and individual members of his family that conduct work for the benefit of the farm. Previous farm accounting systems would omit the abovementioned issue altogether or treat remuneration as a marginal problem. Most former practices assumed that it is impossible to determine and pay remuneration to farmers. Remuneration values should however be set out and registered in order to come up with the proper (fair) financial results.

A proposal to solve this problem has been included in the work (Dobija D., Dobija M. 1999) and expanded in the article (Cieślak, Kucharczyk 2003), where an attempt is made at assessing these remuneration values. The way of assessing farmers' remuneration is based on normative settlements that stem from the human capital assessment model, remuneration itself being understood as the rate of return from capital.

Farmer's remuneration, determined on the basis of market events or the human capital model, should be recognised in the family farm liabilities. The liabilities will be decreased as a result of using products manufactured on the farm or other farm assets. Consumption should be assessed in accordance with market values. Thanks to using the farmer's remuneration registration system, the problem of entering up capital flows between the farm and the farmer and his family is largely eliminated. Additionally, a remuneration assessment system makes it possible to avoid certain social problems. This refers in particular to family farms run by multiple generations of farmers.

Thanks to using the abovementioned registers and farmer remuneration assessment, it is possible to measure the family farm economic results in a precise and correct manner.

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PART IV

INTELLECTUAL CAPITAL



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# MANAGEMENT AND COMMUNICATION OF THE COMPANIES' KNOWLEDGE – REVIEW OF APPROACHES TO INTELLECTUAL CAPITAL REPORTING<sup>1</sup>

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*The assets that really count are the ones accountants can't count – yet.*

(T. Stewart)

## Abstract

The world entered the Knowledge Era in which the basic economic resources deal with knowledge and are often called Intellectual Capital (IC) of the company. Many enterprises all over the world have noticed that a lot of their activities and performance are based on intangibles, therefore it is necessary to measure and communicate them effectively. The largest part of the resources that create the company value is totally omitted or undervalued by accounting; therefore it is out of control and out of management. The most important way of overcoming this problem is to implement the IC Statement that visualizes the actions and their effects concerning the creation of value and the development of companies' knowledge resources.

This paper aims at analyzing the international approaches to the disclosure of Intellectual Capital (IC) and the development of guidelines on IC Statement. It will also compare and present their significance.

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## 1. INTRODUCTION

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Organizations are facing a new phase in economic development which is characterized by the prevalence of innovation, especially in high technology, spread of communication, new organizational forms and intangible factors creating added value for companies. They operate within the so-called knowledge economy in which intellectual capital is the main source of competitive advantage and the value driver.

As Mouritsen, Bukh and Marr (2005) underlined, “the advent of the knowledge economy has increased the importance of knowledge-based resources. However, the majority of these resources are not reported in the traditional balance sheet. This has created an information gap in the market, and more firms and organization are calling for voluntary disclosure of these knowledge-based resources and intangible assets to close the gap”.

Many authors, like Eccles and Mavrinac (1995), Lev and Zarowin (1999), Amir and Lev (1996) underlined that there is a lack of relevance of accounting information, which leaves investors without appropriate information for decision-making process. Today, the stock market value of most public companies has little correlation with the net book value of their physical assets. As Heinz (2005) claims “through the transformation of the global economy, established management and reporting systems increasingly lose their relevance because they are unable to provide executives with information essential for managing knowledge-based processes and intangible resources”. In order to make financial reporting of companies more relevant for investors, the financial statements should give more attention to intangibles.

A descriptive report of intangibles should supplement the financial statements, making the generated information more transparent and reflecting market value better. Therefore, many international institutions, research centers and governments of numerous countries and even European Commission devoted substantial resources to analyzing the ways of knowledge management and their proper communication to the market. As a result of these efforts, a few sets of guidelines on IC reporting have emerged. Hundreds of European companies put them into practice.

Mouritsen, Bukh, and Marr (2005) underlined that:

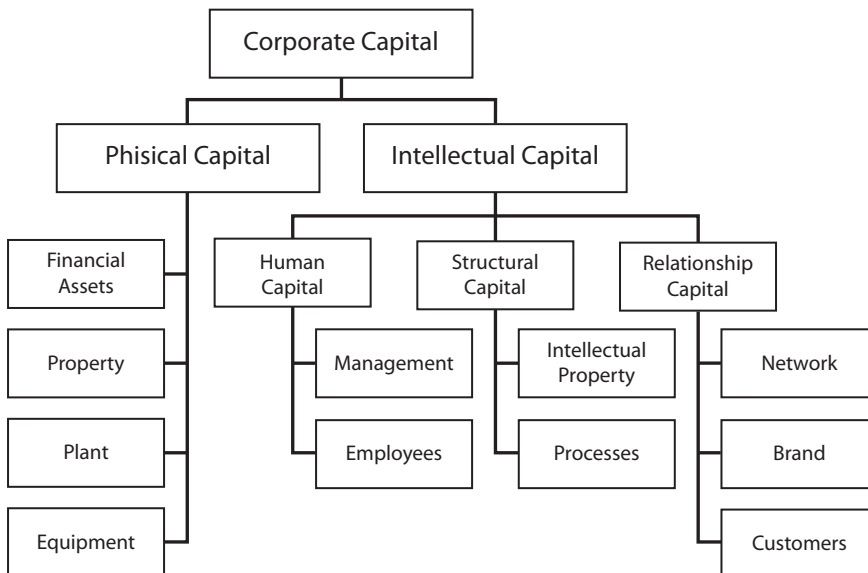
*The purpose of the IC statement is often two-fold: it functions as a management tool used internally in the firm and as a communication tool used to communicate how the firm works to develop its knowledge resources to generate value. Developing such statements improves the internal understanding of which resources are important and how they are combined and managed to create value.*



## 2. INTELLECTUAL CAPITAL

The recent approach to the valuation of intangibles is based on the concept of intellectual capital. Intellectual capital has many definitions; according to Stewart (1997, p. 10) “Intellectual capital is the intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth”. He also says that “it has become standard to say that a company’s intellectual capital is the sum of its human capital (talent), structural capital (intellectual property, methodologies, software, documents, and other knowledge artifacts), and customer capital (client relationships)” (Stewart 2001, p. 13). Edvinsson (2002, p. 8) says: “Intellectual capital is a combination of human capital – the brains, skills, insights and potential of those in an organization – and structural capital – things like the capital wrapped up in customers, processes, databases, brands, and IT systems. It is the ability to transform knowledge and intangible assets into wealth creating resources, by multiplying human capital with structural capital”. The broadest definition of intellectual capital is “the difference between a company’s market value and its book value” (James 1997). In a narrower sense, intellectual capital is “the sum of the knowledge of its members and the practical translation of this knowledge, that is brands, trademarks and processes” (Roos et al., 1997).

The Figure 1 illustrates this definition and how intellectual capital fits into the overall value of the company.



**Figure 1.** Classification of Intellectual Capital’s elements

Source: *Intellectual Capital Defined*, IC Knowledge Center, 2008.

### 3. KNOWLEDGE ERA AND CHALLENGES FOR ACCOUNTING

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Intellectual capital relates to widely understood intangibles. As Baruch Lev, Professor of Accounting at NYU underlines (2003): “The importance of intangible assets is magnified by the fact that they are not restricted to the high technology sector, but are instead dominant in every well-run enterprise. In today’s economy, intangible assets are pervasive across virtually all business sectors and in every major industrial country”.

How intangible assets differ from tangible assets? Saint-Onge (2000) emphasizes that tangible assets are required for business operations and are readily visible, rigorously quantified, and are represented as a linear item on a balance sheet. The intangible assets are key to a competitive advantage in the knowledge era and are invisible, difficult to quantify, and not tracked through traditional accounting practices.

In the 21st century, knowledge became the main driver of value creation of enterprises and the main factor of success. The concept of “New Economy” emerged. It is characterized by the increased importance of intangible resources in the value creation process and a dominant role of investments and innovations concerning intangibles. The main source of economic value added are more human beings and information, relationships with partners and companies’ ability to be more innovative than financial capital. However, only low percentage of the value of the company can be explained by the assets’ book value published in financial statements.

According to Tollington (1994), balance sheet in the way it is constructed today leads to distortion of certain elements to such a degree that it cannot be accepted any longer and must be revealed if professional credibility is to be preserved. The utility of traditional accounting and reporting is declining (Roslender 1997). As it is underlined in Ricardis Report (2006) “the traditional accounting model is based on the principle of historic cost and for this reason only a very narrow range of intangibles is included within financial statements. In providing a record of what has happened in the past, historic cost accounts are a useful starting point in assessing the performance of a business, but without forward looking information the picture that they provide is incomplete”.

Generally, the accounting rules have a very stringent definition of intangible assets that excludes many commonly accepted intangibles, like investments in training and advertisement, knowledge of the company, customer satisfaction, skills of employees, image of the company, as they do not pass the accounting recognition test. Existing accounting regulations on the treatment of the Intellectual Capital, that is mostly referred to as “intangible assets”, lead to its very limited recognition on

the balance sheet. IAS 38 is a restrictive accounting standard, which states that most internally generated intangible assets are immediately expensed. As Al-Ali (2003) noticed, “Financial reports and statements are far from being accurate in communicating the real value of the enterprise and its future performance potential. Companies that are publicly traded are valued by the market at multiples of their book value, sometimes as high as 20 times. When nearly 80 percent of corporate business assets are made of intellectual capital, and where financial reports report only 20 percent of tangible assets, one starts to wonder about the accuracy and efficacy of these reports in reflecting the value of the enterprise and its future performance potential”.

Firms such as Microsoft and Coca Cola report only their traditional assets in their balance sheets, which account for just a small fraction of their market value (see more: Jaruga 2001). Even for manufacturing firms, such as Honda or BP, the assets in the balance sheet represent less than 30 % of their market value (Mouritsen, Bukh, Marr 2005). If intellectual capital is an important component of the market value of a company and its disclosure is random, non systematized and mainly voluntary, the investors’ decisions will likely be based, in part at least, on unreliable and non-comparable information.

Both the companies and the capital market underline that it is necessary to take steps in order to improve the existing system of control and reporting. They must meet the challenge of modification in order to become helpful in development, communication, monitoring and evaluation of the company’s strategy. The proper communication of a company’s intellectual capital – the investments incurred on it, its role and value – is the challenge for accounting. In order to effectively manage intellectual capital at a strategic level, it is necessary to capture all information regarding the capital. Traditionally, the main source of these kinds of information was the financial statement. However, as it is underlined by the IC Center “financial systems are based on the needs of the industrial economy. The balance sheet shows the basic resources owned by a corporation—land, natural resources, production equipment, and product inventory. A “healthy balance sheet” is used to tell the story of the future productive capacity of a company. The income statement says more about the business model, the selling price of products, the cost of production, and the cost of running the business”. Furthermore, as Heinz (2002) underlines “the financial accounting system hardly delivers information for future-oriented strategic management decisions on knowledge-based resources and intangible investments”.

Intellectual capital is not captured by traditional accounting model even though in the past there were attempts to include some elements of intellectual capital to financial reporting (see more: Jaruga, Fijałkowska 2002). First steps to value human capital were based on the model proposed by Hermanson (1964), Flamholtz (1972). The synthetic model of

organized data recording system transforming them into periodic report on human capital was proposed by M. Dobija (1998). D. Dobija (2004) presents a graphical image of balance sheet including intellectual assets and intellectual capital and expects it to become a better basis for capital market predictions than the traditional one.

It is necessary to create a new approach for measurement and disclosure of those resources that are crucial for a company. Measurement of these elements would enable the companies to control and understand their strong points and the risk connected with them. The effects of measurement should be communicated. The proper tool for such communication and visualization of effects regarding intangible resources is the Intellectual Capital Statement. This is a statement reflecting and embracing those elements that in traditional financial statements are unevaluated or totally omitted.

As it is underlined in Ricardis Report (2006) Intellectual Capital Reporting is the process of creating a story that shows how an enterprise creates value for its customers by using its IC. This involves identifying, measuring, and reporting its IC, as well as constructing a coherent presentation of how the enterprise uses its knowledge resources. Often this process leads to writing an Intellectual Capital Statement, a report on the organization's IC that combines numbers with narratives and visualizations, which can have two functions:

- complement management information (internal management function);
- complement the financial statement (external reporting function).

#### 4. BENEFITS AND DIFFICULTIES CONCERNING IC MEASUREMENT AND REPORTING

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In order to manage intellectual capital it is necessary to measure it. While measured, the results should be communicated, therefore reporting on intellectual capital is needed inside and outside the company.

There may be a variety of reasons for the companies to measure intellectual capital. A study carried out by Marr et al. (2003) identified five main reasons for measuring intellectual capital, the first four reasons are all internal to the organization and the fifth reason is external:

- Measuring intellectual capital can help an organization formulate business strategy. By identifying and developing its intellectual capital, an organization may gain a competitive advantage.
- Measuring intellectual capital may lead to the development of key performance indicators that will help evaluate the execution of strategy. Intellectual capital, even if measured properly, has little value unless it can be linked to the firm's strategy (Edvinsson and Malone 1997).

- Intellectual capital may be measured to assist in evaluating mergers and acquisitions, particularly to determine the prices paid by the acquiring firms.
- Using nonfinancial measures of intellectual capital can be linked to an organization's incentive and compensation plan.
- To communicate to external stakeholders what intellectual property the firm owns.

PricewaterhouseCoopers claims the following as the main benefits of measurement and reporting of intellectual capital: the increased transparency of information presented by the company, the lower cost of capital, the higher price of shares, the bigger confidence among employees and other stakeholders, the affirmation of the long-time vision thanks to better communication, the possibility of using this kind of statement as a marketing tool. Other benefits may be as follows: the decrease of insecurity concerning the future of the company, simplification of more precise valuation of the company (Botosan 1997), increased liquidity on the share market and higher demand for shares of the company (Healy and Palepu 2001). As it is underlined by Holmen (2005), "intangible resources need to be managed with more attention and differently than other resources, and measuring them helps improve their management. Good measures of intellectual capital will complement financial measures, provide feedback mechanism for actions, provide information to develop new strategies, assist in weighting different courses of action, and enhance the management of the business as a whole" (Holmen 2005).

However, there are also some factors that may discourage the management from reporting and releasing the public information concerning intellectual capital. Among others, these are:

- presenting information concerning maintenance of competitive position outside of the company
- leaving space for information manipulation,
- creating the risk concerning the credibility of information for its users, as the information regards the future that cannot be predicted precisely,
- increasing the operational cost as the result of new rules and increased bureaucracy.

Baruch Lev (2001), while explaining the skepticism in the Intellectual Capital Statement, underlines that "the value of intellectual capital is very subjective and contrary to physical assets it may disappear within a short period of time. Therefore, it could contribute more to the increase of uncertainty among investors and managers, rather than being helpful". However, Lev underlines at the same time that this skepticism is exaggerated, it denies the measurement, and that the lack of Intellectual Capital Statements is for long-term achievements of the company a substantial problem. This statement can help organizations to better manage, understand and communicate their knowledge

resources and the value creation processes. It can be used to document how a company builds up and manages its most important knowledge resources. This can be an important supplement to the information provided in the annual accounts on the company's position and development potential.

*Taking historic financial statements and forward-looking IC Statements together is aimed at improving the transparency of the way in which an organization is seeking to create value.*

(Ricardis 2006)

## 5. GUIDELINES ON IC REPORTING

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There are several competing approaches and models concerning reporting on Intellectual Capital. As Heinz (2005) systematized they range from indicator-based ones (Sveiby 1997, Edvinsson and Malone 1997, Roos et al. 1998), derived from managerial information systems and performance monitoring instruments such as the Balanced Scorecard (Kaplan and Norton 1996) or the European Foundation for Quality Management (EFQM) model, to monetary-oriented solutions in search of the exact numerical figure with which to represent intangible assets.

The result of attempts to meet the challenges of new reporting and to introduce some order in the different approaches was the independent emergence of a set of guidelines aimed at the preparation of Intellectual Capital Statement. Several sets of such guidelines have been developed across Europe, all of them with the intention of helping on how to prepare an IC Statement.

IC Reporting emerged in the nineties, mainly in the Scandinavian countries, when firms started to implement and publish IC Reports. In the meantime, nearly all over the world, other firms began to experiment with IC Reports or new forms of disclosure and the valuation of intangible assets. The review of the most commonly approaches used is presented in the table below. These guidelines are adapted to local circumstances and business culture and differ from one to another with respect to their orientation (internal versus external reporting) and methodology. These guidelines do not introduce any changes to the accounting law and, as for now, they are the trials that focus on testing certain particular methods of IC measurements and disclosure. IC Statements created on the basis of IC guidelines focus on underlining the role of IC in the value creation process and are a tool of communication for knowledge management of the enterprise.

The main and most frequently used guidelines are IFAC Study No. 7 (1998), the Danish Guidelines (2000, 2003) – *A Guideline for Intellectual*

**Table 1.** The following table summarizes a selection of existing guidelines

Origin	Name	Key Focus	Benefits
Austria	ARC IC Report	Structured presentation of goals, potentials, processes, and resuming intangible & tangible results.	Holistic view on the intellectual status and current ‘value’ of the organization. Justification of tax payers’ investments in public R&D
Denmark	Danish guidelines	Portfolio of investments in and effects of knowledge resources. Relates practices and purposes of IC resources	Supports management and reporting of IC. Develops IC indicators. Identifies properties of IC statements for analysis and benchmarking.
Europe	Meritum	Differences between intangible resources and intangible activities	Supports management and reporting of IC. Provides a set of characteristics that indicators should have
France	IC-dVAL®	Performance indexes and value of IC	Support management and IC Reporting. Building sense of IC Internal and external signaling of value and performance for IC.
Germany	Wissensbilanz	IC processes	Supports management decision making.
Iceland	PiP project	Indicators	Harmonized indicators that allow for benchmarking.
Spain	Intellectus Model®	Dividing IC into its minimum components	Adaptability to each organization.
Sweden	IC-Rating™	IC position	Visibility of IC, finds areas for improvement and makes benchmarking possible.

Source: Ricardis Report, 2006.

*Capital Statements*, Nordika Guidelines (2001) – *Intellectual Capital – Managing and Reporting*, and the Meritum Guidelines (2002) – *Guidelines for Managing and Reporting on Intangibles*.

**IFAC Study No. 7 „The Measurement and Management of Intellectual Capital – An Introduction” 1998** – this study was commissioned by the Financial and Management Accounting Committee (FMAC) of the International Federation of Accountants (IFAC) to discuss some of the major issues concerning the measurement and management of IC and the accountant’s role in this process. It is intended to provide an introduction to the accounting challenges and opportunities associated with intellectual capital management by discussing its underlying concepts and describing merging practices (Del Bello 2002).

**Danish Guidelines (DATI) (2000, 2003)** – These guidelines are the results of a collaboration of researchers of more than 100 companies, public and industrial organizations and consultants that were coordinated by the Danish Ministry of Trade and Industry. These works were also in the field of interest of the European Union and OECD. The works on guidelines started in 1998 and results were finally published in 2000. In 2003 a new version of guidelines was published. Already about 100 private companies and public organizations tested them. The conclusions were that preparation and publication of the IC Statement contributed to better knowledge management in the companies and was an important tool of communication with the outside stakeholders.

**Nordika Guidelines (2001)** – these guidelines are the effects of cooperation between the Nordic Industrial Fund, representatives of the Governmental Task Forces and a Round Table drawn from business and professional associations in the Nordic countries. The Nordic guidelines give companies the overview of possibilities and main approaches concerning management and reporting of knowledge.

**Meritum Guidelines (2002)** – they have been prepared within the project *Measuring Intangibles for Understanding and Improving Innovation Management*, which has been funded by the European Union within the framework of TSER (Targeted Socio-Economic Research) Program. The project was embracing researchers from 6 European countries (Denmark, Finland, Norway and Sweden, Spain and France). Some main outcomes of the works confirm that the logic effect of the process of knowledge management is the preparation of the report that would communicate to its users information on abilities, resources and activities in respect to the fundamental determinants of the enterprise’s value. The intellectual capital report has three different parts: vision of the firm, the summary of intangible resources and activities, the system of indicators.



## 6. THE COMPARISON BETWEEN PRESENTED GUIDELINES ON IC REPORTING

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As the first conclusion it should be emphasized that all the guidelines have more similarities than differences. Using one or another should not result in significant differences as far as the main content is concerned. The practical purpose and aim of IC reporting, no matter which guidelines it is based on is to provide management with a tool for monitoring and disclosing information about their activities and efforts to manage the company's knowledge base resources and create value.

As it can be found in the introduction to the Nordika guidelines:

*The various approaches to IC reporting deal with how to make systematic measurement of a range of intangible assets – each of them using a set of IC categories and indicators. The procedures and techniques involved are designed to provide a long-term perspective: they are forward-looking management tools, serving to highlight and advance the strategic goals of the company. Concerned as they are with aspects of knowledge management, they are also related to change stemming from the emerging knowledge economy and are designed to help management keep the company on track.*

Consequently, the approach to the value creation combined with differences in knowledge definition, as well as with its content, will make the choice of information to be reported and disclosed very different. In principle, the differences mean that:

- the Study no. 7 of IFAC is the first set of guidelines on the Intellectual Capital Statement and it was mainly created in order to help in choosing the right method of measurement followed by preparations of the Intellectual Capital Statement. Moreover, it was supposed to signal the importance, raise an interest and create more understanding of the concepts that were still new in 1989. IFAC guidelines did not introduce any new specific rule or recommendations, they focused mainly on presentation of what was already done in the international field. They left the companies the possibility to choose the way of measurement and presentation of knowledge based information that suits them best.
- While adopting Danish guidelines, the enterprise puts the focus on the knowledge management that leads to “value in use” – value for users of its products and services, relying not on a single factor but on multiple factors – resources and activities – and the relations between them. Narrative knowledge and the management challenges define what should be measured and determine which indicators should be used. The categories of indicators should embrace

customers, employees, processes, and technologies. What should be measured are the constellations of resources and concerning activities. The priority of indicators is to explain in which way the company may prepare its IC Statement.

- According to Nordika project, the IC report should explain when and how we can find in the company the key resources and how they are used in order to create the value.
- “Using the Meritum approach will bring into focus how the company – through the connectivity of critical intangibles in a network – pursues its strategic objectives and by this, focuses on how to create value for users and other stakeholders” (Nordika Project, 2002). These guidelines put special attention to both internal and external reporting, the indicators adopted are aimed at presenting what activities concern the company’s intangible resources. The information provided should enable its users to evaluate if the company realizes its strategic objectives in a proper way. The proposed indicators should be applied to all three categories of intellectual capital (human, structural, and relational).

All of the above described sets of guidelines attempt to present how the company should systematically perform the measurement of intangible resources using the proper categories of IC and appropriate indicators. All the proposed guidelines present procedures and techniques that are future-oriented tools of management and serve to underline strategic objectives of the company. Even though these guidelines are not ultimate and do not clear all the doubts concerning the difficult issue of intellectual capital reporting, they are a highly valuable help for companies in:

- defining the company’s vision,
- describing what kind of resources a company has at its disposal and which of them should be increased or strengthened,
- that they contain a set of indicators for intangible resources concerning also the measurement of activities,
- that they facilitate the grouping of information in order to help prepare Intellectual Capital Statement.

One of the most important elements that all guidelines have in common is the acceptance of the central role of the IC Statement in the process of value creation. Generally, we can notice that, according to all analyzed guidelines, these statements have the objective of not only evaluating the IC but also, and even in many cases mainly, describing the importance of the IC in the process of value creation. All these documents admit the usefulness of IC Statement both to the internal as well as external communication.

Within all analyzed set of guidelines, the role of the management as the most important body in the process of implementation, is especially underlined. In all the guidelines, it is also highlighted that the

indicators used in the Intellectual Capital Statement should not only serve to measure and evaluate but also to visualize the intellectual capital. IC Statement should cover all the knowledge resources of the company and their interactions and relations and should describe the activities that are performed in order to develop them. None of the analyzed documents presents the complete and closed list of indicators, however all of them include some examples of the categories of indicators suggested. These indicators, depending on the guidelines adopted by the company, differ slightly.

Even though the guidelines usually do not present a definition of what knowledge is, however, all admit that knowledge is the most important component of intellectual capital. The approaches presented here describe in a different way how knowledge contributes to the value creation and how it is placed within this process. All the approaches aim to capture processes which are dynamic and systematic in nature and they underline the necessity of reflecting this dynamics.

According to Del Bello (2002), “another area of convergence relates to the long-term perspective assumed by the proposed procedures and techniques. Furthermore, all the documents stress the firm–specificity character of IC and, consequently, of its indicators”.

The important differences between the analyzed guidelines concern mainly value creation, the understanding of the concept of knowledge is apprehended and the categories used for indicators when disclosing information. As far as value creation is concerned, all the guidelines admit the principal role of knowledge, however, the procedures of implementation and phases, in which the knowledge is transformed in company’s value are different. The discrepancies can be also observed in the scheme of information presented in the IC Statement.

The general objectives of guidelines are also slightly different. IFAC guidelines aim generally at signaling the importance of intangibles and IC and therefore the necessity of reporting them. IFAC concentrates also on the presentation of already existing methods regarding measurement and IC reporting. Danish guidelines have a very practical character, focus mainly on presentation of IC Statement preparation; they include a wide range of indicators that are used most frequently in practice, with their explanation and ways of interpreting. The language used in these recommendations is very user-friendly. The Danish guidelines put main stress on their practical usefulness, even at the cost of some terminological simplifications or theoretic imperfections (lower cohesion and consequence in terminology used). Meritum project at first presents a management model and as a result of management, it proposes a statement on IC. Therefore, it can be assumed that Meritum guidelines consider IC in a wider dimension, starting from management processes thereafter proceeding with the reporting processes.

IC Statement is understood as the logical effect of intangibles management processes. Also the Danish guidelines refer to management, but in a more indirect way.

Theoretical bases of Meritum guidelines are very strong, the authors of these guidelines are in the main part researchers, scientists, and academics. Therefore, the language used is more precise, more strict and accurate, but also sometimes less understandable for the „average” manager, therefore they are more coherent, have a deeper conceptual framework which is widely acceptable, but some claim (Garcia-Ayuso in Guimon 2002) that they are more abstract, more theoretical, harder to apply and less didactical”. As Mouritsen (in: Guimon 2002) says: „the strength of the Danish guidelines is that they are more user – driven, more practical, more implementable”, while “the main value of the Meritum guidelines is the knowledge and consensus that was built among the different countries which were involved”.

While the guidelines are describing the same process, they use a little bit different terminology, which unfortunately may lead to confusion. Danish guidelines generally use the term „Intellectual Capital Statement”, whereas the Meritum, Nordika, and IFAC use the expression “intellectual capital report”.

What is the difference between the “statement” and “report”? The authors of Meritum guidelines, while arguing why the term “report” is preferable by them underlined that this word “denotes a voluntary character, whereas the term “statement” is associated with the traditional financial statement that is compulsory and must convey to a given format” (Guimon 2002). However, Mouritsen, one of the authors of Danish guidelines does not agree and says that “report to me sounds as something that has a fixed format of reporting a certain issue, while statement is an expression, and therefore, has more narrative nodes to it than a report” (Guimon 2002). The Table 1 presents some other differences in the language used in the guidelines, on the example of Meritum and Danish guidelines:

**Table 1.** Differences in the Meritum and Danish guidelines language

Meritum guidelines	Danish guidelines
Intellectual Capital Report	Intellectual Capital Statement
Intangibles management	Knowledge management
Vision of the firm & strategic objectives	Knowledge narrative
Critical intangibles	Management challenges

Source: Guimon 2002.

Generally we can conclude that the basis, main concepts and ideas presented in all guidelines are very similar. Del Bello (2002) underlines that “the weight of the emerging convergence appears greater than that of the identified differences, since the analyzed documents agree upon the most important issues, which are the results that we are looking for through the IC report and its role in the value creation process. What differs between the documents is essentially the choice of the pattern to reach those end-results”.

All these guidelines were an inspiration for some other guidelines or documents of similar character, mainly at the national level, like: Spanish guidelines „Intellectus Model®” from 2003, German guidelines: „Wissensbilanz” from 2004, Japanese guidelines „Guidelines for Disclosure of IA Based Management” from 2005, Australian governmental guidelines “Guiding Principles on Extended Performance Management, A Guide to Better Managing, Measuring and Reporting Knowledge Intensive Organizational Resources” from 2005, Austrian guidelines “ARC IC Report” updated in 2005, Operating Financial Review in the UK from 2005.

Moreover, in many countries there are some other initiatives aimed at increasing the disclosure of IC. For example, in Germany the GAS 12 standard contains non-obligatory recommendation that companies report their IC in the management report. In Denmark there is a requirement that companies disclose information on their IC in their management report, if this is a relevant aspect of their economic activity. In Austria, since the beginning of 2006, IC Reporting has been mandatory for all universities. In Japan a governmental Subcommittee on Management & Intellectual Assets has proposed a new model for the voluntary reporting of intellectual assets. In the US, the outcome of the Accounting Authorities is the initiative called “Enhanced Business Reporting (EBR)”. EBR improves the quality and transparency of information companies provide, so investors and other key stakeholders can make better informed decisions. With EBR, the focus is on shifting the model from one that is based primarily on historical or lagging financial information to a model that incorporates relevant value drivers, financial and non-financial performance measures, and qualitative information around management’s strategy, plans, opportunities and risks. In Denmark, with the strong governmental support, hundreds of companies prepare IC Reports. In all Nordic countries, thanks to the important support of Nordic Innovation Centre, a number of the larger projects, aimed at harmonizing the methodology of IC Statements have been launched. In Italy, France, Netherlands and Germany a number of companies started to identify, manage and report their IC. For a number of years now several dozen Icelandic companies have participated in an intellectual capital interest group within the Iceland Business Excellence

Organization. They have developed a set of indicators for IC measurements. Moreover, the government has published a guideline on how to measure and report intangibles in a synchronized way to assist organizations taking their first steps in reporting on their IC and to ensure comparison between companies. These guidelines as for now are only in Icelandic language.

There are also some attempts to introduce uniformed statement of the IC for the whole country. In Israel, for example, the IC Statement is used as a tool of communication to present the Science and Technology opportunities to prospective collaborators, financiers and customers<sup>2</sup>.

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**Valentina Bogatyreva**  
**Marina Avilkina**

# INTERRELATION OF INNOVATIONS AND HUMAN CAPITAL IN MODERN ECONOMY

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## Abstract

At the present stage of social and economic development of many countries, including Byelorussia, the formation of a new type of economy, an economy based on innovation and knowledge, is an undeniable and logical necessity. The growing role of innovation is firstly caused by the nature of market relations and secondly by the necessity for deep qualitative transformations of the national economy with the purpose of starting a steady growth. One of the priorities when making decisions regarding these transformations is the initialisation of innovative processes in the country; the search and realisation of innovation. Nowadays the development and introduction of innovation are considered primarily as the product of human work. Quality and efficiency of innovation entirely depend on erudition, professionalism, abilities, saved up stock of knowledge and the skills of workers. At the same time it is necessary to examine the concept “innovation” in an indissoluble connection with the concept “human capital”, because inventiveness is essential to the innovative process and is therefore simultaneously a product of human capital.

## 1. INNOVATION AS AN ECONOMIC CATEGORY

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Before considering the interrelation between innovation and human capital, it is necessary to precisely determine the economic meaning of the given concepts. In our opinion, nowadays the definition of the essence of innovation can be very ambiguous. This is caused by the imperfections

of the legal sphere of this matter. Therefore different authors of monographs and textbooks often give different meanings to the term “innovation”. We shall consider some approaches to the concept of innovation presented in scientific literature and the works of authors of different countries.

The concept of “innovation” as an economic term was used for the first time in the 1930s during the scientific revolution by the Austrian economist Schumpeter, treating it as “a change with the purpose of introducing and putting to use new kinds of consumer goods, new industries, markets and forms of organisation in an industry” (Schumpeter 1982, p. 320). He separated invention (the discovery of new technical knowledge) from innovation (the practical application of the new knowledge).

The Russian academician and professor Fathutdinov differentiated the two concepts, namely “novation” and “innovation” (Fathutdinov 2000, p. 624). In his opinion the term “innovation” means “the fundamental outcome, the applied research, the development or experimental work in any field of activity on the increase in its efficiency (the invention, a trade mark or the efficiency proposal confirmed accordingly to the diploma, the patent, the certificate; the documentation on a new product, technology, administration or production, of which the originals are kept in an archive, in the centre of the information or standardisation etc.)”. Hence, the essence of the concept “innovation” consists according to Fathutdinov in the final result after introducing a novation with the purpose of changing the object of management and reception of the economic, social, ecological, scientific, technical or any other kind of effect. To transform novation into a form of innovation means to finish innovative activity, to receive positive results, to diffuse an innovation.

In the monograph *Preconditions of the analysis and formation of an innovative policy* by Falcon, Titov and Shabanova, innovation is described as “the final result of creation and the introduction of a completely new or modified object, satisfying existing public requirements and giving certain effects (economic, scientific, technical, social, ecological)” (Sokolov et al. 1997, p. 370).

Professor Prigozhin (1989, p. 290) claims in his monograph entitled “Innovations: stimulus and obstacles” that “innovation is reduced to the development of a technology, engineering and management at the stages of their origin, development and distribution of other objects”. Once a novation has been realised, it becomes an innovation.

Professor Osipov defines the term “innovation” as “the integrated result of the reception and introduction of innovation at all stages of the life cycle of goods”.

In the directory prepared by more than 40 leading experts of Russia and edited by Krajuhina and Minaeva (1993, p. 350), “innovation” is described as “the new scientific and technical achievement used in human activity, and simultaneously as the practical realisation of new goods.

In the appendix of the project “A the basis for a policy for the Russian Federation in the field of development of a national innovative system for the period until 2010 and further prospects” innovation is identified with novation, innovative products and the result of the innovative activity, in other words a new product, service and technology and/or a new organisational-economic form, having the obvious qualitative advantages of “being used in designing, manufacturing, selling, consumption and recycling of products, providing additional advantages in comparison to previous products of the organisational – economic form (economy of expenses or additional profit) and/or public benefit”.

The concept “innovation” was introduced for the first time by law in Byelorussia on 19.01.1993 “The basis of the state scientific and technical policy” (Fathutdinov 2000, p. 624) according to which innovation means «the creation of new or advanced technologies, kinds of production or services, and also the organisational-technical decisions of industrial, administrative, commercial or other forms of promotion of technologies, production and services on the market” (Martino 1977, p. 685). The given definition does not however contain the precise criteria for reference of those or other objects in the category of results of innovative activity.

In the law “About innovation”, accepted by the decision of the inter-parliamentary committee of Byelorussia, The Republic of Kazakhstan, The Kirghiz Republic and The Russian Federation from 28.02.1998, No. 5–8, innovation is defined as “an end result of innovative activity, as new or missing goods (service) in the market or goods with improved characteristics”.

According to international standards innovation is defined as “the final result of innovative activity that has received an embodiment as a new or advanced product introduced on the market, a new or advanced technological process used in practical activities, or a new approach to social services” (The International standards for financial reporting..., p. 1060).

All mentioned approaches to define innovation lead us to conclude that, despite many circulating definitions of innovation in domestic and foreign sources, till today there is no precise and consistent definition of innovation as a subject of legal regulation.

In our opinion, it is necessary to specify the link between the concepts “know-how”, “novation” and “innovation”, which are quite often represented as equivalents, but there are certain differences between them.

Therefore it is necessary to define a new order, a new method, an invention, a new phenomenon, a new idea as “know-how”. The term “novation” can be defined in two ways: as a process of using an innovation in practical activities or as the result of the realisation of a novation in practice. As a result of practical application, the innovation shows new qualitative advantages, it brings additional economic gains, turning the novation into an innovation, receiving the further distribution and practical use.

Indispensable properties of innovation are their novelty, industrial utility and applicability, economic efficiency and utility. The main distinctive attribute of an innovation is that it allows to create additional value and has to be approved and brought to practical use. Within this framework we can state that an innovation is not an innovation until it is successfully introduced and begins to bring profit.

In our opinion, as a result of the synthesis and generalisation of the above stated material, it is obviously necessary to offer the following definition of the concept “innovation”:

**Innovation** is the final product of innovative activity received as a result of the realisation of novation and its practical usage, having new qualitative advantages and providing profit increase during its use.

The activity that is directed at the creation of an effective final innovative product and carried out during the time between the occurrence of know-how and its embodiment in an innovation can be called an **innovative activity (innovative process)**.

## 2. THE ORGANISATION OF AN INNOVATIVE PROCESS

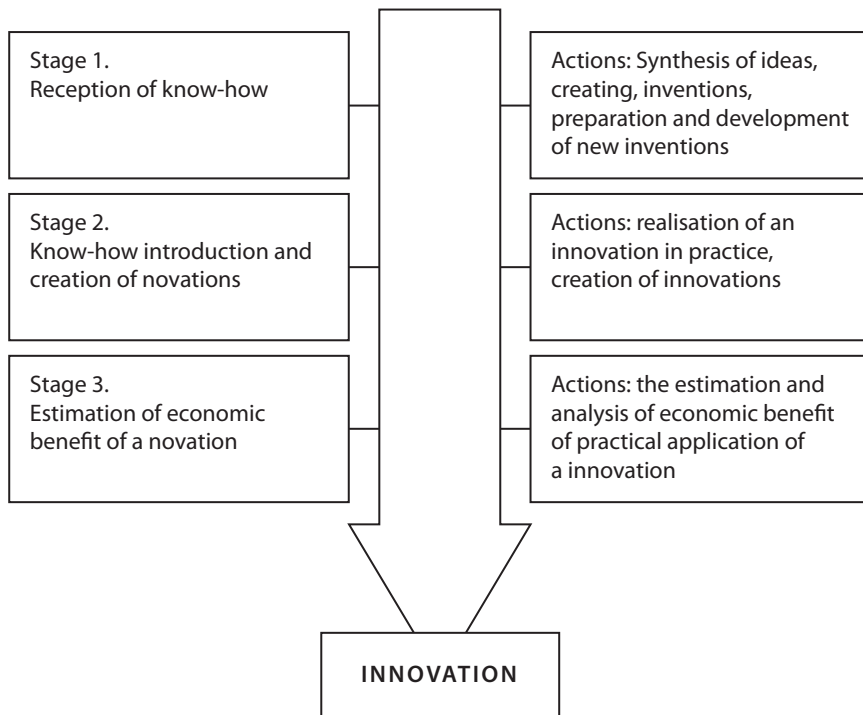
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In order to understand the meaning of innovation in an economic framework, the definition of innovation and its place in the innovative process, we offer a graphic circuit of the organisation of the innovative process (see Figure 1).

The economic concept “human capital” has been defined in the 1960s by such scientists as Mintser, Bekker and Shul’ts. They have defined human capital as “the integrated social and economic category reflecting the role of a person not only as a worker, but also as a consumer, a member of a company, family etc.” (Stefanovich 2001, p. 616). The human capital is a special form of the capital representing:

- the saved up stock of skills, knowledge, abilities;
- the stock that is rationally used by the person in any sphere of a social production and promotes the increase of labour productivity;
- increase of labour productivity, leading to growth of the income of workers, the company, the society;
- growth of income, stimulating the person to increase his stocks of health, knowledge, skills.

According to Figure 1 it is obvious that reception of an innovation by workers is carried out on the basis of synthesis of ideas, creation and inventions. At the given stage, the quality of an innovation and the efficiency of its further practical application directly depend on the ability of the human capital to create the added value. The expenses for the human capital are therefore accompanied by various calculations of the profit and cost. This fact confirms an indissoluble connection between human capital and innovation.



**Figure 1.** The organisation of the innovative process

The American scientist Stewart was the first to investigate the nature of intellectual capital and has unequivocally determined criteria for an estimation of human capital, which include: “innovation, the relation of employees to work, seniority, fluidity, experience, work etc.”. Stewart believes that the higher the cost of human capital, the higher the quality and efficiency of innovation. He defines the degree of efficiency of innovation by a qualitative level of human resources (Stewart 2007, p. 368).

According to the international standards of financial reporting “an active is a resource which is supervised by an organisation as a result of the last events and from which the organisation can expect future economic gains”. Therefore it can be said that the human capital is an active of the enterprise and participates in an increase in the income of an organisation through skills and professionalism (The International standards for financial reporting..., p. 1060).

One of the significant parameters of an estimation of the human capital is its profitability – the ability of each worker to earn profit or to increase labour productivity, improve the quality of servicing, or developing innovations etc. Reducing expenses or increasing human capital will not necessarily lead to a growth in profit. By increasing expenditure on training in order to educate workers can be an additional source of

income. In other countries this is not called expenditure, but investment in the human capital of the organisation.

Fitz-encz's (2006) definition of the size of investments in human capital contains the following elements: purchase, maintenance, development and preservations of workers.

Therefore at the stage of "purchase" of the workers, we talk about charges on advertising, moving, a payment of the agent; at the stage of "maintenance" – charges on the equipment of a workplace, wages, social security; at the stage of "development" it is training and the improvement of professional skills; at the stage of "preservation" – additional encouragement in the form of bonuses etc.

The ratio between the sum of the earned profit by a particular worker and the amount invested in this worker determines the profitability of the carried out investments. As innovation means the effective innovation received from introducing into practise and providing increase of economic gains from its application, the actual development of workers and the introduction of innovations will act as one of the growth factors of profitability of the carried out investments in the given workers. Hence, innovation can act as one of the criteria when estimating the profitability of human capital in an organisation.

It is especially important to provide conditions for the growth of profitability of human capital for specialised scientific organisations and establishments occupied with the development and distribution of innovation on a commercial and a noncommercial basis. The efficiency of the activity of similar organisations is in many respects determined by the profitability of investments in human resources. Undoubtedly, profitability of investments and as investigated, the profitability of the innovation of human capital entirely depend on the quality actually received and the additional economic gains from their distribution to practical activities.

Thus, the degree of efficiency of an innovation and the size of the expected economic gains depend on the level of management of human capital, its abilities to create additional benefits, in other words, on the profitability of the given capital. Therefore it is the efficiency of the received innovation and additional income of their distribution in practical activities that determine the profitability of human capital. The qualitative level of human resources defines in many respects the market cost of an organisation.

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**Agnieszka Rosolińska**

# KNOWLEDGE-BASED ECONOMY FROM THE ACCOUNTING PERSPECTIVE: THE CONSEQUENCES FOR BUSINESS PERFORMANCE REPORTING

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## **Abstract**

In the knowledge-based economy intangible resources play a dominant role in an organization contributing to the increased company's value. As a consequence, today's business and economy is about investments in knowledge and immaterial assets rather than in tangible resources. Therefore the competitive advantage of today's companies depends on entrepreneurs' ability to identify, define, manage and report on intellectual capital (IC).

In the era of globalization, technological advances and increased competition, there are new challenges emerging that the current accounting system needs to face. Traditional financial statements suffer from inaccuracy and a limited ability to convey prospective information and risks the firm is facing. The efforts to improve reporting on IC have already been undertaken. However, the current solutions are mostly useful for internal stakeholders. There is still a great challenge to improve IC reporting for the purposes of external stakeholders, especially investors and creditors.

The purpose of this paper is not only to stress the importance of IC disclosure and reporting but also to discuss the reasons and circumstances of the boundaries emerging in the field. The reporting frameworks currently used are reviewed and some views and comments regarding the future research in the area of IC accounting and reporting are drawn.



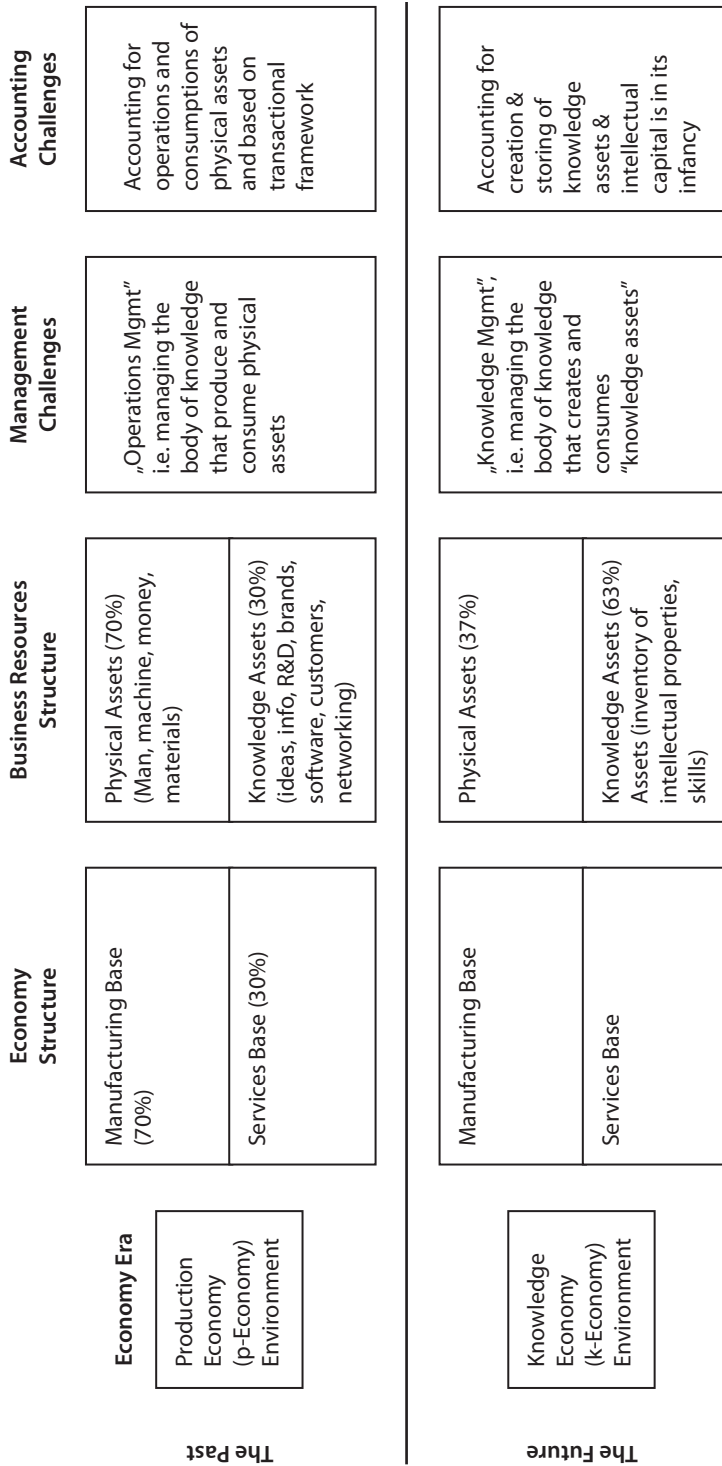
## INTRODUCTION

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In the knowledge-based economy intellectual capital (IC) became a major part of company's value. As a well known USA economist John Kendrick stated, in 1929 the ratio of intangible capital to tangible capital was 30:70%, whereas in 1990 it was already 63:37% (Seetharaman, Hadi Helmi Bin Zaini Sooria, Saravanan 2002, p. 129). Brookings Institute reports that at the end of the nineties of the twentieth century this ratio was 84:16%. This evident change in firms' assets structure in favor of immaterial resources results in new challenges for companies and their stakeholders as the business landscape changed significantly. Today's business is about investments in knowledge and intangible assets rather than in tangible resources. Therefore the competitive advantage and success of today's companies is dependent on entrepreneurs' ability to identify, manage and report on human, structural and relational capital.

During the previous years many practitioners and researchers were debating on IC nature and its impact on company's value and performance. First, the founders of the field marked the uniqueness of intellectual capital and indicated IC as a significant part of every organization. They defined the main components of IC preparing a field for further discussion and research. During the past decade practitioners, academics and researchers were trying to explore and understand how IC accounts for value of all types of organizations. More differentiated approaches and exploring methods were used to capture and understand IC value and significance better. As Chatzkel (2006) noticed, we are now experiencing a third stage of IC that can be called the implementation stage. The debate on IC definition and classification is continued, however, most efforts concentrate mainly on using IC as a framework not only to understand value but also to manage it for strategic outcomes. Not only individual organizations and set of organizations but also regions and even whole countries have undertaken efforts to institutionalize IC framework to enhance governing decisions. At the same time there is a broad discussion concerning issues connected with accounting and reporting on intellectual capital and this paper presents some comments in this field.

In the era of globalization, increased competition and technological advances there are new challenges emerging that the current accounting system needs to face (Figure 1). Traditional financial statements suffer from inaccuracy, a lack of timeliness and a limited ability to convey prospective information and risks the firm is facing (Garcia-Meca, Martinez 2007). Many researchers stress insufficiency and ineffectiveness of financial statements pointing a need to adjust the current accounting and reporting system to the requirements of the changing



**Figure 1.** Accounting challenges: the past and the future

Source: Seetharaman, Hadi Helmi Bin Zaini Sooria, Saravanan 2002, p. 129.

business and economic environment (Wallman 1996 and 1997, Francis and K. Schipper 1999, Lev and Zarowin 1999, Canibano, Garcia-Ayuso and Sanchez 2000, Lev 2001, Zambon 2002, Dobija 2003a, Mouritsen, Bukh and Marr 2004). Financial Accounting Standards Board (2001a) noticed the problem and addressed the question whether business and financial reporting should change, and if so, how. Many commentators stated that to meet the changing needs of financial statement's users, business reporting must (FASB 2001a, p. 5):

- provide more forward-looking information,
- provide more information about intangible assets and
- focus on more disclosure of non-financial information.

FASB (2001b) encouraged companies to expand their voluntary disclosures of information useful to external stakeholders by providing evidence of many leading companies that make extensive voluntary disclosures and benefit from this activity. It was suggested that if organizations disclosed voluntarily information concerning intangible assets that have not been reflected in the traditional financial statements, this would bring more transparency and promote better understanding among investors and creditors.

It is worth investigating these new challenges connected with IC accounting and reporting. The paper is organized as follows. The first section presents briefly intellectual capital definition and gives some evidence on the relation between IC and value creation. The next part discusses the current accounting standards concerning intangibles and presents the problems occurring in this field as well as consequences for business performance reporting. The last section presents the possibilities and boundaries of reporting on immaterial assets and reviews current practices concerning IC measurement and reporting.

## BACKGROUND

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### Debate on IC definition and classification schemata

Despite the great interest in the field of IC there is still no consensus among researchers, practitioners and academics on how to define and classify intellectual capital (Steward, Brooking, Bontis, Sveiby, Roos and Roos, Edvinsson). There are many different terms used such as intellectual capital, immaterial assets, intangible resources and other combinations of adjectives (intellectual, immaterial, intangible, knowledge) and nouns (assets, resources, capital, value). However, whatever combination is used each time the user thinks of non-material resources of a firm, thus lacking physical or financial substance which significantly affects future cash-flows and influences company's value (Dobija 2003b, p. 128–129).

Steward (1991) explained what intellectual capital is composed of by saying that:

*(...) Every company depends increasingly on knowledge – patents, processes, management skills, technologies, information about customers and suppliers, and old-fashioned experience. Added together, this knowledge is intellectual capital (...).*

Hall (1993, p. 607) used the expression *intangible resources* to cover:

- the intellectual property rights of patents, copyright, and registered designs,
- trade secrets,
- contracts and licenses,
- databases,
- information in the public domain,
- personal and organizational networks,
- the know-how of employees, professional advisers, suppliers and distributors,
- the reputation of products and company,
- the culture of the organization, e.g. the ability of the organization to react to challenge, to cope with change, etc.

Therefore, intellectual capital can be defined as a mix of human capital, structural capital and customer capital (Kaufmann and Schneider 2004). Human capital is the knowledge that employees take with them when leaving the firm and it covers knowledge, abilities, skills, competence and experience of people. Structural capital is the knowledge that stays in a firm after its employees went home and it comprises of procedures, cultures, systems, organizational routines, databases, etc. The customer (relational) capital comprises company's image, customer satisfaction, customers' loyalty, relations with suppliers, negotiating capacity with financial entities, commercial power, etc. as it is defined as being a sum of all resources that are linked to the firm's external relationships with customers, R&D partners and suppliers (MERITUM 2002, p. 10–11).

Very often managers use the terms *intellectual capital* and *human capital* interchangeably although human capital may be just a subset of intellectual capital in an organization. This imprecise usage of these terms can be explained by the fact that the human capital is probably considered as the most important asset of an organization.

The variety of terms used may be justified by different approaches towards research in the area of IC, which basically depend on disciplines. The review of literature reveals the four main views on IC (Dobija 2003a, p. 57–99):

- economic view on intellectual capital (the role of human capital and knowledge as a source of economic development),

- sociological view on intellectual capital (social capital allows for creation of intellectual capital, intellectual capital is rooted in social relations and its structure),
- managerial view on intellectual capital (processes and activities aimed at development of intellectual capital of a firm), and
- accounting and finance view on intellectual capital (measurement and reporting of intellectual capital).

## Why is IC that important, and who needs to know about it?

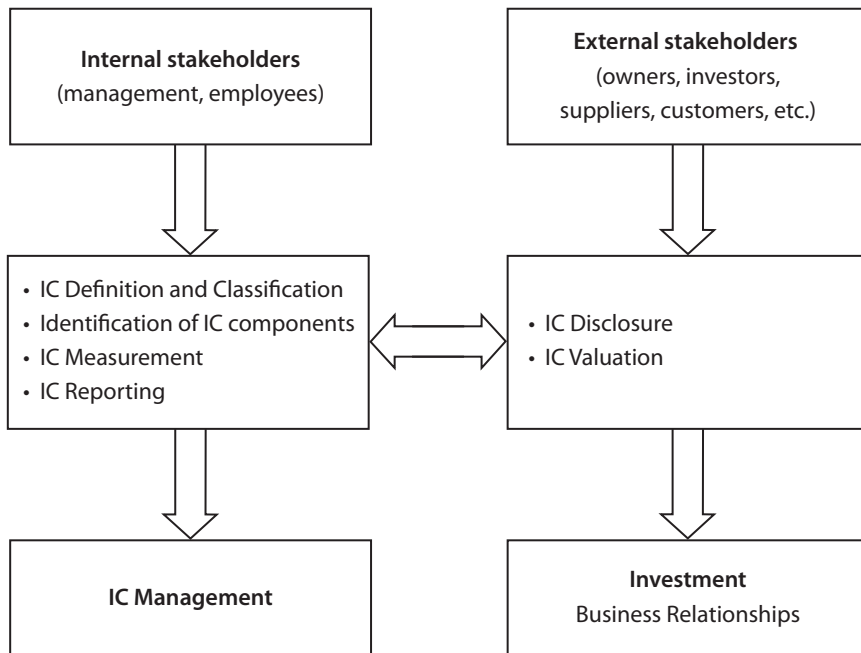
There are many theories trying to explain the significance and the role of knowledge in a firm. According to the resource-based theory that was developed in the nineties of the twentieth century, the firm is a unique mix of both tangible and intangible resources which, if properly used, contribute to the company's competitive advantage (Grant 1991, Barney 1991, Mahoney and Panadian 1992, Amit and Schoemaker 1993, Peteraf 1993, Hatch and Dyer 2004). However, as Barney noticed not all firm's resources hold a potential of sustained competitive advantage. To have this potential a firm's resource must have four features (Barney 199, p. 105–106):

- it must be valuable, i.e. it exploits opportunities and neutralizes threats in a company's environment,
- it must be imperfectly imitable,
- it must be rare among a firm's current and potential competition and
- there cannot be strategically equivalent substitutes for this resource that are valuable but neither rare nor imperfectly imitable.

In today's economy such attributes refer more to immaterial resources than to tangible ones. Therefore it is consistent with the statement that these are the intellectual resources that play a dominant role in the knowledge era.

The knowledge-based view identified key company resources naming knowledge as the most valuable source of firm's competitive advantage (Grant 1996). Although traditionally firms relied mainly on their tangible resources, it became obvious that today they are relying more on immaterial assets to sustain their competitive advantage. Intangible resources are regarded to be critical for long-term success of knowledge-intensive firms.

Intellectual capital gained its importance as it is perceived as an integral part of firm's value-creating process (Bukh 2003). Many researchers have undertaken research in this field investigating the actual relation between IC and value and proving that investments in either human, customer or structural capital contribute to the increased value. Ashton (2005) gathered and analyzed many interesting studies



**Figure 2.** IC information required by internal and external stakeholders

concerning the association between IC and firm- and market-level financial outcomes, which prove that the mentioned link is rather unquestionable. If intellectual capital creates value, it is then essential to first identify then measure and finally report on immaterial resources to both internal and external stakeholders. It is, however, important to remember that the needs of different groups of stakeholders may vary a lot (Figure 2).

During the past years many different frameworks for internal IC reporting purposes were developed. Such models as Skandia Navigator (Edvinsson and Malone 1997, 2001), Intangible Assets Monitor (Sveiby 1997) or the Value Chain Scoreboard (Lev 2001) – based to a significant degree on theoretical proposal of the R.S. Kaplan’s and D.P. Norton’s Balanced Scorecard (1992) – have gained interest among consultants and managers and have been used to support the management of intangible resources in a firm. However, the external IC reporting for the purposes of investors and creditors seems to be in its infancy (Lev and Zambon 2003). Therefore much of today’s debate among researchers and practitioners concentrates on external disclosure issues. It is then worth investigating the circumstances and reasons for such a situation concentrating first on possibilities to report on immaterial resources within existing accounting standards.

## ACCOUNTING STANDARDS CONCERNING INTANGIBLES

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Due to the changing business and economic environment, intellectual resources should be identified, defined, classified and measured in the accounting system not only to support managers but also to inform external users of accounting information about important resources influencing corporate value. However, the increased importance of knowledge resources has generated some frustration over accounting and traditional financial statements (FASB 2001a).

As mentioned earlier, financial statements do not include all necessary information about company's resources and that is why they suffer from a limited ability to convey prospective data and risks that firm faces. This inability of financial statements to provide prospective information about a company's future may be especially problematic for innovative entrepreneurial firms as such firms rely mainly on intellectual capital.

Only some intellectual resources so-called intangible assets can be reported in the financial statement of an organization. According to IAS 38:

2. *An intangible asset is an identifiable non-monetary asset without physical substance held for use in production or supply of goods or services, for rental to others, or for administrative purposes. An asset is a resource:*
  - (a) *controlled by an enterprise as a result of past events; and*
  - (b) *from which future economic benefits are expected to flow to the enterprise.*
3. *IAS 38 requires an enterprise to recognize an intangible asset (at cost) if, and only if*
  - (a) *it is probable that the future economic benefits that are attributable to the asset will flow to the enterprise; and*
  - (b) *the cost of the asset can be measured reliably.*
4. *IAS 38 specifies that internally generated goodwill, brands, mastheads, publishing titles, customer lists and items similar in substance should not be recognized as assets.*

According to the above standard, it is clear that not all knowledge resources can be reported in the accounting system. Intangibles need to meet certain criteria to be included in the financial statement and this treatment has its reasons. It is impossible to include such a category as, e.g. customers' satisfaction or a quality of an organization's structure in a balance sheet as this could only happen in case of market exchange or a business combination. Such resources would then be valued and included in a balance sheet as a goodwill on the date of a market

transaction (Dobija 2003a). This conservative approach is understandable as intangibles seem to be too uncertain to be included in the financial statement – customers' satisfaction may get worse as well as an organization's structure may change significantly. Moreover, accounting system does not allow including potential values not yet materialized. If there are any doubts concerning the future benefits connected with the usage of a particular resource, the organization should not inform about that resource in its financial statement.

However, such a conservative approach that makes reporting on knowledge resourced almost impossible leads to significant differences between the values reported through the accounting system and the valuation of a company made by the market (Lev 2001).

The standard setters want to preserve a more conservative approach to make sure that potential users of accounting information are not misled and can make better decisions. This point of view is of course justified when taking into account the chance that managers would use intangibles to "color" company's performance, however, on the other hand not including information concerning intellectual resources can seriously hinder decision making of external stakeholders, especially potential investors (Dobija 2003). And market participants need information on immaterial assets to make reasonable decisions.

That is why more often managers decide to voluntarily disclose IC information, using additional reports.

## REPORTING ON IMMATERIAL ASSETS – WHY AND HOW?

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### Intellectual capital reporting frameworks

As a response to a growing need for better information about company's performance many researchers propose additional disclosures outside the traditional financial statements. The most important recommendations covering intangibles and IC reporting issues were prepared by The International Federation of Accountants (IFAC) (1998), the Nordica Project (2001), the MERITUM Project (2002), and the Danish Ministry of Science, Technology and Innovation (DMSTI) (2003) (Lev, Zambon 2003, p. 599). It is essential to note that these guidelines can only be successful if the rules included in them are followed and then embedded into a company's reporting practices.

The first company that published its intellectual capital statement was Swedish Skandia (1995). Today, there are already many firms that use some available frameworks for intellectual capital management and reporting (e.g. the Balanced Scorecard, Intangible Assets Monitor, Value Chain Scoreboard) and support management decisions by the additional information concerning intangible resources (e.g. Celemi, Infosys).



There are also many firms that use other available guidelines, e.g. DM-STI to report information concerning company's immaterial resources (e.g. Coloplast, Systematic).

Intellectual capital report may have different forms. It may be a descriptive part included in an annual report and in such a case the additional information mostly refers to the market situation, customers, employees and new technologies. However, as already mentioned, some companies prepare additional reports outside the traditional financial reporting schemata that are in all devoted to describe company's immaterial assets. Such an intellectual capital statement may be then enclosed to an annual report, published on the website or it may become a separate part of a social-environmental statement (e.g. Dow Chemicals, Siemens).

Intellectual capital statement attached to a company's annual report is comprehensive report including both figures and narration and visualization. Such a statement covers not only indicators and measures but also many descriptions and stories about company's knowledge activity and performance. The report often includes some drawing presentation, illustration of most important information concerning the way intellectual capital is created and used in a firm.

As explained earlier, the reports on immaterial resources vary depending on organization. What do they have in common then? They are all based on a certain scenario that is used to consistently present the whole story about company's knowledge resources and their interdependence. The story is always about how immaterial assets contribute to achieving business success. Each intellectual capital statement, irrespective of its form, should identify the challenges concerning intellectual capital management.

The most important objection regarding intellectual capital statements is their subjectivism. Reports on intangible resources are not based on the double entry system which ensures that assets and liabilities always balance. That is why many users of information presented in such reports are reserved with the data included there. Such skepticism is caused by the lack of objectivity of IC indicators and measures and their uncertainty, i.e. they may disappear in a very short period of time increasing the uncertainty among managers and investors. However, as B. Lev noticed, such skepticism is very much exaggerated and a lack of IC measurement and reporting practice may become a much worse problem when taking into account a long-term perspective (Fijałkowska 2006, p. 43).

It is also worth noticing that a traditional financial statement and intellectual capital statement give answers to the same questions (Table 1). The presented two sets of questions are fully parallel as they refer to the same management problems. Of course, they are not identical as their answers base on different types of data.

**Table 1.** Financial statement vs. Intellectual capital statement

Financial statement	Intellectual capital statement
What are the company's assets and liabilities?	How is the company's knowledge resource comprised?
What has the company invested?	What has the company done to strengthen its knowledge resources?
What is the company's return on investment?	What are the effects of the company's knowledge work ?

Source: *Analyzing Intellectual Capital Statements*, Danish Ministry of Science, Technology and Innovation, Copenhagen 2003, p. 5, URL: <http://www.vtu.dk/icaccounts>, 10.01.2006

Although there is still much to do in the area of IC accounting and reporting, some latest experience in many countries in the whole world (Denmark, France, Germany, Netherlands, Ireland, Australia, Japan, China) gives evidence that the awareness of importance of IC is growing and that is why there should be some regulations introduced to support further development of IC reporting activity (Brennan 2001, Bukh, Nielsen, Gormsen, Mouritsen 2005, Vergauven, Van Alem 2005, Johanson, Koga, Skoog, Henningsson 2006, Guthrie, Petty, Ricceri 2006).

## Intellectual capital and capital markets

As Bukh (2003) noticed, although many firms have recently started to disclose information on intellectual capital, financial analysts ask for more. The research reveals that intellectual capital disclosures in a current form are not appreciated enough by market participants. Bukh (2003), Mouritsen (2003) and Johanson (2003) reported that although the quantity of information on intellectual capital has increased in the last years, the users of IC information are still skeptical about them and do not fully value such information. Mouritsen (2003) explained that the reason for such a suspiciousness is a result of a lack of understanding of the IC concept and its value and significance to the organization. Guimon (2005) stressed that the obstacles appear on both supply and demand side of the market and there is still much to do to improve the situation. Johanson (2003) analyzed the barriers appearing in this area and identified five reasons why the capital market participants resist using IC information:

- problem of knowledge (awareness), connected with the lack of understanding of importance of immaterial assets,
- problem of uncertainty, understood as the lack of trust towards various ratios, including concerns about their reliability and usefulness,

- problem of ownership rights,
- problem of management's capability and interest in taking care of the intangible information and
- mentality problem of capital market actors as a group – probably the most important barrier.

Bukh (2003) provides some solution arguing that to ensure that intellectual capital disclosures are perceived as relevant by capital market participants, the information should be disclosed as an integral part of a framework drawing the firm's value creation processes.

The above presented research results provide evidence that there is a need for more (accurate) disclosure on IC information. Burgman's and Roos's (2007) study provides some explanations why this issue is that urgent. The authors have identified eight *mega-forces* that show the necessity and importance of intellectual capital reporting:

- the (continuing) growth and dominance of the US economy and global equity investment capital flows (ex the USA),
- the large and rapid emergence of business models other than the value chain,
- the stock exchange concentration, consolidation and competition,
- investment fund growth – pension, hedge and mutual funds,
- buy- and sell-side analyst activity,
- global and European equity index growth,
- rating agency influence – credit and fund performance rating agencies and
- financial reporting regime and governance development.

All these forces have been widely discussed in the above mentioned paper, providing evidence that intellectual capital reporting is highly required and is simply a natural “next step” in company's value reporting.

It is worth noticing that the problem with IC disclosure has its implications for the expansion of especially smaller, entrepreneurial, IC-intensive companies. The growth of such firms and new business ventures would not be possible without a constant supply of financial capital. Raising capital from banks to finance entrepreneurial projects is very difficult as banks do not get all necessary information about the real situation and potential of such firms, and refuse to give a loan. Credit analysts simply do not have information concerning the most important, intellectual assets of such a potential borrower. In such a case firms may try to search for an alternative source of capital, e.g. venture capital. However, if there was a framework of creditworthiness assessment with the usage of intellectual capital information, the banks would have a chance to make better, in a sense more accurate credit decisions. And as some research show there is a space for IC to be included in the banking assessment procedures (Dobija and Rosolińska 2007, Rosolińska 2006, 2007). Once again it confirms that there is a need for IC accounting and reporting.

## FINAL REMARKS AND CONCLUSIONS

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The changing business and economic environment results in new challenges emerging on both supply and demand side of the economy. Some of these challenges are connected with an insufficient and ineffective accounting and its reporting system. In the recent years many different frameworks for IC reporting purposes were developed gaining interest among consultants, managers and academics. These models have been mostly used to report IC internally and support management decisions. Although some efforts to use these models externally were undertaken, no commonly accepted solutions have been worked out so far. The IC reporting for the purposes of external stakeholders (investors and creditors) seems to be still in its infancy (Lev and Zambon 2003).

The analysis of related literature and research in the field of IC reveals that today's debate among researchers, academics and practitioners concentrates mostly on external disclosure issues. However, it is essential to bear in mind that we cannot treat fully separately issues concerning internal and external reporting as external reporting would not be efficient without prior internal usage of IC concept for the effective management of intangible resources. The procedures of how to identify, measure, manage and report on immaterial assets should be known and deeply rooted in organizations' internal systems (Lev and Zambon 2003: 599). The lack of common knowledge among managers on intellectual capital and its value in an organization seems to be an important barrier that could be identified when considering the problems with IC reporting for the purposes of external stakeholders. Although a debate on IC nature and its role in an organization began a long time ago, there is still much to do to increase the awareness of IC importance in a firm. Managers and entrepreneurs need to learn how to identify, define, classify, measure, value and report on immaterial resources of their firms. Moreover, they need to find out which intellectual resources contribute to gaining the competitive advantage and to achieving a market success. Such knowledge is essential to ensure effective management of intellectual capital in a company and its accurate reporting for both internal and external purposes. And this is especially difficult as managers are not supported by the accounting system as IC is not sufficiently reflected in the financial statements.

New challenges that emerged in the knowledge economy are also connected with signaling the use and the importance of intellectual resources to the external finance providers and investors. Knowledge-intensive firms need capital to grow, but without enough physical collateral they have difficulties with gathering funds for expansion. And this problem seems to be especially urgent as the new economy is an era of intellectual resources' dominance and investments in knowledge, information,

human resources, IT, R&D etc. Therefore, further research in this area might focus on developing a framework of IC reporting for the purposes of external finance providers. It requires certain changes in the accounting system to allow for better measurement and reporting on immaterial assets in the financial statements.

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Iwona Cieślak

# VALUE OF HUMAN CAPITAL AND WAGE DISPARITIES

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## Abstract

The social disparity phenomenon is one of the most vividly discussed social problems and is seldom discussed within a broader context than income and wealth disparities. Although they cannot be eliminated, they shouldn't be fully accepted; hence there is a need to establish the lowest wage threshold, i.e. minimum wage. The determinant of the basic wage is the value of capital gathered by the employee, which justifies the existence of remuneration disparities. One of the measures through which disparities can be alleviated by naming them can be appropriate remuneration, i.e. in accordance with the value of the human capital. The general message of this work rationalises wage disparities.

## INTRODUCTION

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The phenomenon of social disparities has been arousing excitement for ages. It has been the most vividly discussed topic starting from the ancient philosophers, medieval thinkers to modern times. Ideas of social equality led numerous times to very radical movements or even revolutions. Disparities, also the present ones, can create conflicts and can cause an increase in distrust and hostility towards those in a better situation. Social disparities are a common phenomenon that has been accompanying people since the very beginning. The only thing that changes is the way they are perceived and interpreted as well as their social consequences. The social disparity phenomenon is one of the most vividly discussed social problems and is seldom discussed within a broader context than income and wealth disparities. Although wage disparities cannot be eliminated, they shouldn't be fully accepted; hence there is a need to establish the lowest wage threshold, i.e. minimum wage. The determinant of the basic wage is the value of capital gathered by the employee, which

justifies the existence of remuneration disparities. One of the measures through which disparities can be alleviated is appropriate remuneration, i.e. in accordance with the value of the human capital. The general goal of this paper is to rationalise wage disparities.

## DEFINITION OF MINIMUM WAGE

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In legal terms a minimum wage means the lowest amount payable to the employee for labour performed during normal work hours, regardless of the way in which it is calculated, guaranteed in an individual employment contract and collective labour agreement and set at a level that allows the employee and his family to satisfy the basic needs as considered in the given social and economic situation of the given country (Skoczyński 1994, p. 11).

The problem of minimum wage was raised in three conventions of the International Labour Organisation. The first convention concerning the creation of a minimum wage fixing machinery was adopted by the ILO in 1926 (convention no. 26), the second one concerning a minimum wage fixing machinery in agriculture was adopted in 1951 (convention no. 99) and the third convention on minimum wage fixing in developing countries was adopted in 1970 (convention no. 131). The last one best describes the requirements concerning minimum wage. According to it, when determining the minimum wage, one should take into account the needs of the employee and his family in comparison to the overall wage level in the given country, the level of the costs of living and the social insurance benefits. The provisions of the convention show that the countries ratifying it are obliged to guarantee such a level of minimum wage in order to guarantee a decent level of living (Sekuła 2003).

In the European Union minimum wage is a guaranteed category, established by a tri-lateral commission comprised of the representatives of the government, employers and employees. Every country can apply different methods of establishing minimum wage. This can mean uniform protection for everyone or variable protection depending on the job group or region. Determination of the minimum wage depends, above all, on the needs of the employee and his family taking into account the financial and economic situation of the given country, as well as on the level and possible growth of the domestic product, work efficiency, unemployment level and measures aimed at reducing it, and the scope and availability of social benefits (Skoczyński 2003).

For instance, Belgium and Greece have a so-called hybrid system where the minimum wage is determined by the social partners. In Belgium this system is applied in all sectors, whereas in Greece only in the private sector. In Germany the minimum wage level is not statutorily regulated. The value is negotiated in separate agreements for every sector.

The value of the minimum wage in Poland has been determined since 1956 ([www.mpips.gov.pl](http://www.mpips.gov.pl)). Its role in the wages and benefits system has undergone numerous changes over the years. This has always been a category where the minimum level of the entire or partial remuneration for work has been guaranteed by the State.

Until 1977 the lowest remuneration constituted a total remuneration guaranteed to every employee working on a fulltime basis. In the years from 1977 to 1981 the minimum remuneration level was mainly used to create remuneration rate tables and was set as a minimum basic remuneration rate in the lowest rank category. In the years from 1982 to 1986 the level of the lowest remuneration was established as well as the level of the lowest basic remuneration rate in the lowest rank category. From July 1986 to August 1990 the value of the lowest remuneration simultaneously constituted the lowest basic remuneration rate in the lowest rank category. Adoption of such an assumption caused that every time the minimum wage was raised, the salaries of those earning higher incomes also increased. This was happening because the lowest rate was used to create remuneration rate tables for all employees. The consequences of such regulations had to be covered from the company remuneration fund, which practically made it impossible for the enterprise to pursue its own payroll policy. For this reason a new rule for determining the lowest remuneration was adapted on September 1st 1990. This was a value of full remuneration guaranteed to the employees for a full one-month work period, regardless of their qualifications and personal ranks or of the number and type of remuneration elements used by the work establishment. The only things that were excluded when determining this remuneration were anniversary bonuses, old age pension and disability severance pays, bonuses from the company bonus fund, profit bonuses, disbursements from the budget surplus at cooperatives and remuneration for overtime. Until 1990 the value of the lowest remuneration was established by a resolution of the Council of Ministers. Since 1990 its value was regulated by an order of the minister of labour and social policy. From 1998 till the end of 2002 the level of the lowest remuneration was determined by a regulation of the minister of labour. When the act of October 10th 2002 on minimum remuneration for work entered into force, the lowest remuneration for work was no longer determined by the minister of labour and social policy on the basis of article 774 of the labour code ([www.wynagrodzenia.pl](http://www.wynagrodzenia.pl)).

On January 1st 2003 the act of October 10th 2002 on minimum remuneration for work (Journal of Laws no. 200, item 1679) took effect. Ipso facto the provision of article 65 par. 4 of the Constitution of the Republic of Poland, pursuant to which *the value of the minimum remuneration for work or the method of determining it is defined by the act* has been fulfilled. The act guarantees an annual increase of the value of minimum remuneration to an extent not smaller than the increase in

**Table 1.** Minimum wage in comparison to the average wage in the domestic economy in the years 1992–2007

Year	Gross remuneration		
	Minimum (in PLN)	Average in domestic economy (in PLN)	Average in domestic economy = 100
1992	108.75	289.73	37.5
1993	160.00	390.43	41.0
1994	215.00	525.02	41.0
1995	285.00	690.92	41.2
1996	353.75	874.30	40.5
1997	426.75	1065.76	40.0
1998	495.83	1232.69	40.2
After inclusion of social insurance contribution			
1999	653.33	1697.12	38.5
2000	695.00	1923.81	36.1
2001	760.00	2061.85	36.9
2002	760.00	2133.21	35.3
2003	800.00	2185.02	36.6
2004	824.00	2289.57	36.0
2005	849.00	2273.44	37.3
2006	899.10	2473.62	36.3
2007	936.00	2616.00	35.8

Source: [www.wynagrodzenia.pl](http://www.wynagrodzenia.pl)

the overall prices for consumer goods and services forecasted for the given year. At the same time, if in the first quarter of the year during which negotiations are being held the value of the minimum remuneration is lower than half of the value of the average remuneration in the domestic economy, this guarantee is additionally increased by 2/3rds of the forecasted real growth rate of the Gross Domestic Product. In a situation where the real price increase differs from the forecasted price increase, the act offers a corrective mechanism.

The minimum wage increases from year to year, although it is lower than the inflation rate (Bukowski 2006, p. 168).

*In recent years the minimum wage is practically indexed in accordance with the price growth index and not the average remuneration. What speaks in favour of such an approach is the fact that the remuneration growth in the economy is the result of the growth of productivity and does not concern every working person – this means that indexation based on remunerations, especially in a country with a significant share of people with low qualifications, may cause the group of people that don't have a chance for productive employment at the given level of minimum wage to increase.*

(Bukowski 2006, p. 169)

According to the European Social Charter an appropriate level of satisfaction of the employee's existential needs and incentives to undertake a job will be guaranteed by a fair wage accounting for 68% of the average wage. The Committee of Independent Experts points out that a fair wage is supposed to satisfy the basic material, social and cultural needs. This means that in reality it is supposed to prevent poverty. Above all, the economic needs of the employees and their families are supposed to be satisfied; according to the Committee they include, among other things: rent for apartment, and then in the following order: educational, social and cultural needs, which guarantee integration of the employees and their families with society. This shows that the level of fair wages is supposed to evolve depending on the level of poverty in each country. In the majority of countries that have ratified the European Social Charter, the minimum wage accounts for 50% of the average wage. In Poland this ratio oscillates around 39.6%, in accordance with the monthly minimum wage of PLN 1,126.00 adopted in January 2008 and the average monthly remuneration in the domestic economy of PLN 2,843.00 forecasted in the budgetary act for 2008<sup>1</sup>. This indicator is highly unsatisfactory considering the increase in the costs of living after Poland acceded the European Union, the level of the lowest wages in the EU countries and the requirements of the European Social Charter regarding fair wages that Poland has ratified. Pursuant to article 4 of the European Social Charter, the principle of fair wages is expressed, among other things, by the fact that the employee should be guaranteed:

- a fair level of living with a family,
- higher wages for overtime work,
- same remuneration for labour of the same value,
- a consent to make deductions from remuneration for work performed in conditions provided by statutory norms or collective agreements.

The definition of fair, just wages applies, above all, to the lowest remunerations. The value of minimum wage depends on many macro and

<sup>1</sup> [www.orka.sejm.gov.pl/proc6.nsf/ustawy/16\\_u.htm](http://www.orka.sejm.gov.pl/proc6.nsf/ustawy/16_u.htm)

micro-economic phenomena. As a separate economic category it functions well only if it is set at an appropriate level. If too low, it is a dead category, if too high, it becomes a fiction. Determination thereof has its supporters as well as opponents. Opponents of establishing a minimum wage believe that this in no way corresponds to the rules of a free market economy and may lead to a deceleration of entrepreneurship, to increased unemployment, which, in consequence, may increase social disparities and extent poverty. Setting the minimum wage too low may cause that nobody will be willing to perform the simplest, poorly paid jobs. This, in turn, may lead to avoidance of the efforts to find a job, because it will be more beneficial to receive unemployment allowances and to work illegally. However, if the minimum wage is set too high, according to the opponents, it may lead to an abuse by employers being in a poor economic and financial condition, who will have problems with respecting the minimum wage.

Supporters of the minimum wage believe that it is a guarantee for employees with lower qualifications and less resourceful ones who will not have to agree to work for too low wages. The minimum wage category also makes it possible to raise the wage as the economy grows and will therefore not allow differences in wages between sectors to appear.

The education level, the performed job, the value of income and the wealth possessed all differentiate the position of every individual in society. Differences in the situation of every individual may also ensue from their involvement, efforts, resourcefulness, inclination to take risks (Samuelson, Nordhaus 1996, p. 22–23) but also from such factors as: skills, professional achievements or place of residence. On the one hand we have, for instance, an unqualified employee who receives an annual remuneration under PLN 10,000.00, while, on the other hand, we have a company president earning a monthly salary that even exceeds such employee's income earned over thirty years. Such a situation must arouse and does arouse specific discussions and tensions. All this is taking place in Poland now where a few years back the differences in salaries were not that great yet. But are we talking here about social disparities or is this a natural phenomenon that differentiates people on the basis of their actions and achievements? Social differentiation can be a stimulating and motivating factor that distinguishes attitudes and actions that are socially useful. This means that human capital, together with inborn talents, knowledge, skills and experience, all play a dominant role.

## CAPITAL MODEL AND RISK PREMIUM

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The economy presents capital as financial or material assets of measurably defined value, which can be used to pursue activities that are

supposed to be profitable. Moreover, it is the only value that cannot be bought, it can only be borrowed. Capital is gathered and then invested in business activity that is comprised of the goods classification, distribution and consumption processes. Production is possible thanks to using production factors that include material and nonmaterial measures necessary to carry the production process through. Material factors of production include:

- earth and its resources,
- material capital (for instance: buildings, machinery, raw materials, equipment),
- financial capital (money, securities).

A nonmaterial factor of production is labour, i.e. the labour force, meaning the human capital involved. A working human being performs a set of conscious and intended activities through which he affects the surrounding environment that changes as a result of it. A human being that is performing work has energy and that performance of work causes the energy to be shifted onto the object being worked on. Hence, energy is a value that is responsible for the changes made in the environment.

The economic value must always be measured taking into account the time moment (which ensues from the unbreakable ties between the capital category and the value category), which means that capital is measured using the present or future value, depending on the starting point and the problem constituting the subject matter of the calculation. Drafts of new projects are assessed using a discount account to future income flows. The value of human capital that is initially being created within the household (family) must be measured as future values using capitalisation of outlays, also considering the future value becoming a moment in the past and a starting point.

The analogy between capital and energy seems to be justified because energy is governed by clearly laid out laws, especially the law of conservation of energy (and the law of thermodynamics – energy cannot be produced nor destroyed). Energy has its material medium and similarly to capital it deposits itself in specific resources.

*Energy is not created out of nothing and does not vanish. If we burn a piece of paper, the sum of the energies will not change. The heat will go into the atmosphere. If a warehouse stocked with paper burns down, the economic energy called capital will be lost, and the accountants will post an appropriate value as a loss of capital. Double-entry accounting is a tool used to measure the flow of energy-capital in the economy, but the object of accounting is not the universe but a business unit.*

(Dobija 2004)

What we know about capital is that it can and should be multiplied. But this multiplication is not completely clear in the light of the law of conservation of energy. This process must be a transformation process and energy transformations are governed by the second law of thermodynamics, which says that the entropy of an isolated system (system where heat is not exchanged with the environment) never decreases. The entropy of such a system may be permanent or may increase. The second law of thermodynamics distinguishes a certain natural direction of the course of the phenomena. This phenomena may occur in a certain direction but not in the opposite direction. After a valve in another tank is opened, gas initially stored in one tank will spread uniformly inside both tanks. Such a process causes the entropy of the system to increase. The process of spreading of gas from one tank into two tanks is irreversible<sup>2</sup>. Generalising, the second law of thermodynamics talks about a spontaneous flow of energy, which applies not only to physics but also in economics.

*It is associated with the existence of natural losses in the production processes as well as with the fact that non-working capital diminishes its value with time. This spontaneous tendency of capital to diffuse is the source of use of percentage as well as economic risk, which constitutes an inevitable but static cost of existence of every being in the material world.*

(Dobija 2004)

This value appears in accounting as a measurable form of costs of risk defined by D. Dobija (2001, 2003). According to this author, the analysis of costs leads to a distinction of two classes based on the dynamism criterion: costs determined by technology and administration and undetermined costs, of which the source is a risk. This cost category constitutes a measurement of risk and that is why it is very important in the theory of prices and profits.

Therefore, capital increases as a result of work that is performed by generations but this is taking place at the expense of the natural capital and the permanent growth of entropy. Non-working capital will decrease in value over time, which is associated with the existence of losses in the production processes. The value of human capital, i.e. the value of the capital embodied in assets (human resources) will be conserved (maintained), provided that the assets will generate a flow of proceeds which will yield a sufficient rate of return. The rate of return should not be lower than the capitalisation ratio. Otherwise the value of the capital will decrease and will be lower than the value of its historic cost. This is also a significant characteristic of capital that can be found in reality, for instance, when valuing a company's goodwill.

<sup>2</sup> [http://aneksy.pwn.pl/podstawy\\_fizyki/?id=784](http://aneksy.pwn.pl/podstawy_fizyki/?id=784)



Provided that valuation using an income method is correct, if the unit's value is lower than the capital's book value (historic value). This means that the pace at which profits are being generated is too low in relation to the appropriate level under the given social and economic conditions (Dobija 2003, p. 125).

In the real world existence is associated with maintaining an appropriate level of concentration of energy. On the other hand, this concentrated energy has a tendency to diffuse and to decrease its concentration in its original location, for instance, in people, organisations and products. People get older and products lose their original quality.

To present the capital model we assume that value  $K_0$  is the initial capital that has been concentrated as a result of labour constituting the process of transferring energy to the products of that labour. Variable  $t$  is defined by the time arrow and indicates diffusion changes affecting the initial capital. The pace of these effects is indicated by variable  $r$ , which must take into account the complex nature of reality. The theory explaining variable  $r$  is simultaneously the theory of percentage. If  $r$  is positive, then the capital growth model looks as follows:

$$K_t = K_0 \times e^{rt}$$

where:

$K_0$  – initial capital,

$t$  – time,

$r$  – capital multiplication pace.

In that case, what is the modern theory of the  $r$  rate. M. Dobija (2005) explains this. Taking into account the spontaneous diffusion of capital, we introduce the capital loss indicator  $s$ . The  $s$  coefficient indicates the costs of risk ( $K_r$ ) to the initial capital. Hence the initial capital  $K_0$  is affected by the  $s \times t$  coefficient that causes it to decrease, i.e. causes deconcentration of the initial capital. This self-adjusting process is described by the capital loss formula while taking into account the continuity of changes:

$$K_{s,t} = K_0 \times e^{-st}$$

where:

$K_{s,t}$  – value of capital after a lapse of time  $t$ .

Human units and products are examples of objects in which concentration of energy is significantly higher than in nature. The fact that products are created as a result of production processes and this does not result in the loss of concentration of the initial capital of the employees and the enterprise, leads to a conclusion that the market awards employees and entrepreneurs with a risk premium equal to the average value of the costs of risk  $p = E(s)$  in order to balance out the impact of diffusion. We call a market with this type of characteristic an effective market. A free, effective market will balance out the natural losses

of capital with the risk premium, which, in turn, becomes the source of profit.

Therefore, we have a second relationship, which shows capital increases:

$$K_{p,t} = K_0 \times e^{pt}$$

where:

$p$  – risk premium.

In result, the capital model in a dynamic balance constitutes a synthesis of these two effects, therefore:

$$K_{t,s,p} = K_0 \times e^{E(s)t} \times e^{-st} = K_0 \times e^{[E(s) - s]t}$$

where:

$$s = K_r/K_0$$

This is a model of capital in an unstable, dynamic balance where  $r = E(s) - s$  is a random zero. This model will change into a growth model if one more effect is taken into account. That is management, i.e. the active counteraction of losses. In result we get the following model:

$$K_{t,s,p} = K_0 e^{-st} \times e^{pt} \times e^{Zt} = K_0 \times e^{(p - s + Z)t}$$

denoting  $-s + Z = s_a$  we get the model:

$$K_{t,s,p} = K_0 \times e^{p - s_a}$$

where:

$s_a = -m + Z$  – indicator of actual losses.

Hence, if the change in the  $Z$  coefficient is positive, then the value  $r = p - s_a$  is also positive, which means that the capital is increasing in accordance with the presented growth model. The loss  $s$ , being a natural manifestation of reality, is the source of risk since the capital is not maintaining its initial value (energy gets diffused). In accounting loss can be estimated by analysing the costs of risk, a category defined by D. Dobija (2001).

In accounting the costs of risk are a consequence of an economic risk. The condition  $p = E(s)$  means that there is a real possibility of preserving and then multiplying the capital through appropriate management, in particular, the reduction of the costs of risk. This management definitely forejudges about overcoming the risk and about the survival of the system (or not). Different research leads to a conclusion that the risk premium ( $p$ ) equals 8% of the value of the outlays on producing products and human resources, which, at the same time, are an example of activities accompanied by a medium level risk. This opinion is supported by research into the rates of return on capital markets, the conclusions of the Basil Committee concerning banking and the human resources account to which the eight per cent capitalisation rate applies.

## ANALYSIS OF SELECTED REMUNERATIONS ON THE BASIS OF THE HUMAN CAPITAL MODEL

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The issue of the value of wages is often discussed in theory and in practice. There is no need to emphasise its extraordinary importance in the economy (shaping the demand and supply) or the social policy (social justice). Disparities, also the present ones, are potentially conflicting and cause an increase in distrust and hostility towards those in a better situation. A conflict can break out when a given group realises the lack of force of the law concerning an uneven division of goods, privileges, rights, power and other elements of social life (Adamus-Matuszyńska 1997, p. 87). A leading role in creating social disparities is attributed to the market mechanism, although such factors as stereotypes, traditions and beliefs can also be observed. At the same time democracy is a process that offers appropriate measures, thanks to which disparities can be named and alleviated (Beetham, Boyle 1994, p. 104). One of such measures can be appropriate remuneration, i.e. in accordance with the value of human capital. Wages based on the human capital account respect the basic prerequisite of remuneration: equivalentness that ensues from the rule that labour, i.e. energy exerted, must have its source in the human capital. Hence a higher capital resource entitles one to fair remuneration, provided that labour is fully useful.

The main objective of the analysis of selected remunerations was to become familiar with the remunerations being received, expected by society and to verify these values against fair wages determined on the basis of the human capital account. Value of labour is a derivative of employed human capital, which means that labour, the performance of which calls for higher qualifications, has a greater value. This ensues from the fact that the level of basic wages depends on the size of capital of the given employee.

The analyses showed that there are close relationships between wages, costs of labour and the value of the employed human capital, when calculated using the risk premium. A new field of theoretical research and practical work is evolving, leading to remuneration systems compliant with the value of human capital of employees.

One of the basic issues is the formation of fair basic wages that satisfy the employer as well as the employee. This disparity can be solved through the human capital account. Wages determined by the human capital account guarantee the existence of employee capital, i.e. also biological reproduction.

Labour performed by an employee constitutes a transformation of his energy understood as human capital onto the product of that labour. Therefore, wages constitute an equivalent, which the employee receives as part of the market exchange. Under normal administration conditions, real

**Table 2.** Real, expected basic wages and wages compliant with the human capital account<sup>3</sup>

No.	Profession	Basic wages being received*	Fair wages according to Poles*	Minimum gross basic wages obtained through the human capital account**	
				First work year	40 – year seniority
1	Medical doctor with a specialisation	2,500.00	5,516.00	4,861.00	6,603.20
2	Nurse	1,000.00	2,860.00	1,288.80	1,750.70
3	Teacher	1,300.00	3,131.00	3,568.40	4,846.90
4	Civil servant	1,500.00	2,552.00	1,779.10	2,335.20
5	Cleaning lady	850.00	1,587.00	1,438.10	1,953.50
6	Plumber	1,700.00	2,411.00	1,477.20	2,006.60
7	Driver	1,100.00	2,881.00	1,438.10	1,953.50
8	Bank teller	780.00	2,069.00	1,719.10	2,335.20
9	Secretary	1,200.00	2,338.00	1,438.10	1,953.50
10	Mailman	900.00	2,306.00	1,438.10	1,953.50
12	Bank's president	50,000.00	6,367.00	4,338.40	5,893.20
13	Hairdresser	1,300.00	2,223.00	1,443.00	1,960.50
14	Welder	1,900.00	2,934.00	1,440.30	1,956.50
15	Miner	1,600.00	4,719.00	1,719.10	2,335.10
19	Legal counsel	14,000.00	5,118.00	4,445.50	6,038.70
20	Independent accountant	3,000.00	3,567.00	4,240.80	5,769.50
21	Judge	3,900.00	5,502.00	4,445.50	6,038.70
23	Agricultural employee	1,060.00	3,071.00	1,035.00	1,406.00

Source: \* TNS OBOP survey for Fakt, Fakt Warsaw, March 9, 2007, \*\* own work.

<sup>3</sup> Monthly costs of living adopted as the average minimum social allowance and level of bare subsistence in selected types of blue-collar households, which yields an amount of PLN 450.00 (source: [www.ipiss.com.pl](http://www.ipiss.com.pl)), this value was adopted for persons with at least a higher education, whereas for others an amount of PLN 400.00 was adopted.  
 PLN 100.00 – average cost of education for people with vocational training,  
 PLN 250.00 – average cost of education for people with middle education,  
 PLN 350.00 – average cost of education for people with higher education, starting from secondary school,  
 PLN 450.00 – average cost of education for people with post-graduate education, starting from secondary school.

Insurance percentage 20% , learning parameter 0.07.

remuneration exceeds the minimum wages determined on the basis of the human capital measuring model. The present value of the real remuneration flow is higher than the value of the normative remuneration flow – ensuing from the human capital measuring model (Dobija 2005, p. 151). This means that market values include an extra value of the employee capital. This extra capital, as D. Dobija (ibidem) emphasises, ensues from the fact that the given person has extraordinary skills, which are recognised and appraised by the market. The author calls these skills creative skills and consistently calls this type of energy creativity capital. Creativity is a sort of an attribute of human nature that guarantees it a competitive advantage. It provides an intellectual raw material: ideas, concepts, discoveries that become new tools, theories, products or services. On the individual (organisational) level, creativity is defined as a useful novelty that, if applied, may add value to a product or service (Dobija 2005, Heerwagen <http>). Creativity is perceived as a personal trait of a human being. A creative individual has broader knowledge and well-developed skills needed at work, he is flexible, can change his course of action, he can question standards and assumptions and is a discoverer.

The human capital model makes it possible to measure human capital taking into account three elements: physical energy (body), educational capital and experience capital. Wage systems, remuneration systems that guarantee that this capital will be preserved, are created on this basis. However, the above reflections on creativity indicate that another type of capital associated with creativity, but more imperceptible, may exist. However, this capital can be measured in active, competitive market conditions. What does it mean that an employee earns PLN 5,000.00 a month when the human capital account shows that he earns PLN 3,500.00? A conclusion comes to mind that the value of PLN 1,500.00 ensues from the employee's creativity, i.e. the less perceptible capital. In this case, a natural approach leads to the capital account under the assumption that creativity will be preserved in the future. Under this assumption the present value of that amount equals to PLN 225,000.00:

$$PV = \frac{12 \times 1500}{0.08} = 225,000$$

This value can be adopted as a measure of the creativity capital. The measurement of this capital naturally leads to the expansion of the human capital model by including the creativity factor.

The general measurement of the creativity capital introduced by D. Dobija looks as follows:

$$\text{Creativity capital} = PV_r - PV_n$$

where:

$PV_r$  – present value of the employee's real remuneration flow,

$PV_n$  – present value of fair wages, ensuing from the human capital measuring model

The above model can be used as a measurement of the creativity capital only if  $PV_r - PV_n > 0$ , because this measurement is always positive. A negative value will mean a certain degree of non-payment to the employee.

Inclusion of the creativity capital makes it possible to expand and to supplement the basic human capital measuring model:

$$H(T,w) = K + E + D(T,w) + K_{kr}$$

where:

$K_{kr}$  – creativity capital

It is possible to measure the creativity capital in economic terms if there are market shaping replaceable values.

As was already indicated before, the human capital measuring model makes it possible to establish the correct value of remuneration necessary to preserve the human capital of the employee involved in the labour process. By comparing this value with the real value of remunerations we will obtain a value that has not been taken into account so far, defined by the creativity capital.

## CONCLUSIONS

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Appropriate remuneration and an incentive system plays an important role in obtaining and maintaining the human capital within the entity because it is people who provide their labour, skills, creative thinking, energy and involvement. Human capital in the modern economy means not only skills learned and experience gained but also the potential opportunity to prove the effects of one's work, skills not discovered until now, aspirations, personal motivation to work, innovativeness or readiness to take risks.

The human capital theory encourages us to offer wages according to skills and competencies and assumes that investments in people causes their value to increase. Employees have a value, which they acquire and increase by investing in the process of acquiring extra knowledge and competencies by participating in courses and through development and experience. The objective determination of the value of wages is a very important motivating factor that eliminates undesirable wage spans causing a sense of wage disparity.

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Inna Bigdan

# INTELLECTUAL CAPITAL OF THE ENTERPRISES IN UKRAINE: PROBLEMATIC ISSUES OF ACCOUNTING

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*Formation of intellectual assets is  
our support in the third millenium*

S. Mosov

## Abstract

Ukraine's movement towards entering the European economic space requires a solution to the whole complex of problems, the strategic one among them being the creation of innovative economy, where the key resource is intellectual capital. At the same time, without the society's awareness of itself as a driving force of economic growth and development, it is impossible to save and strengthen the country's positions in the corresponding niches of the market in the conditions of world globalisation.

The article shows the necessity to reflect upon the intellectual capital in the national accounting system and major factors complicating this process in Ukraine. The author formulates her point of view on understanding of the economic nature of the intellectual capital, its structural components. Attention has been focused on the necessity to work out principles, approaches and evaluation methods of its cost.



## 1. INTELLECTUAL CAPITAL AS A NEW ECONOMIC CATEGORY

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The third millennium has been marked by globalisation and liberalization of the world markets, strengthening of the competition between companies for new markets or for the preservation of key positions in already taken niches of the world markets. The country's competitiveness, i.e. ability to provide stable economic growth, becomes a basic indicator of a healthy economy. According to the estimation of the World Economic Forum in 2006, Ukraine ranks 78 in general competitiveness of the countries, having lost 10 items in comparison with the previous year (Zagoruiko 2007, p. 1,7). Thus, in the second group of the factors characterising the increase of economic efficiency, higher education and professional training, it takes 48th place among 125 countries, market quality – 80th, technological development – 90th. Unfortunately, the discussion of competitiveness rating dynamics of Ukraine remains ignored by politicians and other statesmen. The country continues to use traditional factorial reserves of competitiveness – cheap labour, traditional goods export with a low added value. The way of investment-innovative development declared by the Ukrainian government remains only a declaration and nothing more.

The representatives of the scientific and business elite try to attract the attention of officials, the public and the society at large to the necessity to look for ways to an economic breakthrough for Ukraine. Competitiveness should become the main strategic objective and the state policy.

The mobilization of qualitatively new factors of development for the maintenance of a stable economic growth rate and standards and life quality of the population is required (Poluney 2006, p. 1, 7).

The world experience has shown that the driving force of the economic transformations, enabling to pass from a factorial stage of competitiveness to the economy of knowledge in a short period of time, is intellectual resources. Investments in the human capital, scientific and technological developments, maintenance of advanced business culture promote stimulation of economic growth.

For Ukraine the term “intellectual capital” is a new economic category. The term has not been mentioned in any economic dictionary. In the domestic scientific literature, the intellectual capital is more often considered as an item of the factor of innovative development of the country. The analysis of materials of scientific – practical conferences, scientific articles testifies that authors give their basic attention to the comparative analysis of treatments of the intellectual capital in foreign practice, to structural filling and its individual characteristics. At the heart of the domestic researches of the essence of the intellectual capital are research works of Russian scientists Kozyrev, Makarov, Zuyev,

Miasnikova, Prosvirina, Kilchevskaya, Pavlov, Leontiev, their views are based on works of outstanding foreign scientists – Stewart, Edvinsson, Prahalad, Sanchez, Joy, Sveiby, Petty, Fincheli, etc.

At the same time, there are few published works concerning the recognition of the intellectual capital as an object of the accounting in Ukrainian practice (Napadovskaja L.V., *The concept of domestic accounting system's further development in the conditions of economy globalization*, p. 274–281. Proceedings *Finance, accounting and audit*, Kiev 2006; Golov S.F., *The Concept of further development of accounting in Ukraine*, p. 112–118, at the same place; Legenchuk S.F., *Registration reflection of the intellectual capital*, p. 21, the Author's thesis abstract).

## 2. INTELLECTUAL CAPITAL AND REPORTING

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It is not surprising, as the recognition problem is not only of national, but also of world character. The revision of the national concept of accounting is focused today, to a large degree, on meeting the requirements of external, not internal, users and on the wasteful approach of property cost estimation. Today the traditional accounting system and the reporting in Ukraine do not meet the requirements of management. The retrospective character of the reporting indicators does not allow to make administrative decisions for the purpose of strategic management of the companies. The acting technique of an estimation, based on the principle of historical cost price, allows to form only a balance cost of the enterprises' property components and does not reflect their real market value defined by the availability and effective utilisation of the intellectual capital. "The new paradigm is aimed at transformation of thinking towards appreciation of intelligence" (Napadovskaja 2006). It should become the basic concept of further development of accounting in Ukraine.

The introduction of the intellectual capital into the accounting and reporting system in Ukraine becomes complicated for a number of factors:

- absence of a uniform approach to the concept definition of "the intellectual capital" in the scientific world;
- multistructuralism of the category of the "intellectual capital";
- integrated category of "the intellectual capital";
- variant approach of concept terminology "the intellectual capital";
- complexity of cost value both as a complete intellectual capital, and its components;
- absence of new psychological thinking in the company.

It is reasonable to consider each of them.

The first factor is the absence of a uniform approach to the concept definition «the intellectual capital» in the scientific world as it is at the

initial stage of research of the given category. As it has been noted above, many authors reduce disclosing of the contents of the intellectual capital to its structural filling. The intellectual capital is often considered as a set of different capital units: 1) human, organizational, client (Bontis, Bruking, Edvinsson, Meloni); 2) organizational culture, loyalty of consumers and a brand (Kozlovsky); 3) human capital and the structural capital, internal and external in relation to the organisation (Vaganjan); 4) human, structural, client capital (Legenchuk).

The analysis of references has shown that in most cases the intellectual capital is considered as the accumulated useful knowledge (the sum of knowledge of the company accumulated by workers, providing its competitiveness). At the same time, there is no materialised form of the concept contents of „the intellectual capital”. In our opinion, from the economic point of view, the intellectual capital is a component of resources of any company used by it in the course of realisation of an activity with the purpose of receiving certain advantages. These resources, unlike material, have no material structure though they can be expressed in the material form. Being non-material, they grow out of intellectual activity (ideas, invention, knowledge, ability of a collective of people). Hence, to introduce the intellectual capital notion into the accounting and reporting system, it is necessary to consider it as an economic category which reflects the non-material resources of the enterprise, embodied in intellectual products and competitive advantages to the proprietor on the market.

Multistructuralism of the category of „intellectual capital” requires consideration of the contribution of each of its components to the increase in the enterprise’s cost.

Issues of structural filling of the intellectual capital remain debatable. In the domestic and foreign literature, its different components are highlighted : 1) the human and structural capital; 2) the human, client and organizational capital; 3) the human capital, innovations, processes and the capital; 4) the structural capital, the capital of mutual relations and the human capital; 5) the human capital, the structural capital and intellectual property; 6) the human capital, intellectual property, the capital of relations, assets of an infrastructure, 7) the human, structural and client capital. A variety of the given structure of the intellectual capital testifies to the pursued aim and aspiration of the authors as it is possible to define more precisely its contents, „to separate the considered phenomenon from already existing one” (Prosvirina 2004).

From the accounting point of view the Ukrainian scientific developments on structurization of the intellectual capital are not sufficient. On the basis of generalisation of the scientific foreign literature its following elements are offered: the human capital, the structural capital and the client capital (Legenchuk, p. 7). The structural capital includes intellectual property, corporate culture, principles of work of collective, etc.

Such approach to division of the intellectual capital itself can be adapted to investments. For the accounting purposes it is irrational. Intellectual property is the result of intellectual activity of a person. It includes three groups of objects with distinctive features: objects of the rights of the industrial property, the authors and the rights adjacent to them, the rights to trade marks and service marks, the company name, the place of origin of the goods and services. The intellectual property has its own rules of accounting and estimation.

The remaining part of the structural capital predetermines the creative active potential of the employees, which enables to effectively utilise human capital – the corporation culture, the system of motivations, the technology of collective work, etc. It will be more correct to name this part of the capital an organizational capital according to the contents.

For the purposes of accounting it is logical to allocate the following elements in the intellectual capital:

- the human capital;
- the intellectual property;
- the consumer capital;
- the organizational capital.

Despite the structure of the components of the intellectual capital, all of them are closely interconnected and interact with one another, which has an essential impact on the creation and increase in the intellectual capital of the company. For the accounting purposes, the complexity of the given category influences the approaches and methods of cost valuation of the intellectual capital.

The multi-variant approach of concept terminology “the intellectual capital” also complicates its understanding as an accounting category. In the Ukrainian and foreign literature along with the term “the intellectual capital”, it is possible to come across the whole group of similar terms – “intellectual resources”, “intellectual assets”, “non-material resources”, “intangible assets”, “assets of knowledge”, “the capital of knowledge”. The analysis of available references shows that many of them are used as synonyms. Besides, the availability of such a variety of concepts indicates different purposes pursued by managers, appraisers, accountants. From the management viewpoint, the intellectual capital is considered as the capital of knowledge, allowing to increase a company’s market value. Therefore managers more often use the term “intangible assets” as objects of management. From the viewpoint of appraisers, the intellectual capital is considered as the intellectual resources presented by the intellectual material. Accounting in Ukraine uses the term “non-material assets”. However, the concept of “the intellectual capital” is wider as, except for intellectual property, its other part does not find its reflection in the accounting system today. Besides, according to the accounting rules in Ukraine, the enterprises attribute

the non-material objects which are not the results of creative activity to non-material assets (the right to use material and non-material property, the rights to use natural resources).

S.F. Legenchuk, in his thesis, offers to use the term “intellectual assets”. This position can be supported from the point of view of the economic essence of the given category. The intellectual capital is considered as one of the key resources of the company, so to say, of strategic character which, under skilful management, gives it its economic, social and other benefits on the market. In this context, following Ukrainian national standards of accounting, they define to a larger degree the essence of the concept “assets”.

The complexity of cost value, both as a complete intellectual capital and its components, is one of the most important accounting problems.

Researches concerning cost evaluation of the intellectual capital with the accounting purposes are in a germinal condition. Individual foreign companies try to evaluate the intellectual capital for the management and investment appeal. The estimation peculiarity is its individuality for each company. Considering the complexity and integrated approach to the category of “the intellectual capital”, it is necessary to have a system of indicators reflecting the specificity of a company’s activity. Thus, neither in Ukrainian nor in foreign literature, have we found a uniform approach to cost evaluation of the intellectual capital and its components. Principles, approaches and methods of cost evaluation of the intellectual capital have not been developed yet.

Russian literary sources describe the well-known models by Edvinson, Sveiby, Kaplan and Norton, Rodov. Each model cannot be universal, therefore the integrated estimation of the intellectual capital, by means of various factors, is used (an IC-index, K- Tobina).

The factor of an absence of new psychological thinking in the company is of paramount importance in the solution to the problem, not only for accounting, but also for the social recognition of the intellectual capital in Ukraine. Too languid discussion in mass media, few scientific publications, absence of monographies, translated domestic editions. It is necessary to change the world’s outlook stereotypes concerning mutual relations between a person and the economy. The market economy can lead to a huge emission of human energy – creative both in terms of the novelty in the company and culture, and the capital. Therefore, without the society’s comprehension of the place and the role of the intellectual capital in the modern national economy of Ukraine, the issue of the necessity of its reflection in accounting information loses any sense.

Despite difficulties in the introduction of the new object – the intellectual capital into the accounting system, the necessity to recognize the new accounting category is especially valid today for Ukrainian enterprises, and the state as a whole. The society cannot develop further using traditional sources – only natural resources. A reorientation towards

intellectual resources, the resources of knowledge, is necessary. The new philosophy of thinking is required: the intellectual capital – an integral compound in the enterprise's property whose effective utilisation leads to the growth of its market value. Hence, the intellectual capital has the right to be recognized in accounting. It is necessary to work out a new concept of the accounting policy at the state level. The classification of non-negotiable assets, accounting set of accounts requires clarification. It is necessary to work out techniques of intellectual capital cost value. The financial accounting is subject to revision as to principles of drawing up and approaches to formation of indexes.

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# INTELLECTUAL CAPITAL – VALUATION AND DISCLOSURE – ON THE BASIS OF ENTITIES’ INFORMATION SYSTEMS

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## Abstract

The aim of this paper is to present the theoretical consideration that determines future directions of empirical research in the scope of information systems which are the element of intellectual capital of every entity.

## INTRODUCTION

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As it is emphasized in the literature, knowledge-based economy is becoming a dominant paradigm of the world economy. That is why the measurement of knowledge resources owned by entities has become the condition of efficient management (see: Stankiewicz 2006). Theorists and practitioners have proved the role of intellectual capital as a factor increasing the value of a given entity. Global economy means economy of knowledge in which production factors have become only underlying holdings and intellectual capital is the factor of increase.

It is a challenge for accounting system, as a basic information system of every entity, in the scope of formation of generally accepted standards of measurement, evaluation, and reporting of so called intellectual capital, including for example information systems.



The shortage of methods of information systems measurement, which support knowledge management in an entity, determines elimination of these assets from financial statement (according to domestic and international accounting standards). The crucial meaning of information systems in management causes the necessity to inform every stakeholder of an entity about the effects of management of these kinds of assets.

The aim of this paper is to present the theoretical consideration that determines future directions of empirical research in the scope of information systems which are the element of intellectual capital of every entity.

## 1. THE SCOPE OF NOTION OF INTELLECTUAL CAPITAL

There are many definitions of intellectual capital. It is called “the wealth of an entity” or “the treasure of an entity”. Intellectual capital is understood as a factor that propels the global future economy and at the same time the key to success in the 21st century (Jaruga, Fijałkowska 2003). Intellectual capital is an economic value of two intangible categories of an entity – human organizational capital and structural capital. According to this last definition, **intellectual capital** of an entity is created by gifted staff, the loyalty of clients, brand, copyright, patent and other intellectual properties. The intellectual capital is knowledge useful for entities. Financial and intellectual capital creates market value and the power of intellectual capital is the result of the integration of its elements (see: Skrzypek 2007).

In spite of the conviction that these are intangible assets which in the greatest degree contribute to create an entity value, there is no one generally accepted taxonomy of classification of these assets or systematical reporting (Fijałkowska 2006, p. 45).

**Table 1.** An example of terminology that concerns intellectual capital

Fields of knowledge	Terms
Accounting	Intangible Assets or Intellectual Capital
Economics	Knowledge Assets Inventive Capital Creative Capital Intellectual Capital
Sociology	Social Capital Ethical Capital
Management and Finance	Intellectual Capital

Source: on the basis of literature.

The problem with identification of intellectual capital relates to both complexity of this category, which consists among other things of human resources as well as structural capital and difficulty in estimation of intellectual capital with physical measures (see: Markiewicz-Rudnicka 2007, p. 241).

## 2. EVALUATION AND PRESENTATION OF INTELLECTUAL CAPITAL

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In spite of the fact that both in literature and in virtual business the importance of intellectual capital is emphasized, there are no standards of measurement, evaluation and reporting of this capital category. The models of evaluation proposed in literature are not universal models which can be adopted by a large group of entities (Kasiewicz, Rogowski, 2006, p. 10). The correctness of evaluation of intellectual capital and its elements is determined by the specification of subject and the conditions of evaluation which means the standard according to which calculations will be made. It is necessary to specify whether evaluation concerns general value of intellectual capital of a given entity or it concerns values of individual intangible assets.

The methods of evaluation can be divided as follows:

- defining global value of intellectual capital,
- defining general value of intellectual capital as the summary of its elements value,
- defining individual value of separate intangible assets,
- defining individual value of separate intangible assets through allocation of general value of intellectual capital on its elements (Urbanek 2006, p. 262).

The choice of appropriate method of evaluation is determined by the aim of value (see Table 2).

Classical theories of evaluation claim that the real value of assets is equal discounted value of future benefits which will be the share of the owner of these assets. As the future is unknown that is why the value of benefits has to be estimated approximately with using models based on the following measurements:

- dividend,
- profits,
- cash flow.

It is worth underlining that in a virtual business some systems and models connected with evaluation of intellectual capital are gaining acceptance and are being used as internal tools of entity management as well as the sources of information for external stakeholders of a given entity (models: by value, volume, and mixed).

For intellectual capital reporting in a virtual business the following different models have been used so far Balanced Scorecard, Value Platform,

**Table 2.** The method of evaluation of intellectual capital versus the aim of evaluation

Aim of evaluation	Method of evaluation
Evaluation of an entity for the purpose of transactions	methods of evaluation of general value of intellectual capital
Evaluation of a separate asset which can be the object of transaction	methods specifying individual value of assets (for example brand, patent, copyright, technology etc.)
Evaluation for the purpose of assets management	methods of evaluation consisting of allocation of general value of intellectual capital on its elements
Evaluation of values of particular competence	method specifying individual value of assets

Source: based on Urbanek 2006.

Intangible Assets Monitor, Skandia Navigator, Cocpit Communicator™, Holistic Company Model, Company IQ, Strategy Maps. Some methods connected with quality increase have been used for evaluation. These are European Foundation for Quality Management (EFQM), Total Quality Management (TQM). These mentioned solutions were all prepared in Europe. International corporations such as Dow Chemical, IBM, CIEC, Ernst&Young have created their own models of measurement and presentation of intellectual capital (Dudycz 2002, p. 270). The description measurement (measurement of intellectual capital – so-called informer) was also generally used (see: Lebovitz, Suen in: Dudycz 2002, p. 270).

The increase in importance of intellectual capital both in theory of economy and in virtual business is a new challenge for accounting taking into consideration presentation of information about intellectual capital of a given entity. In the latest considerations some opinions have occurred that a financial report should be completed with a new element (part) which would present more complete view of an entity value by disclosing the information which has not been estimated or just ignored in traditional reports. Intellectual capital reports have been so far prepared in the form of supplement of an annual report of a given entity. In these supplements reports entity's strategy of knowledge management and activities concerns realization of this strategy were explained and documented (Fijalkowska 2006, p. 49).

It is worth emphasizing that the crucial role for intellectual capital reporting has recommendations of such organizations as Danish Agency for Trade and Industry (DATI), programme Nordika Project, and International Federation of Accountants. In the frame of Danish research programme (1998–2002) some instructions of how the intellectual capital

**Table 3.** Profits and difficulties connected with evaluation and presentation of intellectual capital

Aim of presentation	Profits	Difficulties
to show that human resources are the most important element of assets	higher transparency of information presented by an entity	intellectual capital value is subjective
to show that entity is innovative	lower costs of capital	intellectual capital property value is the result of the way it is used, it is not the result of cost of purchase
to gain new staff	higher price of shares	cost of purchase of knowledge and the potential generating this knowledge income are not connected
to show that knowledge is the most important element of entity's assets	higher level of confidence among staff and stakeholders	difficulties in capitalization in intangible assets cost because knowledge value does not decrease in time but in reverse – the longer it stays in an entity, the bigger its value is
to show that entity is flexible	to ensure long-lasting vision thanks to better communication	
to create understanding for an entity's products/ services	possibility to use intellectual capital as a marketing tool	
to complete information in financial report	reduction of uncertainty in relation to an entity future	
to specify the position of entity towards competition	make it easier to specify an entity's value precisely	
to gain new clients and hold current clients	increase in liquidity of shares market and increase in demand on entity's shares	

Source: on the base of Fijałkowska 2006, p. 42–44.

report should be constructed were accepted. According to these instructions, an intellectual capital report should consist of four elements which mirror the way of knowledge management by a given entity. These elements join the products that a given entity produces and services with these entities' demand on knowledge (Fijałkowska 2006, p. 50):

- narrative knowledge, which defines what kind of information the board of organization should possess to choose products and services of the best quality for users properly (what kind of knowledge resources are necessary for an entity to create value which is to be offered to its clients)
- challenges for management, which point at the resources of knowledge which should be strengthened through their development inside an entity or gaining them from the surrounding (business model of knowledge),
- the collection of indicators, which monitor whether initiatives are introduced in an appropriate way and whether the challenges for management are introduced.

In conclusion, benefits and difficulties connected with evaluation and presentation of intellectual capital concern such issues as shown in Table 3.

The process of management in every entity is connected with constant decisions making. The source in this process is information systems of a given entity. As it is emphasized by M. Kwiecień “new economy means that the time in which **the information is achieved** (...) has become more important than possessing money. The lack of information means the loss of possibility of rational **methodological** evaluation of activity variants” (Kwiecień 2007, p. 107). These information systems which are the source of information constitute elements of intangible assets which are not showed in entity's financial reports. Having the influence on entity's ability to generate incomes, they determine entity's market value. The possession of effective information systems is a factor that shapes so called entity's value. In this context the problem of measurement, evaluation and enclosure of entity's information systems in financial reporting gains the crucial meaning.

### 3. INFORMATION SYSTEMS AS AN ELEMENT OF AN ENTITY'S INTELLECTUAL CAPITAL

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An entity's information system can be treated as an element of intellectual capital – so called organizational capital, which determines the necessity of its enclosure in annual reports of a given entity. According to domestic and international accounting standards, they are not showed in the entity's financial report as an element of intangible assets.

The notion of an information system is equivocally defined in literature. In economic science an information system is most often defined as “the collection of procedures used to accumulate, store and spread information in order to support the process of making decisions” (Borkowski 2003, p. 15).

This system can be treated as (Borkowski 2003, p. 7):

- informal information system (collection of behaviour patterns),
- formal information system (principles, rules, official structure of knowledge),
- technical information system that describes the organization of the constant flow of information and activities connected with converting data needed for tasks implementation (it supports formal informational system).

The elements of information system are as follows (Nowicki 1998):

- sender and receiver of information – physical (people and computer systems), organizational (entity’s units) and legal (objects as formal units treated as separate wholes) information subjects taking parts in sending and changing information
- collections of information (economical information that is generated in certain spatial and time order, which has different capacity because of its place in the process of data converting, the degree of converting, form, the description of phenomena, the level of variability)
- informational channels (formalized and non-formalized channels of information flows which are recorded or informational patterns of tangible and financial flows) within an entity; defining senders and receivers of information, the place of converting and time frames)
- methods and techniques of data converting (algorithm procedures of automatic (information systems) and not automatic (traditional systems) collections of data converting.

According to another approach, information system consists of people, technical appliances, processes of organization, methods of realization of system functions and languages in which information is reproduced (Kowalczewski, Kazarko 2006).

Information systems supported by computer technology evolved from so called transactional systems to systems with mechanisms of artificial intelligence that is from transactional mechanisms through so called Management Information Systems, Decision Support Systems, knowledge-based systems etc. (see: Kwiecień 1991, Makarewicz 1996, Iwasieczko, 2007).

The information system of an entity (traditional and computer system) can be treated as an element of entity’s intellectual capital – an element of so called organizational capital, which determines the necessity to reveal it in given entity’s reports.

It is connected with the fact that there are no generally accepted standards in the scope of measurement and evaluation of this kind of assets. It needs, among other things, evaluation of effectiveness of such kinds of activities systems, analysis of costs and profits resulting from the use of computer technologies etc., along with taking into account generally accepted norms, standards, etc.

#### 4. MEASUREMENT, EVALUATION AND PRESENTATION OF INFORMATION SYSTEMS

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Methods of information systems evaluation supported by computer technology concern mainly evaluation of effectiveness of investments in this technology. These are such kinds of methods as for example (Orzechowski 2006, Komsta 2004, p. 40):

- analysis of costs and profits,
- Redl Option Valuation,
- Economic Value Added (EVA),
- Net Present Value (NPV),
- Activity – Based Costing (ABC),
- IT Balanced Scorecard (IT BSC),
- Return On Investment (ROI),
- Total Cost of Ownership (TCO).

As it is emphasized in literature, properly recorded method of measurement of information systems supported by computer technology is the audit of these kinds of systems (the audit of software, appliances, applications etc.) which can be made with accordance to international or domestic law and standards specified by certain organizations (ISACA, IIA, IEEE/ANSI etc.). The specific character of artificial intelligence technology needs another approach to evaluation of such kind of effectiveness systems, which depend on, for example life cycle of artificial intelligence systems (see: Kwiecień 1991; Makarewicz 1996).

Because of crucial meaning of informational systems as intangible assets of an entity, the description of methods of measurement and evaluation of these kinds of systems should be coherent, for example in added information or in a board of executives' report, which is an element of entity's financial report, or in another additional report.

External reporting concerning value and function of entity's intangible assets should follow direct senders' needs (stakeholders) in order to:

- reduce the gap between market value and book value of a given entity,
- improve communication among external stakeholders (sending information about the real value of an entity and its future profit and loss account),

- improve the transparency of a given entity and reduce asymmetry of information (in the aspect of corporate governance).

Some exemplary measures of factors that create entity's value which could be included in the annual report for information systems are (Marcinkowska 2000, p. 204):

- financial measures: IT investments, refund of IT investment (period of refund, NPV, IRR), IT expenses, expenses of the administration, employment, costs of IT development etc.
- non-financial measures: changes in the level of IT stock, the power of IT appliances, the time of converting, the number of computers, employers, etc.

As it is emphasized by M. Aluchna (2006, p. 87) because of the fact that investments safety depends on both many factors of macro-surrounding (economic, political, legal, institutional) and specific conditions in micro – scale, that is why one of the elements that diminish the risk – from the point of view of potential investors – is the possibility of reliable evaluation of effectiveness of activities and plans for the future that are undertaken by a given entity also in the scope of the use of informational technologies.

It is also very important from the point of view of so called Information Technology Governance which is an element of corporate governance.

The management of informational technologies which are a part of entity's informational capital (which consists of technological infrastructure, data base, network, information systems etc. (Surma 2006, p. 161)) concerns mainly such problems as (Orzechowski 2006):

- strategic adjustment of IT (Information Technology),
- effective usage and allocation of IT resources,
- IT effectiveness measurement,
- plans, future perspectives in this scope of what the subject of additional disclosure should be.

According to the authors of this paper, disclosures that concern information systems supported by computer technology should relate to processes defined in so called COBIT standard (Control Objectives for Information and Related Technology) prepared by IT Governance Institute (connected with ISACA). These disclosures should be grouped according to the following problems:

- planning and organization,
- gaining and implementing,
- monitoring of entity's IT resources.

In this standard the aim of business, criteria of system evaluation, key indicators of aim, resources necessary for the realization process (human resources, software, technologies, appliances, data) 6-degree so called model of maturity, control mechanisms, directives of separate steps of audit process etc. have been specified for each process.



**Taking the above into consideration, one should ask about the directions of empirical research in the scope of information systems which are the element of entity's intellectual capital.**

## 5. EMPIRICAL RESEARCH – MEASUREMENT, EVALUATION AND DISCLOSURE OF ENTITY'S INFORMATION SYSTEMS

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The scope of empirical research should concern methods of their measurement, evaluation, reporting, analysis of information systems as the element of entity's value, taking into consideration different aspects of construction and action of these systems, for example taking into consideration their place in social and economic systems etc. (Łobejko 2004, p. 19):

- information system as a part of social and economic system etc. (subsystem that consists of certain elements (human resources, technical appliances, information resources) of certain structure and tasks),
- information system as an integral part of a certain social and economic system etc. – as collection of tools necessary to aim at a realization or functions of systems, a part of which it is.

It is worth underlining that the information system value can be estimated taking into account such kinds of issues as:

- information technology (including computer technology) that is used,
- organization of information, computer systems,
- operational effectiveness of information systems,
- safety of information systems,
- costs of operating information systems,
- effectiveness of information systems etc.

The specification of information system value should include its quality features (quality features of information – reliability, validity, usefulness etc.; the quality of information system is determined by the quality of information itself) and quantitative features (the information system is described by means of quantitative parameters such as the cost of computer appliances, the number of staff, the number of information or signs, the capacity of memory etc.) (Łobejko 2004, p. 20).

Other approaches describe the informational system as a management device (influence on making decisions process), collection of information streams (flow of these streams through entity's units), technological process connected with realization of such functions as collecting, storage, sending, converting, providing, interpretation, using information and information system evaluation in context of its business surrounding etc. (Łobejko 2004, p. 20).

In the authors' opinion, directions of empirical research which concern information systems as an element of intellectual capital should be specified on the basis of, for example evaluation of disclosure of information about these systems in listed companies' financial reports (form, range of disclosure etc.).

## CONCLUSIONS

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Despite the fact that theorists and practitioners have proved the role of intellectual capital in creating entity's value, its definition, measurement and presentation in a financial report is still ambiguous. There is neither a single one generally accepted taxonomy of classification of intellectual capital nor systematic reporting.

Moreover, there are no standards of value measurement and reporting of intellectual capital. The models of evaluation that are proposed in literature are not universal, general, and they cannot be adopted by large group of entities. This results in inability to compare information and this aspect is very important for corporate governance.

Next, there is no generally used standard of presentation of intellectual capital information what results in the scope of information presented by individual entities.

Because of the increase in the importance of intangible assets in every entity management (especially in relation to paradigm of knowledge-based economy), the crucial problem seems to be taken into account in every entity's system – the elements of intellectual capital such as information systems which are the source of knowledge about an entity.

In case the intangible assets cannot be included in financial statement in accordance with accounting standards, additional reporting including intangible assets is necessary, for example for entity's information systems because these resources determine a given entity's value and they are the source of its competition superiority.

It is necessary to specify standards of evaluation and disclosure of data of information system which are part of so called intellectual capital such as measurement, evaluation and reporting for external users (stakeholders) especially for capital market needs from the point of view of corporate governance. It is the future for the empirical research in this scope.

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**Jacek Barburski**

# THE ROLE OF HUMAN CAPITAL IN DEVELOPING COMMERCIAL BANK ACTIVITIES

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## Abstract

Human capital plays a special role in the development of activities of each bank. Each day a large number of complex activities are carried out and a large number of difficult financial decisions are made in banks by teams of employees. Considering the constant development of banking in the world, as well as the constant increase of competition in the banking sector, the role of the human factor is bound to continue to grow.

This article presents the role of human capital as the main factor in the development of the activities of commercial banks. It consists of an introduction, three parts and a list of references.

The first part of the text presents an attempt at defining the notion of human capital as the main factor in the development of organisations.

The second part presents the question of managing the human factor in commercial banks, which includes such issues as: the basic bank operations in the domain of rational management of the human factor, staff planning and the assessment of changes in the employment level.

The final part of the article presents an analysis of the related level of employment and remuneration in the Polish banking sector in the period 1999–2007.

## 1. INTRODUCTION

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The human factor plays a very important role in the development of each organisation. This is due to the fact that – as Solow (1957) points out – changes in the quality of human capital result in an increase in productivity of an organisation, as well as an increase in the quality of

life of the society, which in turn causes the economic development to become increasingly more dependent on knowledge and its utilisation. This thesis is confirmed by numerous studies and by statistical data. The United States is a good example. The American productivity doubled every 30–40 years within the last 120 years, which led to a significant increase in the standard of living during this period of time (Nakamura 2000).

An economic subject such as a bank is considered to be a group of professionals, who carry out complex activities and make difficult financial decisions. It is beyond any doubt that in the banking sector it is primarily the team of employees that take care of the organisation of work and technological progress. Therefore, the role of the human factor in the activity of any bank will continue to grow.

The aim of this article is to present the role of human capital as the main factor in the development of the activities in a commercial bank. The text presents, among others, the questions related to basic bank activities such as rational management of the human factor, staff planning and the assessment of the changes in the employment level. Human capital also has a financial dimension to it. Therefore, the final part of the article presents the data related to the level of employment and remuneration in the Polish banking sector in the period 1999–2007.

## 2. HUMAN CAPITAL AS THE MAIN FACTOR IN ORGANISATION DEVELOPMENT

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In the relevant literature, the term “human capital” is often used as an exchangeable term with “intellectual capital”<sup>1</sup> and it is indicated as the most important component of company assets. The term “human capital” is mostly used in economic terms and in this case it refers to “knowledge assets”. This approach focuses on the costs and benefits related to the discussed category. Becker – who published his ideas on human capital in the work entitled *Human Capital* (Becker 1975) – sees human resources as a part of organisation resources and uses the term “human capital” to refer to them. The concept assumes that the value

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<sup>1</sup> Literature uses the following terms interchangeably to cover the factors, which are related to intellectual values: intellectual capital, intellectual assets, intangible values, human capital, etc. The incoherence in defining and modifying these terms results primarily from the approaches and the perceptions adopted by theoreticians and practitioners in particular domains. However, one should be aware that the notion of “intellectual capital” is always broader than the notion of “human capital”. A more detailed analysis of this subject may be found, among others, in Dobija (2003).

of work is being influenced by employees' qualifications, which can be increased by investing in competence. According to Becker, human capital may bring increased profits only when "competence accumulation" occurs, i.e. accumulation of appropriate knowledge and experience. The term "intellectual capital" is mainly used by management specialists. No matter which term is used, what the user has in mind are the incorporeal resources of a company, i.e. the resources, which have no physical or financial dimension and contribute to the generation of a stream of future profits and have significant influence on the value of the company (Dobija 2003).

Human capital is inseparably connected to human resources management. Both in organisation practice and in relevant literature, many terms are used to refer to personnel related activities, such as personnel policy, human resources administration, personnel management, staff management or human resources management. The terms refer primarily to the activities related to employees and focus on the realisation of the objectives of the employing institution (enterprise) and on fulfilling the needs of the workers (their development).

When analysing the notion of human capital, one can notice its dual role as a production factor, but also as a source of knowledge of an organisation. As a result of education and experience gathered during their work, employees acquire skills, which can be treated as a production factor, because they are used in the production process. Human capital is also the source of knowledge, which – in its accumulated form – is the source of innovation, and thus contributes directly to economic growth (Dobija 2003).

In their attempts to define intellectual capital, some authors bring up elements, which constitute this concept. According to Steward (1991), intellectual capital is the overall knowledge, which consists of such elements as: managers' skills, patents, technologies, information concerning consumers and suppliers, and experience. These are elements, which the operation of any company depends on. On the other hand, the definition provided by Hudson (1993) states that intellectual capital consists of: genetic inheritance, education, experience, attitude towards life and business. Another interesting way of defining this most frequently used category of incommensurable assets is presented by Reilly (1992). He counts the following resources among them: a) resources based on technology, b) resources related to clients, c) resources related to contracts, d) resources related to data processing, e) resources related to human capital, f) resources related to marketing, g) resources related to location, h) resources related to company value.

The definition of investments in intellectual assets established in 1992 by OECD (OECD, 1992) is a significant step in the discussion concerning intellectual capital. According to the OECD proposal, investments in intellectual assets cover all long term investments made by

companies and are aimed at increasing future results through other activities than the purchase of fixed assets. Definitions of intellectual capital were developed and made more precise later on.

The definition formulated by Croe (2000) is an example of an innovative approach. Among intangible assets he counts expenditure on new, goal oriented activities or instruments used in a given country that are aimed at the expansion of existing knowledge, at acquiring or improving the existing goods or at acquiring totally new knowledge. This results in the increase of knowledge related assets, market power and the internal power of an organisation.

Intellectual capital may also be considered in the context of organisation objectives and knowledge management systems. This approach is particularly connected to the ability of a company to realise new ideas, to introduce technological innovations, new products and services to the market, etc. Ulrich considers educated, competent employees who realise the objectives of an organisation to be the most important component of company assets (Ulrich 1998). Similar understanding of intellectual capital is found in a resource based theory of companies. According to Tecee (1998), a company can acquire competitive advantage thanks to these assets, which are non-assignable. Tecee counts location, knowledge and competence among such assets. The author adds, that intellectual capital, being the source of competitive advantage, is also the source of new values of a company.

### 3. ADMINISTRATION OF HUMAN RESOURCES IN COMMERCIAL BANKS

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According to a widespread opinion, the crucial factor that is decisive for the results of a bank is the “human factor”, i.e. the team of employees, who represent a high level of professional qualifications, who are active, efficient and act harmoniously and in accordance with the bank policy (Jaworski, Krzyżkiewicz, Kosiński 2001). This is due to the character of bank activities, as the results highly depend on the huge number of decisions that are being made continuously when granting credits, accepting deposits, carrying out operations between banks, managing cash resources, etc. These decisions can be made automatically, but it is frequently the case that they require an individual approach based on experience, good assessment of circumstances and skills in drawing conclusions. Moreover, human resources create the possibility of acquiring competitive advantage by a bank and they are counted among the most flexible assets of every bank.

Goal oriented and rational management of human resources should take the following activities into account (Jaworski, Zawadzka 2001):

- selection of employees with the essential qualifications, predispositions and personal qualities,



- determination of the number of required employees and of the structure of their professional qualifications,
- ensuring systematic training of the entire team and the possibility of specialist studies,
- assessment of work results and assignment of employees to carry out functions corresponding to their potential and skills,
- motivation of employees through suitable remuneration and bonuses,
- creation of favourable conditions for the establishment of lasting bonds between employees and the institution, integration of the entire team and the creation of an atmosphere of good cooperation.

Similar activities in managing human resources are differentiated by McNaughton, who believes that the rational management of the human factor is related to the realisation of the following four basic tasks (McNaughton 1995):

- organising effective work of the staff,
- determining the employment level and structure of qualifications,
- creating a favourable work atmosphere and culture,
- managing staff and organisational units.

The starting point of effective management of human resources consists in designing such an organisational structure of the bank, which will become the basis for realising its tasks. The adopted organisational structure should determine the general needs of the bank with respect to the number of required employees and the structure of their qualifications. It should identify the structure of subordination and the scopes of responsibility and allow for overlapping activity ranges. The structure should also define the channels that are to be used for information transfer. Rational staff selection should be directly linked to the bank policy, the program of its development and the long term financial planning. Moreover, it should be based on the assumptions adopted in the plan, concerning the level of future turnover in the main areas of bank activities, the field network structure and the anticipated work efficiency in specific sections. Staff selection must be treated in each bank as a long term investment, based on a detailed economic calculation and requiring constant corrections and updates based on changes in the environment.

The knowledge about the real demand for qualified employees helps to optimise the costs related to maintaining the indispensable level of employment. Excessive employment results in an unfounded increase of costs, both for the bank and for its clients; it hinders improvement of activities and has a negative impact on the working culture. Excessive staff should not be identified with better client service or the improvement of provided services. Neither should the employment level be excessively limited. Insufficient employment may lead to a high workload, a dispersion of competence scopes and an obstruction for the effective functioning of the bank. A bank without a sufficient number of

employees cannot realise the required tasks and the level of provided services will decrease. Similar results are caused by insufficient qualification of employees. Unqualified staff does not perform their tasks efficiently, which has a negative impact on the bank results (Szembelańczyk 1999).

Among the important components of human factor management one should obviously count staff planning, which covers the following four areas (Gospodarowicz 2000):

- work analysis,
- forecasting the demand for employees,
- forecasting human potential,
- preparation of staff plans.

Work analysis is a research process, which consists in gathering data about the work and especially about the organisational behaviour of an employee and it forms the basis for the construction of instruments, which help to achieve important objectives for staff management (Gospodarowicz 2000). Its main goal consists in the detailed examination of activities carried out at specific posts. The level of difficulty of the carried out work is determined separately for each work post, which is followed by the determination of the qualification requirements, the principles as well as the level of remuneration.

Forecasting the demand for employees is focused on verifying the required number of employees with the necessary qualifications to carry out the tasks that result from the decomposition and transformation of the strategic goals of the bank. Forecasting has both a quantitative dimension (determination of the number of employees required to occupy work posts within a planning period) and a qualitative dimension (determination of the standard qualification requirements and behaviour models). The prognoses are started at the level of each section and then they are considered within the entire organisation. During the planning process such sources are very useful for the strategy of bank operation, bank operation plans, the planning of improving the efficiency of activities, the planning of new products and services, the trends observed in the past, etc.

The forecasting of human potential in a bank consists in anticipating the changes in the status and structure of existing employment, while the preparation of staff plans concerns activities related to liquidating or minimising divergences between the desirable and the existing employment status, which contributes to the optimisation of labour costs.

The process of optimising the employment level is greatly facilitated if banks have information concerning the number and the structure of client entities, the number of maintained accounts, carried out transactions and the types of reports. Moreover, the majority of bank services have a standard and repeatable character, which allows the services that have been carried out in the past to be analysed in order to prepare

prognoses related to particular operations. Various quantitative techniques are applied to forecast the employment level. Three techniques are considered to be the most efficient: labour consumption analysis, interdependence analysis and modelling (McNaughton 1995).

The determination of the number of employees allows one to prepare a labour force balance, which covers the following “headquarters” sections and “back-up” sections (broken into operational departments) (Jaworski, Zawadzka 2001):

- the actual status of the crew at the moment of balance preparation,
- the natural staff losses,
- the calculated status of the crew at the end of particular years of a planning period,
- the team supplementation, indispensable to compensate for the losses and fill new posts in the case of planned expansion of organisational structures.

The appropriate assessment of the changes of employment level creates the need to adopt appropriate criteria in the form of work efficiency indexes. Usually they are calculated on the basis of (Jaworski, Zawadzka 2001):

- the amount of assets of the bank or the entire banking system, expressed in current or fixed prices for a given year, corresponding to one employee,
- the amount of gross profit or net profit corresponding to one employee,
- the number of bank accounts corresponding to one employee.

At this point, one should also take into account the fact that changes in the work efficiency level in successive periods may result from:

- an actual efficiency increase due to the introduction of organisational or technical improvements,
- a change in the specialisation profile and the scope of bank activities,
- a totally new situation of the bank resulting from a bank merger and internal reorganisation, hardly comparable to the previous situation.

Changes occurring in the banking sector create the need for a constant improvement of qualifications of the people employed in banks. Improvement of qualifications is strictly related to the need of providing clients with the banking services and products of the highest quality. For this reason banks organise training courses for their entire staff, from the managerial staff to the basic staff. Moreover, increased requirements posed for bank employees and increasing specialisation bring along the need to determine clear and uniform criteria for the assessment of employees’ qualifications. For this reason Western European banks developed in the seventies the so-called qualification standards for each post, which determine the knowledge, skills and predispositions

required of an employee working in a given field of specialisation. In Poland qualification standards were prepared in 1996. During this process three levels of professional qualifications were singled out:

- an independent banking employee,
- an certified banking employee,
- a banking specialist.

On the other hand, the specialist related standards were divided into the following specialisation domains:

- organisation and management,
- home banking operations,
- international banking operations,
- banking accountancy,
- credit and fundamental analysis,
- cash and capital market,
- banking marketing,
- banking information and IT,
- legal services in banking.

Apart from qualifications, proper motivation of employees is an indispensable condition of efficient work. Skilful motivation belongs to the most important tasks faced by managerial staff. Among numerous motivation methods, an appropriate remuneration system plays the most important role. Satisfactory remuneration not only encourages to carry out the assigned tasks well, but also has an impact on the stabilisation of the staff in banks.

Modern staff management systems also indicate the need to establish bonds that connect a team to its bank, to integrate teams and establish good cooperation between employees. Practice shows that employees perform their tasks better if they see their own interests interlinked with the interests of the employing institution and if they work in a favourable atmosphere.

The development of banking in Western Europe towards the end of the sixties led to significant changes in the system of managing commercial banks. The introduction of new solutions was accompanied by an increase in requirements related to the managerial staff. On the other hand, the development of competition in the banking sector created the need to increase the level of servicing bank clients, which was also related to the need to increase employees' qualifications. Simultaneously, banking development in these countries was linked to the expansion of the network of bank agencies, which was correlated with an increased number of employees. According to OECD data for the period 1960–1980, the number of employees in the banking sector increased more than twice. In the period 1980–2000, due to intensified competition and faster technological progress, the number of employees decreased. The possibility of reducing the staff was also created due to mergers, take-overs and acquisitions of smaller or financially weaker banks. In Poland the

development of competition was much weaker than in Western Europe and it did not force banks to reduce the number of employees or to reduce the level of labour costs.

#### 4. EMPLOYMENT AND THE LEVEL OF REMUNERATION IN THE POLISH BANKING SECTOR IN THE PERIOD 1999–2007

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The number of employees in the Polish banking sector varied between 174748 (2004) and 174748 (1999) employees. Two clear trends can be observed in this period. Between 1999 and 2004 a constant decreasing tendency can be observed (a decrease of 14.39%), while the employment level continued to increase every year in the period 2004–2007. The increase reached 6.53 %. In the analysed period the same trends can be observed with respect to the level of employment in commercial banks, i.e. there was a decreasing trend up to 2004 (a decrease of 18.47 %), while the employment increased later on (by 6.70 %). On the other hand, an increase in the employment in cooperative banks in the analysed period can also be observed.

Good financial results and development perspectives – especially the extension of operative activities related to the growing demand for credits among households and enterprises – contributed to the increased level of employment in commercial banks and in the entire banking sector. Employment grew primarily in the dynamically developing middle sized retail banks, which operated in the segment of real estate loans and consumer credits.

Table 1 shows the employment level and its dynamics (recalculated per fulltime employment) in the Polish banking sector in the period 1999–2007.

The role of the human factor in the activities of each bank is expressed in a particular manner in the financial dimension. As can be concluded from the publication of the Association Belge des Banques (1992), in some countries it is not the real costs, but the personal costs that constitute the predominant part of the general costs of each bank. For instance, in 1993 they constituted about 62% in France and 70% in Belgium and Italy of the total general costs. In Poland the personal costs reach a lower level, which is probably due to a lower general level of remuneration in our country compared to the countries of Western Europe. The level of remuneration related costs (including overheads) incurred by the Polish banking sector in the period 1999–2007 is presented in Table 2.

Due to the considerable share of personal costs in the general costs, each bank must rationalise costs related to employment in order to maintain its competitive advantage and economic efficiency. In the

**Table 1.** The number of people employed in the Polish banking sector (excluding foreign branches) in the period 1999–2007

Year	Banking sector		Commercial banks		Cooperative banks	
	Number	Dynamics	Number	Dynamics	Number	Dynamics
1999	174 748	100.00	149 638	100.00	25 110	100.00
2000	169 934	97.25	144 237	96.39	25 697	102.34
2001	165 225	94.55	138 822	92.77	26 403	105.15
2002	158 697	90.81	131 878	88.13	26 819	106.81
2003	151 254	86.56	124 093	82.93	27 161	108.17
2004	149 605	85.61	122 005	81.53	27 600	109.92
2005	152 954	87.53	124 689	83.33	28 265	112.56
2006	157 923	90.37	129 021	86.22	28 902	115.10
III.2007	159 380	91.21	130 178	87.00	29 202	116.30

Source: Synthesis of the report on the condition of the banking sector in 1st quarter of 2007 published by the General Inspectorate of Bank Audit of the National Bank of Poland, Warsaw, July 2001, and calculations of the author.

**Table 2.** The cost of remuneration against the costs of bank operation in the Polish banking sector in the period 1999–2007 (current prices in millions of PLN)

Year	Banking sector			Commercial banks			Cooperative banks		
	Bank operation costs	Remuneration costs including overheads	3/2 in %	Bank operation costs	Remuneration costs including overheads	6/5 in %	Bank operation costs	Remuneration costs including overheads	9/8 in %
1	2	3	4	5	6	7	8	9	10
1999	12415.3	7079.7	57.02	11439.4	6349.2	55.50	976.0	730.6	74.86
2000	15365.4	8248.0	53.68	14153.3	7375.3	52.11	1212.1	872.7	72.00
2001	15909.4	8902.3	55.96	14544.8	7881.8	54.19	1364.6	1020.5	74.78
2002	16289.3	8811.0	54.09	14850.6	7747.1	52.17	1438.7	1063.9	73.95
2003	16079.7	8813.6	54.81	14620.0	7748.2	53.00	1459.7	1065.4	73.99
2004	16497.8	9058.7	54.91	14952.9	7933.2	53.05	1544.9	1125.5	72.85
2005	17548.7	9835.7	56.05	15898.5	8636.8	54.32	1650.3	1198.9	72.65
2006	18975.3	10725.6	56.52	17233.0	9460.2	54.90	1742.3	1265.5	72.63
III.2007	4852.9	2740.5	56.47	4428.9	2430.4	54.86	424.0	310.1	73.14

Source: Financial condition of banks in 2006 (2000, 2002, 2004), Synthesis published by the General Inspectorate of Bank Audit of the National Bank of Poland, Warsaw, June 2007; Synthesis of the report on the sector condition..., op. cit., and the author's calculations.

Polish banking sector in the period 1999–2007 the level of remuneration related costs (including overheads) compared to the bank operation costs, reached the level between 53.68 % (2000) and 57.05 % (1999). In the case of commercial banks, the share was slightly lower and reached the level between 52.11 % (2000) and 55.50 % (1999). Commercial banks diverged considerably from these levels. The costs of remuneration in these banks, compared to the operational costs of banks, reached the level between 72.0 % (2000) and 74.86 % (1999) – see Table 2.

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PART V

METHODS  
AND MANAGING



Piotr Wójtowicz

# OBJECTIVITY OF INCOME OF POLISH COMPANIES LISTED AND VOLUNTARY ADOPTION OF IFRS

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## Abstract

The aim of the paper is to identify characteristics and trends of the differences between values disclosed in unaudited and audited income statements of Polish listed companies voluntarily disclosing in accordance with IFRS. The main question concerns direction, frequency and materiality of adjustments of profit/loss from sales (*PLS*) and the net income (*NI*). The sample consists of 46 companies listed on Warsaw Stock Exchange in the period of four years from 2003 to 2006, voluntarily reporting in accordance with IFRS from the year 2005.

Generally, the shift from AA to IFRS increased the objectivity understood as a consensus of the values reported in financial statements. It seems that the key drive of objectivity is not the set of standards but the desire to manage earnings and especially to avoid losses. This conclusion is based first on the higher percentage of material increases of the net losses than decreases of the net profits. The second result supporting such hypothesis is an abnormally high percentage of material increases of the net losses after the audit in case of companies making profit on *PLS* level. The number of such observations (3) was very small in relation to the number of observations in the sample (46 companies, 184 observations), but on the other hand, in two cases the auditors not only changed the value of *NI* materially but also its sign: from profit to loss. The related financial statements were prepared in accordance with AA.

## 1. INTRODUCTION

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For many years accountants have been searching for some criteria which can be used to choose the best accounting system. They wanted to find

some methods contributing to a disclosure of information which is “true and fair”. Nowadays there exists a strong pressure to move from the historical cost valuation to fair value valuation. The IASB has decided that financial statements should use fair value, which is the form of current valuation. Such valuation rules have been analyzed and debated in many works, for instance Edwards, Bell 1961; Sterling 1971. But as one of the opponents of the unified fair valuation has pointed out fairness is a personal judgment not a valuation rule (Sunder 2007).

According to S. Lim and S. Sunder (1991), the “goodness” of accounting system, which is in fact a theory of valuation, depends on many factors. When prices change and the price data is subject to errors of measurement, neither the current valuation rule nor the general-price-level valuation rule is necessarily the minimum mean squared error estimator of the unobserved economic value of company assets. Instead, the most accurate valuation is likely to be attained by using specific price indexes at an appropriate level of aggregation. If the error of measurement is sufficiently large, the historical cost valuation may provide a statistically more accurate approximation of the unobserved economic value of assets than it is provided by the current valuation. In general, no valuation rule dominates other.

The aim of the paper is to identify characteristics and trends of the differences between the values disclosed in unaudited and audited income statements of Polish listed companies voluntarily disclosing in accordance with IFRS. More precisely, the main question being looked at in this paper concerns the objectivity of profit/loss from sales and the net income expressed in terms of direction, frequency and materiality of auditors’ adjustments. The findings of the author’s previous research revealed a tendency to increase revenues and decrease expenses so as to inflate the figure of income (Wojtowicz 2006). Furthermore, the managers of the companies listed on Warsaw Stock Exchange manage earnings to avoid losses (Wojtowicz 2005).

## 2. OBJECTIVITY AND PRINCIPLES-BASED VS. RULES-BASED ACCOUNTING

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Objectivity understood as a consensus or agreement on the values reported in financial statements was introduced by W.A. Paton and A.C. Littleton (1940). They claim that objectivity is reached when the measurement results are free from personal feelings and judgment of the measurer and they conclude that such results can be attained only in case of the historical cost measurement. The concept of objectivity was developed and formalized by Y. Ijiri and R.K. Jaedicke (1966). They have defined objectivity as (Ijiri, Jaedicke 1966, p. 477):

$$V = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2 \quad (1)$$

where:

$n$  – the number of measurers in the reference group,

$x_i$  – the quantity that the  $i^{\text{th}}$  measurer reports,

$\bar{x}$  – the average of  $x_i$ 's over all measurers in the reference group.

Objectivity is not the same as usefulness. A highly objective value, for instance cash balance may not be useful in predicting market value of the company. As R. Sterling (1970, p. 110) pointed out, objectivity (in his terms: precision) is desirable, but it is not the same as verity. The agreement between measurers is not the ultimate criterion of truth. Y. Ijiri and R. Jaedicke define reliability as a quality of the accounting information system. Reliability is defined as “the degree of closeness to being right”. A user of accounting measurement is interested in it only insofar as the measurements give data which is helpful in his decision process. Reliability is defined as (Ijiri, Jaedicke 1966, p. 481):

$$R = \frac{1}{n} \sum_{i=1}^n (x_i - x^*)^2 \quad (2)$$

where:

$x^*$  – the alleged value of  $X$ .

In practice the alleged value of  $X$ ,  $x^*$  is never known. If we knew this value, for example “the right” value of income, we would not create a complicated and costly accounting system, which in fact helps us to estimate it only. But we do not know  $x^*$ , so we take the task of creating an accounting system and preparing financial statements.

Reliability of the accounting system,  $R$ , is the sum of its objectivity,  $V$ , and bias  $B$  (Ijiri, Jaedicke 1966, p. 481):

$$R = V + B \quad (3)$$

where:

$$B = (\bar{x} - x^*)^2.$$

Formula (3) means that reliability  $R$  is always greater than or equal to objectivity  $V$ . Reliability of an accounting system can be equal to objectivity if and only if the alleged value is equal to the means of all measured values. It is obvious that the most objective measure is not necessarily the most reliable one. It is so because an accounting system with a high degree of objectivity can generate biased information<sup>1</sup>. Which is more important – reliability or objectivity? The choice is obvious – reliability. One way to improve the degree of reliability may be to sacrifice objectivity if the bias can be made much smaller. Objectivity cannot be

<sup>1</sup> An extended discussion of this problem is presented in Ijiri, Jaedicke 1966, p. 482–483.

the sole criterion for selecting accounting measurement systems. Even if the adjustments made by auditors are occasional and not material, the user cannot be sure that financial statements are reliable, i.e. the data disclosed is not biased. One possible reason for bias is a precise but wrong standard. The other possible reason for generating biased but objective information is an error or fraud made by the preparer of financial statement, but not identified by the auditor.

In recent years breakdowns in financial reporting have prompted discussion about changes and reforms needed to provide assurance that financial statements will be accurate and transparent. Rules-based standards, sometimes referred to as “the cookbook approach”, attempt to tell the preparer of financial statement what to do. In contrast, principles-based standards attempt to tell the preparer and auditor not what to do, but how to decide what needs to be done (Alexander, Jermakowicz 2007). It means that rules-based standards emphasize the role of objectivity while principles-based standards put more emphasis on reliability. D. Alexander (1999) distinguishes three levels of accounting regulations summarized in Table 1.

**Table 1.** Levels of accounting and financial reporting regulations

Type	Content	Examples
A	A generally expressed all-pervasive fundamental concept	True and fair view, fair presentation, reflection of the underlying economics, nonmisleadingness
B	A set of notions, conventions or ways of thinking which are to be consistently applied to situations both familiar and unfamiliar	U.S. Statement of Financial Accounting Concepts, U.K. Statement of Principles, The IASB Framework
C	The detailed provisions of specific methods for the treatment of all expected problems and situations	The French plan comptable, German company laws together with tax regulations, a Soviet style chart of accounts and related instructions and forms, U.S. GAAP hierarchy

Source: Alexander, Jermakowicz 2006, p. 138.

The ideas of Type A and Type B are generally regarded as principles, but there is a distinction between them. What is more, there are degrees of “principle-ness” within Type B (Alexander, Jermakowicz 2006). The ideas of Type C are rules, but again there are more or less detailed rules. Perhaps the most important point is that researchers (Alexander 1999; Nobes 2005; Alexander, Jermakowicz 2006) failed to distinguish clearly between principles and rules. Benston et al. (2006) argue that fair



value combined with highly promoted assets and liability view is inconsistent with principles-based standards because it requires significant guidance for management judgment.

The prime legal requirement for financial reporting in the European Communities (EC) is that financial statements must give a “true and fair view” (TFV) of the company’s state of affairs and financial results. The TFV legal requirement for financial reporting has been established as a concept in European law by means of the Fourth Company Law Directive (Directive 78/660/EEC) and later extended to consolidated accounts by means of the Seventh Company Law Directive (Directive 83/349/EEC). Article 2 of the Fourth Directive “in exceptional cases” requires from the preparers of financial statements to depart from the provisions of the directive in order to give a true and fair view (true and fair override).

The implementation of the TFV legal requirement in the EC Member States has been complicated by differences in their legal and accounting systems as well as by translation challenges. Article 2 of the Fourth Directive has been transposed in the national legal systems of the EC Member States in different ways. In particular, the override clause has not been transposed in the legislation of Germany, Austria and Sweden (Alexander, Jermakowicz 2006). This overriding requirement can also be traced into IAS No. 1 *Presentation of Financial Statements* (par. 17 and 21, Regulation (EC) No 2238/2004 of the European Commission). IAS No. 8 *Accounting Policies, Changes in Accounting Estimates and Errors* defines accounting policies as the specific principles, bases, conventions, rules and practices applied by an entity in preparing and presenting financial statements. It means that accounting system in a given company can include solutions not specified in IFRS, however, as it is stated in IAS No. 1 in virtually all circumstances, a fair presentation is achieved by compliance with applicable IFRSs.

IFRS have been introduced to Polish accounting practice on the basis of European Community law, i.e. by Regulation (EC) No 1606/2002 of the European Parliament and the Council on the application of the international accounting standards. This Regulation caused amendments to the Accounting Act (AA), so there are three groups of entities preparing financial statements in Poland.

The first group is banks and issuers of securities traded on one of the regulated markets of the European Economic Area are obligated to prepare consolidated financial statements in accordance with IFRS (Art. 55 of AA) for the financial years beginning on January 1st, 2005 or later.

The second is a group of entities for which the preparation of consolidated financial statements in accordance with IFRS is voluntary. This group covers issuers of securities intending to file for admission or issuers of securities pending admission to trade one of the regulated markets of the European Economic Area and entities being a part of a

capital group where a higher-level parent company prepares consolidated financial statements under IFRS (Art. 55 of AA).

The third group is issuers of securities admitted to, issuers of securities intending to file for admission or issuers of securities pending admission to trading one of the regulated markets of the European Economic Area and entities being members of a capital group in which a parent company prepares consolidated financial statements under IFRS, may prepare financial statements in accordance with IFRS (Art. 45 of AA).

A decision with respect to the preparation of financial statement in accordance with IFRS shall be taken respectively by the body approving the statement or by the approving body of the parent company.

For the rest of companies whose registered office or place of executive management is located on the territory of the Republic of Poland accounting regulations cumulate in the Accounting Act, which in fact is an example of rules-based accounting system. The spirit (or meta-rule) of IFRS system – TFV requirement – is present only *de jure* in AA. Art. 4 of AA states that entities are required to apply the adopted accounting principles (policies), truly and fairly presenting their financial position and financial result. Events, including business transactions, are recognized in the books of accounts and presented in the financial statements in accordance with their economic substance. However, according to art. 3, par. 11, point 11, “adopted accounting policies” means accounting solutions allowed by the Act selected and applied by an entity, including those specified in IFRS<sup>2</sup>, ensuring the required quality of the financial statements. It means that departure from AA is forbidden in case of companies preparing financial statements in accordance with it. Furthermore, Polish accounting practice depends heavily on Corporate Income Tax Act regulations (Kosmala 2005; Sikorska 2007).

The possibility of shifting from AA to IFRS in case of not consolidated financial statements together with substantial differences between these sets of accounting regulations leads to the question about the change of objectivity understood as a consensus between values reported in unaudited and audited financial statements. The hypothesis is that shifting from AA to IFRS changes objectivity, however, it is hardly possible to specify *ex ante* direction of this change.

According to art 65 of AA, an audit of financial statements is aimed at expressing by a statutory auditor a written opinion together with a report on whether the financial statements are correct and give a true and fair presentation of the property and financial position and the financial

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<sup>2</sup> Of course, in case of companies preparing financial statements in accordance with IFRS.

result of the audited entity. The auditor's opinion should state whether the audited financial statements (order original, as in AA):

- have been prepared on the basis of books of accounts kept in a proper manner;
- have been prepared in accordance with accounting policies specified in the Act;
- comply in form and contents with the legal regulations applicable to the entity;
- give a true and fair presentation of all information material for the assessment of the entity.

The term "correct" is not explained in AA, but Norm No. 1 of Professional Conduct for Auditors (par. 12) states that financial statement is correct when it is consistent with:

- adopted accounting policies, i.e. that it has been prepared in accordance with AA and related regulations specified by a given Minister for companies preparing financial statements in accordance with AA,
- IFRS, and AA and related regulations in case of problems beyond the scope of IFRS for companies preparing financial statements in accordance with IFRS.

In case of AA, preparers are, first of all, required to apply the accounting solutions allowed by the Act and selected and applied by the management of an entity. Auditors are then expected to confirm the existence of accounting policy and compliance with it. Preparers of financial statements within IFRS system are expected not to follow strict rules, but to give *true and fair view* of economic situation of the company. It means that compliance with applicable IFRSs is necessary but not sufficient condition to achieve TFV and the auditor's opinion will depend on more complex set of conditions.

### 3. SAMPLE SELECTION AND RESEARCH DESIGN

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The regulations mentioned above lead to the conclusion that not consolidated financial statements of companies listed on Warsaw Stock Exchange can be voluntarily prepared in accordance with IFRS. According to art. 64 of AA, yearly financial statements of all listed companies (among others) have to be audited. Listed companies are also obligated to prepare quarterly financial statements. Related regulations are included in the *Decree of Board of Ministers on Current and Periodic Information Emitted by Issuers of Securities*. Listed companies are obligated to issue quarterly reports consisting of all financial statements. These statements have to be prepared in line with all accounting regulations of end-of-the-year statements (art. 96 of the Decree). The dates of issuance are up to the company, but these dates have to be set fixed once a year. The report for a given quarter cannot be issued later than on 35th

working day starting from the end of the quarter and it does not have to be audited.

The data consists of unaudited and audited, not consolidated financial statements of production, merchandising and service companies listed on Warsaw Stock Exchange. Banks, insurance companies, national investing funds (NFI) and companies rendering financial services were excluded. The period covers financial years from 2003 to 2006. Financial statements for the years 2003 and 2004 were prepared in accordance with AA and for the years 2005 and 2006 in accordance with IFRS. The sample consists of 46 companies whose unaudited financial statements are available in the *Notoria Serwis* databases. The sample was not randomly chosen from the entire population. Such a way of sampling means that the sample cannot be representative, but it is not known whether it is or not.

An analysis of the value of profit/loss from sales (*PLS*) and the net income (*NI*) was carried out. *PLS* is calculated by matching net revenues from sales of goods, products and materials and the cost of sold products, goods and materials plus selling and general administrative expenses. *PLS* is the “bottom-line” of a company financial result because it measures the result from its basic operating activity.

One of the possible quantitative aspects of the adjustments is the frequency. The frequency may be used to identify any trend in time. The second issue related to frequency is how the categories flow over time. The decreasing number of adjustments may reflect the growth of objectivity although the fact that any category is often adjusted does not mean that it is not objective. It is possible that given category of income is adjusted for almost every company but adjustments may be non-material, so there is a need to evaluate materiality of adjustments.

Direct comparison of the figures of income is impossible because companies belonging to the sample are of different sizes. Some of them are small or medium; there are also some blue chips of WSE. In order to make the comparison reasonable the value of *NI* before (PRE) and after (REW) the audit for every company-year was divided by a total value of its audited assets at the beginning of the year:

$$NILA_{i,t} = \frac{NI_{i,t}}{A_{i,t-1}} \quad (4)$$

$NI_{i,t}$  – the net income of a company  $i$  for a year  $t$  (unaudited and audited, respectively),

$A_{i,t-1}$  – lagged assets of a company  $i$  for a year  $t$  (audited).

The difference between the values of  $NILA_{i,t}$  before and after the audit permits also a rough analysis of materiality of adjustments.

Materiality of adjustments is the key issue in this research because non-material adjustments can be regarded as non-relevant by investors.

The question what is material is difficult to address and it is one of the main questions asked by auditors. Here, as in the studies (Adams et al. 1999; Street et al. 2000) the index of comparability (*CI*) is used to identify material adjustments. The materiality threshold has been set in two main bands: 5% and 10%.

*CI* is computed as follows:

$$CI = 1 - \left\{ \frac{(x^{\text{REW}} - x^{\text{PRE}})}{\text{abs}(x^{\text{REW}})} \right\} \quad (5)$$

$x^{\text{REW}}$  – the audited value of a given item for the given company-year,

$x^{\text{PRE}}$  – the unaudited value of a given item for the given company-year,

$\text{abs}(x^{\text{REW}})$  – the absolute value of  $x^{\text{REW}}$ .

The *CI* yields a value of 1 when unaudited and audited values of income are the same. The frequency of the adjustments was evaluated with the percentage of companies having the *CI* equal to 1. If the index is below 1, unaudited value of income is lower than audited and therefore auditor increased disclosed value. If the index is above 1, audited value was lower than unaudited, thus the income was decreased by the auditor.

There are some limitations concerning index of comparability as a relative measure. The value of *CI* will greatly differ from 1 when the difference between  $x^{\text{REW}}$  and  $x^{\text{PRE}}$  is high, but when audited value is close to zero the adjustments can be artificially material. The *CI* should be used only on ratio scale while any level of income is measured on interval scale and for this reason it can have negative values. This quality of *CI* requires paying special attention to results, especially when the income changes its sign after the audit. In case of the loss the *CI* has to be interpreted carefully. The value of *CI* lower than 1 means that audited value of income was higher than unaudited, so the auditor reduced the loss (value of the loss is closer to zero). The value of *CI* higher than 1 means that audited value of income was lower than unaudited and therefore the loss was increased by an auditor.

## 4. RESULTS

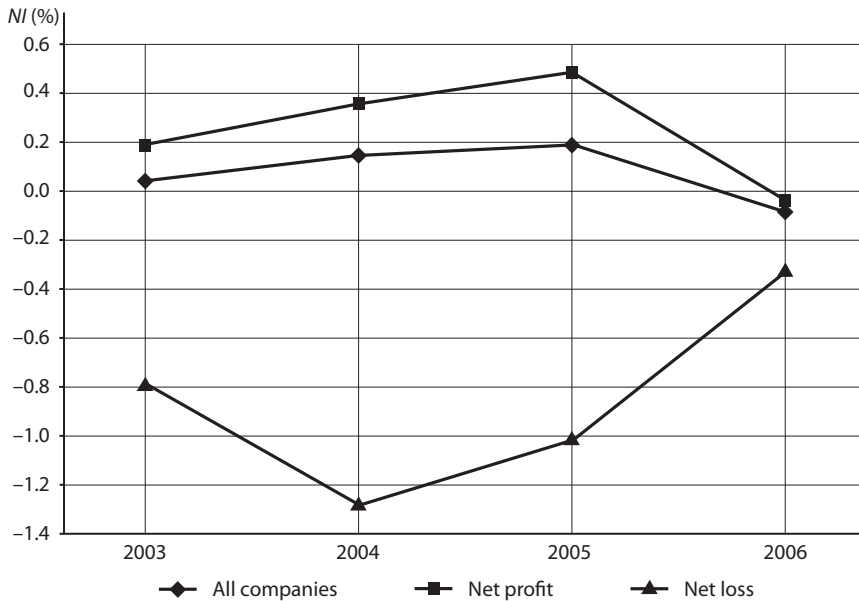
Table 2 shows mean and median of scaled unaudited (PRE) and audited (REW) net income (*NI*). A glance at Table 2 reveals that there are differences between means as well as medians of scaled values of the net income. There is one company which was excluded as an outlier from this part of analysis. In the year 2004 *NILA* for this company was equal to  $-2.28$  PRE and  $-2.29$  REW and in the year 2006  $-4.11$  and  $-4.48$ , respectively. Before the exclusion of this company means values were misleading.

**Table 2.** Mean and median of unaudited (PRE) and audited (REW) *NI* scaled by lagged assets

Year	PRE		REW		Differences REW-PRE	
	Mean %	Median %	Mean %	Median %	Mean %	Median %
Panel A: All companies						
2003	4.07	3.14	4.11	3.96	0.041	0.818
2004	7.49	6.28	7.62	6.06	0.132	-0.216
2005	6.09	4.53	6.28	4.93	0.189	0.400
2006	8.25	9.03	8.16	9.01	-0.092	-0.012
Total	6.52	4.93	6.63	4.89	0.113	-0.044
Panel B: Companies reporting net profit						
2003	6.03	3.79	6.21	4.16	0.186	0.364
2004	9.73	7.96	10.08	8.34	0.350	0.377
2005	10.08	8.13	10.56	8.88	0.483	0.751
2006	11.59	9.64	11.54	9.65	-0.050	0.012
Total	9.33	7.19	9.57	7.36	0.241	0.166
Panel C: Companies reporting net loss						
2003	-6.83	-4.80	-7.60	-5.27	-0.768	-0.472
2004	-7.10	-3.05	-8.39	-3.67	-1.285	-0.624
2005	-10.33	-8.22	-11.35	-9.04	-1.022	-0.813
2006	-9.83	-5.29	-10.15	-5.86	-0.321	-0.572
Total	-8.80	-5.11	-9.39	-5.60	-0.590	-0.492

The values of the differences between means and between medians fluctuate from year to year in every panel. The fluctuation and average level of the difference are the highest in panel C consisting of companies reporting the net loss. It suggests that managers of these companies try to manage earnings to avoid losses. In the years 2004 and 2005 the absolute differences are higher than 1% (Figure 2), so adjustments of the net losses can be material. The difference drops dramatically in the year 2006 in every panel and it means the increase of objectivity.

Companies have been divided into two groups: reporting the net profit after the audit – new Panel A; and reporting the net loss after the



**Figure 1.** Differences between mean *NI*s scaled by lagged assets

audit – new Panel B. Table 3 shows descriptive statistics of comparability indexes for profit/loss from sales (*PLS*) whereas Table 4 shows descriptive statistics of the *CI* for *NI*. It has to be mentioned that in case of two observations (two companies, years 2003 and 2004) the signs of the net income have changed and the direction of change is characteristic – from the profit before the audit to the loss afterward. In case of two different companies (years 2004 and 2005) there is a change of the sign of *PLS*, but in opposite direction – from the loss to profit.

As Table 3 shows, in every panel and in every year the mean value of *CI* for *PLS* differs significantly from median. The higher the difference, the more likely some extreme values are. In panel A there is  $CI = -10.69$  (change of the sign of *PLS* from the loss to profit) for the year 2004,  $CI = 5.29$  and  $CI = 2.29$  for the year 2005. In panel B there is only one outlier,  $CI = -2.76$  (again a change of the sign of *PLS* from loss to profit) for the year 2005. Related mean values in Table 3 are marked with a gray background. Median is not sensitive to outliers and for this reason its value equaled to 1 reflects expected value of *CI* better. Generally, median means that adjustments of *PLS* are equal to zero although there is a considerable number of companies with probably material adjustment.

The frequency of adjustments is evaluated by means of mode, which is equal to 1. Column “# of Mode” shows a number of companies with *CI* for *PLS* equal to 1 and column “% of Mode” shows this number in relation to the number of the companies in the subsample. Surprisingly, the value of *CI* equal to 1 is most frequent (42% in total) in case

**Table 3.** Descriptive statistics of comparability index for *PLS*

	N	Mean	Median	Mode	# of Mode	% of Mode
Panel A: Companies reporting net profit						
2003	39	0.995	1.000	1	9	23
2004	39	0.709	1.001	1	10	26
2005	37	1.189	1.000	1	9	24
2006	38	1.013	1.000	1	8	21
Total	153	0.973	1.000	1	36	24
Panel B: Companies reporting net loss						
2003	7	1.092	1.000	1	3	43
2004	7	1.044	1.000	1	2	29
2005	9	0.606	1.000	1	5	56
2006	8	0.961	1.000	1	3	38
Total	31	0.907	1.000	1	13	42

of companies making losses while only 24% of profitable companies do not report any adjustment of *PLS*. Contrary to *ex ante* expectations, it means that *PLS*, being a “bottom line” of company profitability, is more frequently exposed to management discretion in case of profitable companies. Nevertheless, in the total sample (not shown in Table 3) only 27% of companies do not report any *PLS* adjustment. The fraction of such companies is stable from year to year in panel A, but it goes up and down in a wave in panel B. This conclusion, although provisional at this stage, does not support the hypothesis that voluntary disclosure in accordance with IFRS changes objectivity of *PLS*.

Similarly to Table 3, Table 4 shows that in every panel and in every year mean values of *CI* for *NI* differ from medians, but the differences are not as significant as they are in case of *PLS*. Median is different from 1 once in panel A and in panel B in every year as well as in total. Again there are four outliers. In panel B there are  $CI = 2.51$  for the year 2004 and  $CI = 2.08$  for the year 2003. In both cases there has been a change of the sign of *NI* from profit to loss. In panel A there is  $CI = 2.11$  for the year 2003 and  $CI = 5.14$  for the year 2005 (related means marked with a gray background).

The last outlier is very characteristic and worth describing. The company made a loss from sales for the year 2005 equal to 999 thousand zł before the audit and 998 thousand zł afterward. This loss was material because it was 2,2% of total assets at the beginning of the year.



**Table 4.** Descriptive statistics of comparability index for *NI*

	N	Mean	Median	Mode	# of Mode	% of Mode
Panel A: Companies reporting net profit						
2003	39	0.982	1.000	1	5	13
2004	39	1.011	1.007	1	6	15
2005	37	1.064	1.000	1	7	19
2006	38	1.014	1.000	1	5	13
Total	153	1.017	1.000	1	23	15
Panel B: Companies reporting net loss						
2003	7	1.067	1.117	–	–	–
2004	7	1.164	1.001	–	–	–
2005	9	0.815	1.004	1	2	22
2006	8	1.033	1.006	–	–	–
Total	31	1.007	1.008	1	2	6

Together with the loss from sales the company reported the net profit before the audit equal to 36 thousand zł, i.e. 0.079% of total assets at the beginning of the year. This value was decreased by the auditor to 7 thousand zł and this adjustment caused  $CI = 5.14$ . This case has shed some light on the circumstances in which low objectivity is observed. The lack of objectivity is probably caused not by the set of accounting standards, but by the desire to manage earnings.

The percentage of adjustments of *NI* is evaluated by means of mode, which is equal to 1 in every year in panel A. Column “# of Mode” shows a number of companies with *CI* for *NI* equal to 1 and column “% of Mode” shows this number in relation to the number of the companies in the subsample. The percentage of adjustments is quite opposite than in case of *PLS* (better visible in Table 5). Table 4 shows that this percentage is 15% in case of profitable companies and only 6% in total in case of companies making a loss. It has to be mentioned that in panel B in the year 2006 there was one company with *CI* for *NI* equal to 1. This company is included in Table 5. But one swallow does not make a summer, so the dander of making a loss pushes managers to manage earnings and that beats objectivity.

Table 5 shows the percentage of the companies disclosing unadjusted values of *PLS* and *NI* after the audit. In both panels this fraction for *NI* is considerably lower than for *PLS*, but the difference is remarkable in panel B. The objectivity of income measured by means of this percentage

**Table 5.** Percent of the companies with  $CI = 1$ 

	2003 %	2004 %	2005 %	2006 %	Total %
Panel A: Companies reporting net profit					
<i>CI</i> for <i>PLS</i>	23	26	24	21	24
<i>CI</i> for <i>NI</i>	13	15	19	13	15
Panel B: Companies reporting net loss					
<i>CI</i> for <i>PLS</i>	43	29	56	38	42
<i>CI</i> for <i>NI</i>	–	–	22	13	10

has increased after the shift to IFRS and has been especially high in the year 2005 in panel B. It was the year of first time adoption of IFRS in Poland. It is possible that this peak of objectivity has been caused by the lack of professional experience of financial statements preparers because they had to deal with new and comprehensive set of accounting standards rooted in different business culture. In panel A the fractions for both levels of income are positively correlated.

The results of materiality analysis are presented in Tables 6 and 7. A glance at Table 6 reveals that there are remarkable materiality differences between *PLS* in panels A and B. In particular, Table 6 shows the percentage of adjustments in materiality intervals. In panel A and B there are in total, respectively, 84% and 68% of companies with *CI* belonging to  $\pm 5\%$  materiality interval, i.e. adjustments which are not material. The percentage of companies with *CI* greater than  $1 \pm 0.05$  and lower than  $1 \pm 0.10$ , i.e. adjustments “suspected” to be material, is equal to, respectively, 8% and 6%. Finally, the percentage of companies with *PLS* adjusted more than  $\pm 10\%$ , i.e. material adjustments equals to, respectively, 8% and 26%. The results show that in case of *PLS* there is some kind of dichotomy, especially in case of companies making net losses. Adjustments are mainly not material, but there is considerable number of material adjustments (26% in panel B). Furthermore, in case of 16% of adjustments in panel B, *CI* is greater than 1.10, so the unaudited loss from sales was materially increased by the auditor.

In panel A and B of Table 7 there is, respectively, 75% and 42% of the total number of companies with the *CI* belonging to  $\pm 5\%$  materiality interval. The number of non-material adjustments is considerably lower than in case of *PLS* (Table 6) especially in panel B. It can also be compared with the results of the author’s previous research concerning objectivity of listed companies (Wójtowicz 2006, p. 279). In case of the sample consisting of data from the years 2000–2003 prepared in accordance

**Table 6.** Percent of adjustments of PLS

	Panel A: Companies reporting net profit					Panel B: Companies reporting net loss				
	2003 %	2004 %	2005 %	2006 %	Total %	2003 %	2004 %	2005 %	2006 %	Total %
$CI \leq 0.90$	5	3	0	0	2	0	14	11	13	10
$0.90 < CI \leq 0.95$	5	0	0	3	2	0	0	0	0	0
$0.95 < CI \leq 1.05$	82	92	81	82	84	71	57	78	63	68
$1.05 < CI \leq 1.10$	3	5	3	13	6	0	0	0	25	6
$CI > 1.10$	5	0	16	3	6	29	29	11	0	16
Total	100	100	100	100	100	100	100	100	100	100

**Table 7.** Percent of adjustments of NI

	Panel A: Companies reporting net profit					Panel B: Companies reporting net loss				
	2003 %	2004 %	2005 %	2006 %	Total %	2003 %	2004 %	2005 %	2006 %	Total %
$CI \leq 0.90$	15	3	14	0	8	29	14	22	0	16
$0.90 < CI \leq 0.95$	8	0	5	5	5	0	14	0	0	3
$0.95 < CI \leq 1.05$	64	79	73	82	75	0	43	56	63	42
$1.05 < CI \leq 1.10$	5	8	3	5	5	14	14	0	25	13
$CI > 1.10$	8	10	5	8	8	57	14	22	13	26
Total	100	100	100	100	100	100	100	100	100	100

with AA, the percent in panel A was 68% and in panel B 47%. This comparison, together with the percent of non-material adjustments in every year in Tables 6 and 7, shows that voluntary reporting in line with IFRS leads to the increase of objectivity of income categories. But the key conclusion is that the objectivity of income in panel B is very low. The percentage of companies with the  $CI$  for  $NI$  greater than  $1 \pm 0.05$  and lower than  $1 \pm 0.10$  is equal to, respectively, 10% and 16%. Finally, the percentage of companies with the net income adjusted more than  $\pm 10\%$  equals to, respectively, 16% and 42%. Especially dangerous for stakeholders is, in panel B, 26% of companies with the  $CI$  for  $NI$  greater than 1.10. This

value means that after the audit net losses have been materially increased, i.e. managers wanted to hide real values of losses.

There are some companies-years with *PLS* and *NI* of different signs in the sample, so the analysis of materiality was executed again. The total sample was divided into four panels on the basis of signs of these two levels of income:

- Panel 1 – *PLS* profit; *NI* profit,
  - Panel 2 – *PLS* loss; *NI* profit,
- both separated from previously established panel A, and
- Panel 3 – *PLS* loss; *NI* loss,
  - Panel 4 – *PLS* profit; *NI* loss,
- separated from panel B.

Bearing in mind relatively high objectivity of *PLS* (Table 6), it seems that companies belonging to panels 2 and 4 are potentially more exposed to lack of objectivity by the strong pressure to manage earnings. In panel 2 it is possible that managers, despite the loss from operating activity, may want to make a profit with financial activity and other operating

**Table 8.** Percent of adjustments of *PLS* and *NI*

	Panel 1 (profit/profit)	Panel 2 (loss/profit)	Panel 3 (loss/loss)	Panel 4 (profit/loss)
Total # of observations	135	18	25	6
<i>PLS</i> (%)				
$CI \leq 0.90$	1	6	8	17
$0.90 < CI \leq 0.95$	2	0	0	0
$0.95 < CI \leq 1.05$	86	72	68	67
$1.05 < CI \leq 1.10$	5	11	8	0
$CI > 1.10$	5	11	16	17
Total	100	100	100	100
<i>NI</i> (%)				
$CI \leq 0.90$	7	17	12	33
$0.90 < CI \leq 0.95$	5	0	4	0
$0.95 < CI \leq 1.05$	77	56	48	17
$1.05 < CI \leq 1.10$	4	11	16	0
$CI > 1.10$	7	17	20	50
Total	100	100	100	100

activity. Managers of companies in panel 4 may want to retain the profit once achieved. The percentage of observations in various materiality bands for *PLS* and *NI* in these four panels is shown in Table 8.

From Table 8 it is obvious that the objectivity of *PLS* and *NI* is the highest in case of profitable companies (panel 1). The objectivity lowers when companies make the net profit, but the loss forms operating activity (panel 2). The auditors materially increased the loss from sales in case of 11% companies and decreased the net profit in case of 17% companies in panel 2. Total fractions of adjustments of this type for companies reporting the net profit were, respectively 6% (table 5) and 8% (Table 7).

Panel B of companies reporting the net loss is not homogenous as well. The “clearest” situation is when companies make losses both on *PLS* and *NI* level. The percent of material increases of the net loss in panel 3 is lower than in case of all companies making losses (Table 6 and 7). Finally, there are only 6 companies belonging to panel 4. The objectivity of their *PLS* is on the average level (Panel B in Table 6) but the objectivity of *NI*, expressed by the percentage of material decreases of *NI* equal to 50%, is the lowest of all. Furthermore, it is much lower than objectivity in case of all companies making losses (26% in panel B in Table 7). Detailed description of these company-years is presented in Table 9.

A closer look at companies in panel 4 may help to verify the main hypothesis of this research. There is one company (#3) with both *CI*s equal to 1 and the observation comes from the year 2005, so the financial statement has been prepared in line with IFRS. The value of *CI*s means that the net loss made despite the profit on the *PLS* level, although rare, really reflects economic situation of this company. There are three company-years with  $CI > 1.10$  for *NI*. Two of them (rows #5 and #6) are the outliers mentioned in the description of panel B from Table 4. It is clear from the comparison of *NILA* before and after the audit that these

**Table 9.** Some details of observations in panel 4

#	<i>CI</i> for <i>NI</i>	<i>CI</i> for <i>PLS</i>	Year	PRE $NI/A_{t-1}$ (%)	REW $NI/A_{t-1}$ (%)
1	-1.22	-2.7614	2005	-0.30	-0.09
2	0.69	1.1513	2003	-2.19	-1.64
3	1.00	1.0000	2005	-1.88	-1.88
4	1.12	0.9543	2003	-4.66	-5.27
5	2.08	1.0000	2003	0.28	-3.33
6	2.51	0.9959	2004	2.23	-4.41

companies reported the net profit before the audit and the net loss afterward. What is more, it is also clear that the adjustments were material in relation to lagged assets. The last company belonging to materiality range  $CI > 1.10$  has  $CI = 1.12$  but in this case the sign of  $NI$  has not been changed. All financial statements in this materiality range are prepared in conformity with AA. In case of companies #1 and #2 the adjustment of the net loss is material, but the losses have been decreased by the auditors.

## 5. CONCLUDING REMARKS

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The paper provided evidence on the objectivity of income from the sales and net income of a sample consisting of 46 companies listed on Warsaw Stock Exchange for the period of four years from 2003 to 2006, voluntarily reporting in accordance with IFRS.

Generally, the shift from the rules-based accounting solutions (AA) to principles-based standards (IFRS) increased objectivity understood as consensus of the values reported in financial statements. It seems that the key drive of objectivity is not the set of standards but the desire to manage earnings, especially to avoid losses. This conclusion is based first on the three times higher percentage of material increases of net losses than decreases of net profits. The number of material decreases of the net profit is much higher in case of companies making losses on *PLS* level than in case of companies profitable on both levels.

The second result supporting such hypothesis is an abnormally high percentage of material increases of net losses after the audit in case of companies making profit on *PLS* level. It is true that the number of such observations (3) is very small in relation to the number of observations in the sample (46 companies, 184 observations), but on the other hand in two cases the auditors changed materially not only the value of  $NI$  but also its sign. The related financial statements were prepared in accordance with AA.

To summarize, financial statements of the companies in the sample are objective but in some circumstances users of financial statements should pay attention to the numbers because they can be misleading before the audit.

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**Karol Marek Klimczak**

# TESTING VALUE RELEVANCE OF ACCOUNTING EARNINGS: THEORY AND METHOD

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## Abstract

Relevance of accounting earnings for market value of companies has been subject to numerous empirical studies. Findings of these studies generally support the hypothesis of value relevance in developed countries. Recently a growing number of papers focus on the usefulness of accounting information in transition and emerging countries. These studies adopt value relevance methodology to test for the association between accounting earnings reported by stock companies, and the value of their equity. A positive result of the test serves as proof of the quality of accounting standards, accounting practice and the local stock market. This paper investigates the theory behind value relevance tests and the methodological issues of applying such tests to emerging economies. The aim of the paper is to create methodological guidelines for future research in this area.

## 1. INTRODUCTION

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Value relevance research has come a long way since Ball and Brown published their first paper on the usefulness of accounting earnings (Ball and Brown 1968). This first paper was motivated by a will to test a common conviction of contemporary researchers that accounting was nothing more than a ritual: accounting numbers lacked meaning and were of little use to investors (2002). Incidentally, the paper was rejected by editors of "The Accounting Review", who argued it was not an "accounting" paper (Brown 1989). The study of Ball and Brown laid foundations for what is now a popular method of accounting research. Various types of value relevance tests are used to investigate issues such as predicting stock returns (Setiono and Strong 1998), or significance of alternative accounting

methods (Auer 1996, Biddle and Lindahl 1982) and standards (Bartov, Goldberg and Kim 2005).

Although most value relevance studies have been carried out using data from the richest countries, the number of papers devoted to emerging countries is steadily increasing. In contrast to studies of the richest countries, which deal with all aspects of accounting theory, researchers from emerging countries tend to focus on the differences and similarities between their countries and the developed ones. Value relevance studies of emerging countries usually have two goals. The first is to test whether accounting earnings are relevant for equity valuation in the local stock market. The second aim is to compare the results of the test with results obtained by previous researchers of rich countries and draw conclusions about the state of the local economy. In both cases value relevance is treated as proof of the quality and usefulness of accounting numbers.

Reliance on value relevance as an indicator of comparative quality of accounting earnings necessitates the use of a unified, robust methodology. Presently, research results are often incomparable because the method varies from study to study. For example, studies of the Chinese market provide different conclusions depending on the choice of a method. In an event study, Abdel-Khalik et al. (1999) find value relevance only in the A-share market, contrary to their expectations. This study was repeated in 2004, but this time using a price regression (Samia and Zhou 2004). Results show value relevance in both the A and B segments of the Shanghai Stock Exchange, with the B segment scoring higher. How does one interpret the discrepancy when the two studies used different study designs?

The aim of this paper is to create a set of methodological guidelines for value relevance research in transition and emerging countries. The following sections discuss the theory behind value relevance tests. It is argued that available theory lacks explanatory power; hence it does not allow inferences about low quality of accounting numbers (when test results are negative). In the second part of the paper, technical methodological issues of study design and results interpretation are discussed: (1) event study vs. return regression, (2) model specification, (3) sampling period, (4) measuring unexpected earnings and (5) abnormal returns, and finally (6) methods of comparing results across markets.

## 2. VALUE RELEVANCE THEORY

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Value relevance research was dominated by empirical considerations from its very beginning. Ball and Brown (1968), who were the first to attempt a value relevance test, do not make any reference to theory. Their study was motivated by their disagreement with a common opinion, at the time, that accounting “income numbers cannot be defined substantively, that they lack meaning and are therefore of doubtful utility” (Ball

and Brown 1968, p. 154). In their paper, they compare abnormal stock returns of firms with positive and negative unexpected incomes. Their results clearly show that stock returns are associated with earnings. Research which followed continued to take an empirical perspective on the problem of value relevance. Different econometric methods were used, but there was still no comprehensive theory behind the tests. This lack of theory has a significant impact on value relevance tests of emerging markets: it does not allow researchers to draw negative conclusions. Without a theory to explain the link between accounting numbers and stock returns we cannot determine, if low value relevance is a result of market inefficiency, low quality of accounting practice or some other factor. The discussion below outlines what theoretical background does exist and where methodological problems lie.

The first tests of value relevance were, of course, based on capital market theories prevalent at the time. For example, Ball and Brown assumed that the Efficient Market Hypothesis is maintained (Brown 1989). This allowed them to calculate information value of accounting earnings (an approach which was not followed upon). They were probably aware of the Modigliani-Miller propositions, which explicitly connect firm value with its expected income (Modigliani and Miller 1958). Recall, that Proposition One states:

$$V_i = S_i + D_i = \frac{E(x_i)}{\rho_k}$$

where:

$V_i$  – firm  $i$  value,

$S_j$  – value of firms stock,

$D_i$  – value of firms debt,

$E(x_i)$  – firms expected return on assets,

$\rho_k$  – the capitalisation rate for all companies in firms risk class.

It is thus apparent that the return on a share of stock will be equal to the return on assets less interest expense. Notice however, that Modigliani-Miller propositions use expected return, not actual return. Actual return, which is reported in financial statements, influences stock return only indirectly – through its impact on expected earnings.

Market efficiency, the attribute of Modigliani-Miller's ideal world, is a significant concern in capital market studies. In emerging and transition economies market institutions are not well developed, which often entails market inefficiency. The question is whether market efficiency is necessary for value relevance studies to produce reliable results. Aboody et al. (2002) argue that semi-strong market efficiency is necessary if economic inferences are to be unbiased. However, in emerging country studies the goal is only to determine if accounting earnings are at all relevant. Even if a market is not efficient, investors and their decisions can be significantly affected by earnings information.

Efficient Market Hypothesis notwithstanding, testing value relevance requires a market where investors are free in making their decisions and where investors' decisions affect prices. Otherwise, even if accounting numbers are of highest quality, they will not have an impact on stock returns. In other words, stock prices must reflect the preferences of market participants (Abdel-Khalik, Kie Ann Wong and Wu 1999). Thus, the stock market must be free from manipulation by the authorities, or other people of power. Moreover, restrictions on trading must not be too strict or subject to authorities' discretion. Examples of such restrictions include setting a narrow limit on daily price fluctuations and freezing trading.

In an inefficient market preferences of investors are not reflected in prices, so accounting numbers which influence these decisions are not relevant for stock value. However, the existence of an efficient market does not necessarily imply value relevance. Accounting earnings may still be of doubtful quality: accounting methods may not be well defined, manipulation may be commonplace, internal and external controls non-existent. In such a case, rational investors will not base their decisions on accounting information. This is what value relevance tests in emerging economies are supposed to test for.

Consider, on the other hand, an emerging market where accounting information is of good quality, and the market is efficient. Let us assume that value relevance is low, contrary to expectations. If this is indeed the case, a test of value relevance will produce a negative result; and the researcher will conclude that accounting numbers are of low quality. However, she would be wrong to draw such a conclusion without further evidence. Low value relevance can be caused by other factors that lead to relatively low importance of accounting earnings information. For example, there can be simply other information about future returns, so significant that it overshadows accounting earnings. The negative result of value relevance test only proves that accounting earnings do not provide significant information to investors – it does not provide any information about the causes.

The possibility of finding low value relevance even when accounting numbers are of high quality becomes apparent when one analyses even the simplest equity valuation model. According to any finance textbook stock prices are a reflection of investors' expectations about future gains from holding a share of stock. In a single-period setting this can be expressed as:

$$P_t = \frac{E(P_{t+1}) + E(D_{t+1})}{1 + R_t} \quad (1)$$

where:

$P$  – price,

$D$  – dividend,

$R$  – discount rate.

From the single-period formula, we can infer that observed accounting earnings will affect the current valuation of stock either through expected dividends, or expected capital gains. However, expectations about capital gains are formed on the basis of other factors too: e.g. stock-market trends and expected growth of the company in the future. When the number of periods is infinite, the formula becomes the classic discounted dividends valuation model:

$$P_t = \sum_{\tau=1}^{\infty} \frac{E_t(D_{t+\tau})}{(1+R)^\tau} \quad (2)$$

This valuation model implies that observed accounting earnings at time  $t$  will be relevant for valuation only to the extent to which they contain information about future dividends. Obviously, accounting earnings have limited usefulness in predicting future dividends because they reflect mostly the effects of past transactions (Kothari and Sloan 1992).

Ohlson (1995) developed a model of the relationship between earnings and equity valuation, which builds on the discounted dividends model in equation (2) and explicitly factors into it abnormal earnings and other market information. He defines abnormal earnings as the difference between actual return and the risk-free rate<sup>1</sup>:

$$x_t^a \equiv x_t - R \times BV_{t-1} \quad (3)$$

where:

- $x_t$  – accounting earnings,
- $R$  – risk-free rate,
- $BV_{t-1}$  – beginning-of-period book value.

If one combines this with the clean surplus rule, by which changes in book value are equal to earnings less dividend payout, the dividend at time  $t$  equals:

$$d_t = x_t^a - BV_t + (1+R)BV_{t-1} \quad (4)$$

By substituting equation 4 into equation 2, Ohlson formulates the abnormal earnings valuation formula, in which current equity value is determined by expected future earnings above the risk-free rate:

$$P_t = BV_t + \sum_{\tau=1}^{\infty} (1+R)^{-\tau} E_t(x_{t+\tau}^a) \quad (5)$$

This formula implies that there may be a relationship between equity value and current abnormal earnings if current abnormal earnings are indicative of future abnormal earnings. It is not much different from

<sup>1</sup> Ohlson assumes risk neutrality, and thus uses the risk-free rate for discounting cash flows.

the discounted dividend model in this respect. The real contribution of Ohlson's model is in developing a valuation relationship which rests on the assumptions that abnormal earnings are type one autoregressive and their expected value is influenced by "other information"<sup>2</sup>. Ohlson includes "other information" in the model assuming it also to be autoregressive. When these assumptions are combined, expected earnings can be expressed as:

$$E_t(x_{t+1}) = R \times BV_t + \omega x_t^a + v_t \tag{6}$$

where:

$v_t$  – other information.

Notice that this is the first equation that explicitly links current earnings with future earnings. Ohlson further develops his model into the following valuation formula:

$$P_t = BV_t + \alpha_1 x_t^a + \alpha_2 v_t \tag{7}$$

where:

$$\alpha_1 = \frac{\omega}{(1 + R - \omega)} \geq 0$$

$$\alpha_2 = \frac{(1 + R)}{(1 + R - \omega)}(1 + R - \gamma) > 0$$

$\omega$  – autocorrelation coefficient of abnormal earnings,

$\gamma$  – autocorrelation coefficient of other information.

Ohlson's valuation model explicitly links equity value with current abnormal earnings and currently available other information. Moreover, it can be reformulated by substituting equation 3 into equation 7, which yields a linear equity valuation model:

$$P_t = BV_t + \alpha_1 x_t + \alpha_1 R \times BV_{t-1} + \alpha_2 v_t \tag{8}$$

The advantage of Ohlson's model is that it readily lends itself further reformulation. For example the risk neutrality assumption can be lifted (Gode and Ohlson 2004), earnings can be disaggregated, as can book value and other information (Jing Liu and Ohlson 2000). However, the model is not well formulated for empirical testing. The main methodological problem is of course modelling of "other information", which for all we know, can have a more significant impact on valuation than

<sup>2</sup> Ohlson (1995) proposes a expected abnormal earnings to follow:

$$E(x_{t+1}^a) = \omega x_t^a + v_t + \varepsilon_{1,t+1}$$

where other information is expressed as:

$$E(v_{t+1}) = \gamma v_t + \varepsilon_{2,t+1}$$

and  $\omega, \gamma \in (0, 1)$ .

accounting earnings (Hope and Kang 2005). Ohlson (2001) argues that this is indeed the case although there is no empirical proof yet.

Neither the classic finance theory nor Ohlson's valuation model allow researchers to draw useful conclusions from negative results of value relevance tests. In both cases, low value relevance can be explained by a number of different factors ranging from market inefficiency to increased importance of "other information". Therefore, a negative test result demands explanation that goes beyond the statement of low usefulness of accounting numbers. It requires an analysis of other significant information sources and their relative importance, as well as an investigation into the state of market institutions, and the condition of accounting regulation and practice. Since all of these variables are not included in the valuation model, other than as a part of the "other information" aggregate, we do not have a method of testing such hypotheses directly.

### 3. METHODOLOGICAL ISSUES

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Testing for value relevance in emerging economies can be performed with any of a number of empirical model specifications. While the previous section presented a discussion of issues pertaining to deficient theoretical foundations of value-relevance tests, this section presents common methodological problems which occur when researchers attempt the tests. The discussion below is focused on practical issues of study design and statistical methods. It examines models and methods which are most common in value-relevance research.

#### Event Study vs. Return Regression

There are two alternative approaches to empirical tests of value relevance. The first one, event study, was used in the classic Ball and Brown (1968) article. Event studies are designed to detect the influence of new information around the earnings announcement date. They look for excess returns correlated with the change of accounting earnings in a time window preceding the announcement and after earnings information is released<sup>3</sup>. Ball and Brown (1968) found that companies with positive abnormal earnings had significantly higher abnormal returns in months leading up to the announcement, but returns did not increase after the announcement. They concluded that up to 90% of earnings information is correctly anticipated by the market before announcement, which

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<sup>3</sup> For a detailed review of event study methodology see Griffin and Zmijewski (1987).

should be no surprise: investors collect information about important events, which influence earnings all through the year.

Return regressions test for correlation between contemporaneous returns and accounting earnings: they use a linear valuation formula for either the price, return, or abnormal return. The great advantage of return regressions is that they allow additional variables to be included in the regression equation (components of earnings, cash flow, assets, sales and dummy variables for various other factors). However, it is important to remember that return regressions do not test for causality (Kothari 2001). This is a result of low explanatory power of the accounting theory which was discussed in the first part of this paper. Despite these problems, return regressions are more common in value relevance research than event studies – probably because of greater flexibility, relative ease of estimation and their alignment with valuation formulae.

## General Model Specification

The following sections discuss in detail one form of return regressions: the unexpected returns model. Testing for value relevance using abnormal returns and abnormal earnings is a method superior to either price or simple return regressions: by abstracting from market-wide trends, abnormal returns are specifically focused on information provided by earnings disclosure. Abnormal return regressions (Ball and Brown 1968, Easton, Harris and Ohlson 1992; Kothari and Sloan 1992) take the following linear form:

$$UR_{it} = \alpha_0 + \alpha_2 UEY_{it} + \varepsilon_{it} \quad (9)$$

where:

$UR_{it}$  – unexpected returns inclusive of dividends,

$UEY_{it}$  – unexpected earnings yield.

Because unexpected earnings yield is equal to abnormal earnings per share scaled by beginning of period share price, the scaling variable is the same for both the independent and the dependent variable. It follows that if more variables, like size or elements of earnings, are included in the equation, they should be also calculated on a per share basis and scaled by a share price. This way scale effects of changes in the number of shares or book value per share are removed from the regression. Otherwise, the correlation coefficient estimates would be biased (Brown, Kin Lo and Lys 1999).

## Sampling Interval and Date

Unexpected returns regression tests for the correlation between contemporaneous abnormal returns and abnormal earnings. This implies



that both variables have to be sampled over the same period: usually a year. Since earnings information disclosed in a financial statement pertains to a specific period, it is logical to use the reporting period as the sampling interval. On the other hand, earnings information is not available immediately at the end of the reporting period: there is always a delay of 2–3 months before an audited annual report is announced. The announcement date is not a problem in event studies, which analyse the variance of stock returns around that specific date. But in return regressions, a choice has to be made: align sampling date with the end of reporting period, or move the sampling date to announcement date.

If sampling date is aligned with the end of the reporting period, the regression tests for correlation between two variables measured over the same period. If the sampling date is moved to announcement date, the test is for correlation between variables measured over two different, only partly overlapping periods: reporting year for earnings and announcement-to-announcement year for returns. Consequently, the variance in returns caused by events after the end of reporting period will not be reflected in the earnings variable; regression coefficients will be biased towards zero. Incidentally Easton, Harris and Ohlson (1992) show that regression coefficients increase with the length of sampling period: *r*-squared doubles when the periods is increased from five to ten years. One of the reasons for higher relevance over long periods is that the delay between end of reporting period and announcement becomes less significant. For example, if there is an average delay of three months, this constitutes a quarter of a year, but only a 2.5% of a ten year period.

Another argument for using the end-of-period date, rather than the announcement date, is that most earnings information is already known before the announcement of the audited annual statement. Information from the first three quarters is already known. Most external and internal events which could have influenced earnings are also known by that time. Accounting data for the fourth quarter is known before the announcement of the annual report. Although no empirical tests have been performed, it seems likely that the relative value of incremental information of past annual earnings available after the end of a reporting period is lower than the noise of information about next period's earnings, which is discounted by the market.

## Measuring Unexpected Earnings

Abnormal earnings are the difference between earnings expected by investors and the actual amount of profit. What investors expect is, of course, not directly observable, so proxies have to be used instead. Notice, that no matter what proxy we use, it will be still only an approximation

of the actual expectations – it will measure expectations with an error. The measurement error will then have an impact on estimation results, producing biased coefficient estimates (Griffin and Zmijewski, 1987). Thus, attempts should be made to select proxies with minimum measurement error.

The simplest way to measure unexpected earnings is to assume that investors expect earnings to remain unchanged. Then, the measure of abnormal earnings will be simply their first difference. Another approach was suggested by Ohlson (1995), who defined abnormal earnings as earnings above the risk-free rate of return. He used the risk-free rate, because he assumed stock to be risk neutral. If we lift this assumption a risk premium will have to be added on top of the risk-free rate; Ohlson suggests using either the cost of capital or average market return on equity as a measure of expected return. Most empirical studies use a different approach which can be traced back to Ball and Brown (1968) again: investors form expectations about a firm's future earnings by assuming it will follow the market in the way it did before. Unexpected earnings are then measured by residuals from regressing a firm's earnings yield on mean earnings yield in the period:

$$EY_{it} = \alpha_i + \beta_i \overline{EY}_t + UEY_{it} \quad (10)$$

where:

$UEY_{it}$  – residual, unexpected earnings yield of firm  $i$  in period  $t$ .

This approach assumes that investors can form accurate predictions about average earnings in the market, and use this information to estimate earnings of each firm. It is also assumed that a firm's earnings follow the market in the same way from year to year – which may be questioned in unstable, emerging economies. Instability of regression coefficients raises a question of the sample on which to estimate the coefficients. Although in theory it should be done on a holdout period preceding the test period, if the sample is short, one has to estimate the coefficients within the test sample. When the sample length allows at least a short holdout period, coefficients can be estimated separately for each year, using information from all preceding years. This way the coefficients will adjust to changes in the market and the expectations regression will be estimated on a sample of increasing length.

The final method of measuring unexpected earnings is to use actual forecasts: either from a forecasting model or from historical market analysts' reports. A forecasting model has to be estimated only on data from periods preceding the test period, which again raises the problem of sample length. The most common approach to forecasting earnings is to use a random walk model for annual data or a seasonal random walk for quarterly earnings. Different specifications of the random walk model are discussed by Griffin and Zmijewski (1987).

## Measuring Abnormal Returns

The measurement of abnormal returns is subject to the same problems as the measurement of abnormal earnings discussed above. Abnormal returns are defined as the difference between expected returns and their actual value:  $R_{it} - E(R_{it})$ . Alternative measures of abnormal returns are well discussed by Strong (1992). The model used most often in extant value relevance research is called the Market Model. Under this model firm's returns are expected to follow a market index:

$$R_{it} = \alpha_i + \beta_i R_{mt} + UR_{it} \quad (11)$$

where:

$R_{it}$  – return on a share of stock of firm  $i$ ,

$R_{mt}$  – return on a market index,

$UR_{it}$  – estimation residual: unexpected returns.

The estimation of regression coefficients should be carried out on a holdout sample, or possibly recalculated again for each period, as is the case with abnormal earnings discussed above. In practice, coefficients are often estimated within the test sample.

## Comparing Results Across Markets

The ultimate goal of value relevance research in developing countries is the comparison of value relevance with results from other, especially more developed markets. Of course, for a comparison to be valid, value relevance tests have to be performed using the same, or at least very similar methodology. In a perfect situation one would compare estimation results of the same abnormal returns model on two different samples. There are then two sets of numbers one can compare: earnings coefficients and correlation coefficients (r-squared).

The earnings coefficient provides information about the strength with which abnormal returns react to unexpected earnings. Whether the correlation is stronger or weaker is beside the point here: one does not expect accounting earnings to actually explain all variations of market prices. We would, however, expect a firm that has unexpected earnings equal to zero to have no unexpected returns on its stock. This implies estimation intercept of zero. Moreover, we would expect unexpected returns to increase by as much as unexpected earnings increase. This in turn implies an earnings coefficient equal to one. Thus, the first test for the strength of value relevance is to test two hypotheses using a standard t-test: intercept equal zero, and the earnings coefficient equal one.

When a comparison of regression coefficients between two markets is needed, one should combine the two samples in one regression model.

The two samples need to come from the same period, of course. Dummy variables can be used to distinguish between samples: companies from different samples are assigned value one on their respective dummy variable, while all other companies are assigned value zero. For two markets, regression equation (9) takes the form:

$$UR_{it} = \alpha_0 + \alpha_1 UEY_{it} + \beta_0 D_i + \beta_1 D_i \times UEY_{it} + \varepsilon_{it} \quad (12)$$

where:

$D_i$  – dummy variable for the second of two markets<sup>4</sup>.

To test for the difference in coefficients one needs to test the null hypothesis  $\beta_0, \beta_1 = 0$ . A one sided t-test should be used to determine whether  $\beta_1$  is positive, provided we expect the second market to have higher value-relevance. If there are more markets, tests for the equality of coefficients can be performed<sup>5</sup>. The same method can be used for comparing value relevance across periods. Dummy variables are then created for specific periods rather than markets.

The approach described above provides the strongest evidence of the difference in value relevance between two markets, but it can only be used if the researcher acquires data from two markets. More often papers test only one market and then compare results with previous research performed in another market. In this case, the only option is to calculate confidence intervals for both sets of results and compare them, or to perform a t-test to check if the coefficient in one market is equal to the coefficient value in the other.

Correlation coefficient ( $R^2$ ) is often used as the indication of value-relevance, and its differences are interpreted as proof of higher or lower value relevance. The practice of using the correlation coefficient instead of confidence intervals for parameters stems from the belief in  $R^2$  as the main, and sometimes the only measure of the strength of correlation. However, as was discussed above, tests for value relevance should not look for perfect fit between earnings and returns. Moreover, tests for difference of correlation coefficients are not well developed. The only test that compares two models used in accounting literature is Vuong (1989) model selection test. However, the test was developed for selecting between alternative model functions, not for comparing correlation strength between two samples. Moreover, it does not allow comparison with extant results.

<sup>4</sup> The number of dummy variables has to be smaller than the number of markets in order to avoid multicollinearity. Therefore, one market serves as the reference base and is not assigned a dummy.

<sup>5</sup> To test for equality of coefficients apply the test for a linear combination of coefficients (e.g.  $\beta_1 = \beta_2$  implies  $\beta_1 - \beta_2 = 0$ ).

## 5. CONCLUSION

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This paper discusses the theory and methodology of value relevance tests. It focuses especially on tests of emerging economies. The discussion section shows that value relevance lacks a supporting theory, which would allow inferences about the quality of accounting numbers. The methodology section outlines methods for performing tests with the use of abnormal returns regression. Guidelines are presented for model formulation, sampling and proxies for variables. Finally, statistical methods for the comparison of value relevance across markets are discussed.

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**Bartosz Kurek**

# THE RISK PREMIUM ESTIMATION ON THE BASIS OF ADJUSTED ROA

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## Abstract

An added value, being a difference between market value of goods and their historical cost of production, is a “magnet” that attracts investors, who search for the ways of increasing the concentration of their capital. Therefore, the economic agents give attention to the projects that would generate returns greater than available alternatives, taking into consideration their risk level. The amount of possible returns depends on the amount of invested capital, and on the risk premium granted by the efficient market. Moreover, factors such as good management and natural dispersion of capital play an important role in determining future concentration of capital.

The paper presents the energetic approach to capital, where capital is seen as an ability to perform labour. In this way, physics is a benchmark for describing laws governing the behaviour of capital, and in particular: the law governing conservation of capital, and the law governing dispersion of capital. Furthermore, risk premium is treated as a reward granted by the efficient market, which enables investors to overcome destructive, natural forces described in the second law.

The aim of the paper is to assess the magnitude of risk premium for average risk level conditions. The size of risk premium is assessed on the basis of statistical interval estimation of the sample mean. The sample is defined as individual annual adjusted rates of return for companies constituting (on 22nd June 2006) Standard & Poor’s Composite Index 1 500. Data required to compute returns has been reported in financial statements during the period 1986–2005. In total, the sample consisted of 22 952 observations. For the purpose of research, COMPUSTAT database (North America set) was used.

## CAPITAL AND ITS CONTROVERSIES

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It is common knowledge that the term *capital* has been used in professional business relations, economics, finance and accounting for ages<sup>1</sup>. The term, however, has evaluated and now there are diverse understandings of this concept. Such economists as I. Fisher (1965, p. 53–57), E. von Böhm-Bawerk (1959, p. 16–66) and E. Majewski (1914, p. 8) noted various controversies concerning the nature and definitions of capital that had appeared in academic literature. It is worth noticing that a great survey on the theories and definitions of capital from the ancient times till the beginning of the 20th century was conducted by S. Skrzypek (1939). Another important input into research on the 20th century capital theories was contributed by C. Bliss, A. J. Cohen and G.C. Harcourt (2005).

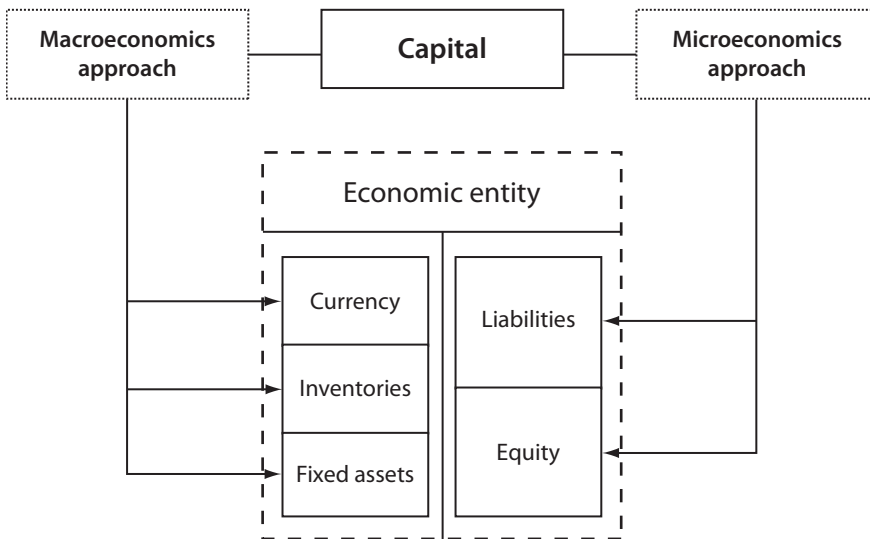
In the world full of definitions of capital, one of capital researchers – C. Bliss (1975, p. vii) – wrote that: “when economists reach an agreement on the theory of capital, they will shortly reach an agreement on everything. Happily, for those who enjoy a diversity of views and beliefs, there is a very little danger of this outcome. Indeed, at present there is not even an agreement as to what the subject is about”. This author states that at present capital could be seen as machines (capital goods) and funds required to finance a particular project (capital market). This term might be associated with entrepreneurship and risk (venture capital) (Bliss, 2005, p. xi). M. Tomaszewski (2001, p. 239) also observed that in spite of the fact that capital was one of fundamental economic concepts, it was the least explored factor, which changed its structure, liquidity and origins. One of the most profound Polish economists and researchers S. Grabski (1928, p. 12) revealed the fact that a great range of definitions and theories of capital had been developed just to support, rationalize and justify some of the socio-political doctrines.

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<sup>1</sup> As archeologist D. Schmandt-Besserat (1977) and accounting researcher R. Mattesich (1987, 1989, 1991, 1994a, 1994b, 1995) report, some accounting systems existed already circa 10 000 years ago. These systems required a sort of abstract concept of capital. M. Dobija (2002, p. 63; 2004a, p. 21–22) noticed that the concept of capital and interest rate (being the rate of multiplying capital) was already known in ancient Mesopotamia (Sumer and Babilonia), since interest bearing lending was approved by the Code of Hammurabi (the 18th century B.C.). The ancient borrowing-lending contracts were also described by G. Ifrah (1990). Further, double entry accounting systems that used the capital concept were well known in the 15th century Italy – Luca Pacioli in his *Summa de Arithmetica, Geometria, Proportioni et Proportionalita* (1494) described capital as the entire amount of what a man possesses at a particular point in time (Ijiri, 1967, p. 102). Capital – as one of the factors of production – has been thoroughly described in the 18th century by a profound economist A. Smith (1954) in his *An Inquiry into the Nature and Causes of the Wealth of Nations*.



At this moment it is worth mentioning that – at present – there are two most widespread treatments of capital: first coming from macro-economics and the second coming from micro-economics (Brzezina 1995, p. 101–102). Misunderstandings in economics, finance and accounting literature, as well as in business life, stem from dual understanding of that category. A confusion in capital definitions was also noticed earlier by F.A. Fetter (1937, p. 3–5). According to the first understanding (the macro-economics approach), capital is associated with capital goods that can generate profits. According to the second understanding (the micro-economics approach), capital is one of the sides of primary accounting equation “Assets = Capital”. Therefore, it is clear that both meanings of capital are exact contradictions (Figure 1).



**Figure 1.** Capital concepts in macro- and micro-economics approaches

Source: adjusted figure from Brzezina 1995, p. 102.

In addition, the term capital (equity) was defined by the bodies setting standards such as International Accounting Standards Board and Financial Accounting Standards Board in the statements of their concept (IASB, *Założenia koncepcyjne sporządzania i prezentacji sprawozdań finansowych*, §49, letter c), and (FASB, 1985, *Statement of Financial Accounting Concepts No 6: Elements of Financial Statements*, §49) respectively.

Beside economics, finance and accounting literature, the term capital is associated with other social sciences, resulting in such two hybrid concepts as: *social capital* (Robinson, Schmid, Siles 2002), which can be – in some way – compared to *guanxi* concept (Seligman 1999, p. 34), (Hill 2003, p. 87), and *cultural capital* (Bourdieu 2001).

## CAPITAL AS AN ABSTRACT ABILITY TO PERFORM LABOUR

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Bearing in mind the heritage of economists, accountants and other participants of academic and professional business life, this paper adopts contemporary – energetic – approach to capital, which may help to reach a consensus in capital theory among researchers and business practitioners. In this approach capital is understood as an *ability to perform labour*. That ability is embodied in assets: material resources or intangibles, as well as in human assets. The concentration of ability to perform labour in objects constitutes their market value, that should be taken into consideration, when paying for a resource or compensating an employee. The move towards abstract understanding of capital was widely described by M. Dobija in a number of papers (e.g. 2003, 2004b, 2005a, 2006b, 2007; with Dobija D., 2004, 2005; with Kurek 2005). M. Dobija thoroughly illustrated the theory underlying that approach. Similarly to energetic approach to capital, Y. Ijiri (1995, p. 62) noted that capital is abstract and homogeneous, whilst resources are concrete and heterogeneous. Moreover, I. Fisher (1965, p. 51–65) had already compared capital to abstract economic power many decades before any other researchers did.

Remembering that economic concept of capital is an ability to perform labour in business life, it is important to note that in physics the ability to perform labour is called *energy*. Therefore, two laws of thermodynamics might be used as a benchmark to describe laws governing “behaviour” of capital. However, some limitations of energetic approach to capital must be considered as well. It should be clearly stated that thermodynamics is not directly applied to economics, but it serves only as a point of reference for describing new principles that could help in understanding the “behaviour” of capital.

The concepts from physics have already been applied into economics by such profound researchers as W.S. Jevons, L. Walras, F. Edgeworth, V. Pareto, G.B. Antonelli, W. Laundhardt and I. Fisher (Mirowski 1999, p. 219–223). The concepts of energy and entropy has been used in theories described by neo-energeticists, neo-simulators and N. Georgescu-Roegen (Mirowski, 1988). One of the first researchers, who employed rules from physics to describe accounting theory, and hence to describe capital, was R. Mattessich (1991, 1993, 1995, 2004). This author (Mattessich, 1995, p. 65–76) asked an important question: whether accounting duality principles: “input-output principle” and “symmetry principle”<sup>2</sup>, might have the similar functions as conservation laws

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<sup>2</sup> These principles are also called “classificational double-entry accounting” and “causal double-entry accounting” respectively (Ijiri 1967, p. 102; 1975, p. 81; Riahi-Belkaoui 2004, p. 45).

(such as conservation of energy) in physics. The answer to this question is yes.

According to one of the well-known interpretations of the first law of thermodynamics, energy is constant in a closed system (Feynman, Leighton, Sands 1977, p. 44.12–44.13). Similarly, capital (equity) is constant in a closed system – it does not arise nor disappear in internal operations within a company. That is the first law governing behaviour of capital. Each business entity should be recognized as such a closed system. In physics, in some circumstances the law relates to the whole universe, but in other cases it is applied to closed smaller systems. On the contrary, in economics, the first law governing the behaviour of capital should only be applied to a single enterprise.

The main aim of every business, i.e. the increase of invested capital, does not contradict the law, since revenues and profits arise from external operations with customers and other parties, such as companies. Customers and other companies are located outside the closed system. And it is the market exchange that enables the entrepreneurs to increase the concentration of their capital. On the other hand, if some inventory was stolen by an employee, it would be recorded as receivables from the employee, so capital is constant in these circumstances. If these receivables are recorded as a loss (that cannot be recovered from the employee), the concentration of capital decreases, and that entry would reasonably be considered as an external operation. Bearing in mind these assumptions, one may state that the conservation law of capital is not contradicted in any circumstances.

The second principle governing the behaviour of capital in economics is based on the second law of thermodynamics. It is called the law of dispersion of capital. According to that rule, capital tends to diffuse, if not restrained from doing so. At this moment it is essential to note that the term *entropy*, so common in physics and chemistry, must be dissociated with economics (Lambert 1999, p. 1385). That is why, in the description of the second law governing behaviour of capital the term *entropy* is not used at all, contrary to N. Georgescu-Roegen's approach (Georgescu-Roegen 1971).

Dispersion of capital results from the existence of costs of risk, which relate to external and internal factors (systematic and unsystematic risk, respectively). The sources of risk associated with that classification were already identified by C.A. Kulp (1928, p. 4–7).

As W. Tarczyński and M. Mojsiewicz (2001, p. 16–19) report, external factors may include:

- weather conditions,
- economic conditions of a particular market and a global market (such as tax legislation, interest rates, level of unemployment),
- other factors determined by external forces that cannot be controlled by a business entity.

- On the other hand internal factors include:
  - management of a company,
  - competition,
  - raw materials and other supplies accessibility,
  - liquidity,
  - bankruptcy,
  - other factors under control of a business entity.

All of the above factors lead to lower concentration of capital in objects, which can be described by mathematical formula:

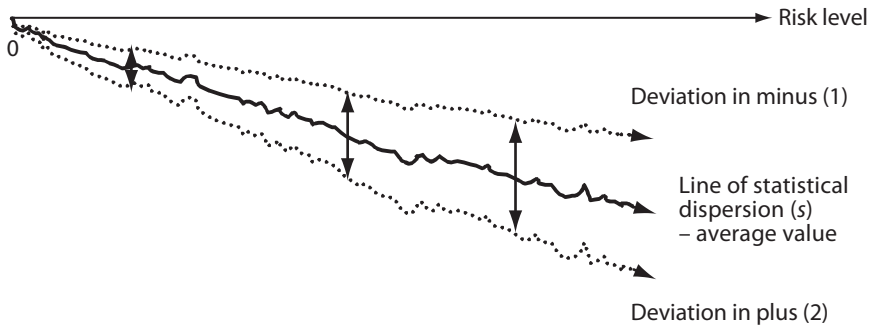
$$C_{t,s} = C_0 \times e^{-s \times t}$$

where:

- $C_0$  – beginning concentration of capital (expressed in monetary terms);
- $s$  – statistical, natural dispersion,  $s = L/C_0$ ;
- $L$  – an amount of statistical costs of risk (expressed in monetary terms) in a period (0;  $t$ );
- $s \times t$  – arrow of time;
- $C_{t,s}$  – ending concentration of capital (expressed in monetary terms), which has been subdued to natural dispersion  $s$  in a period (0;  $t$ ).

Average statistical costs of risk, together with possible deviations depending on the level of risk are presented in Figure 2.

However, if investors were only subjected to risk, no-one would ever go into business, just to decrease their concentration of capital. The economic agents require an incentive that will allow them to overcome natural destructive forces. It is the free, efficient market, that rewards each investor with risk premium – adequate to the taken risk level. Therefore, entrepreneurs may overcome the dispersion of capital. The risk premium is a deterministic value, equal to the expected value of natural dispersion of capital  $p = E(s)$  (Dobija M. 2005b, 2005c, 2005d, 2006a; with Dobija D. 2005, 2006). Each economic actor is therefore



**Figure 2.** Statistical costs of risk

Source: Kurek 2007, p. 73.

granted a premium for bearing risk, however, due to random nature of costs of risk, the outcome (in financial measures) of a business activity is unknown. The association of risk premium with spontaneous dispersion of capital seems to be in accordance with F. Knight's understanding, who connected categories of risk premium and uncertainty (immeasurable risk that cannot be insured nor diversified) together (Knight 1971, p. 43–44, 46, 48). Similarly, K.J. Arrow (1979, p. 24) pointed out that the expected profit is a factor that makes investors undertake risks. Consequently, entrepreneurs become involved in various business activities.

Coexistence of risk premium and natural dispersion of capital leads to a model of capital in dynamic equilibrium (Dobija M., Dobija D. 2004, p. 95–97), which may be mathematically described as:

$$C_{t,s,p} = C_0 \times e^{(E(s)-s) \times t} = C_0 \times e^{(p-s) \times t}$$

where:

$p$  – risk premium,  $p = E(s)$ ,

$C_{t,s,p}$  – ending concentration of capital (expressed in monetary terms), which has been subdued to natural dispersion  $s$ , and risk premium  $p$  in a period  $(0; t)$ .

The above equation describes capital in an unstable equilibrium, since the rate of return  $r = E(s) - s$  equals to random zero (Dobija M., 2006b, p. 10).

With good management entrepreneurs can change that dynamic equilibrium into a profit creating system. Good management may include implementation of:

- enterprise-wide computer applications (e.g. customer relationship management system or supply chain management system);
- approaches to managing and improving business processes (e.g. Lean Production, Theory of Constraints, Six Sigma);
- corporate governance systems (e.g. The Sarbanes-Oxley Act of 2002);
- codes of conduct (e.g. ethical principles and standards applied by Institute of Management Accountants);
- enterprise risk management systems (e.g. Table 1);
- internal control systems (e.g. internal auditor position);
- good marketing, etc.

Implementation of management variable  $M$  into mathematical description of capital, leads to the capital growth model:

$$C_{t,s,p,M} = C_0 \times e^{(p-s+M) \times t}$$

where:

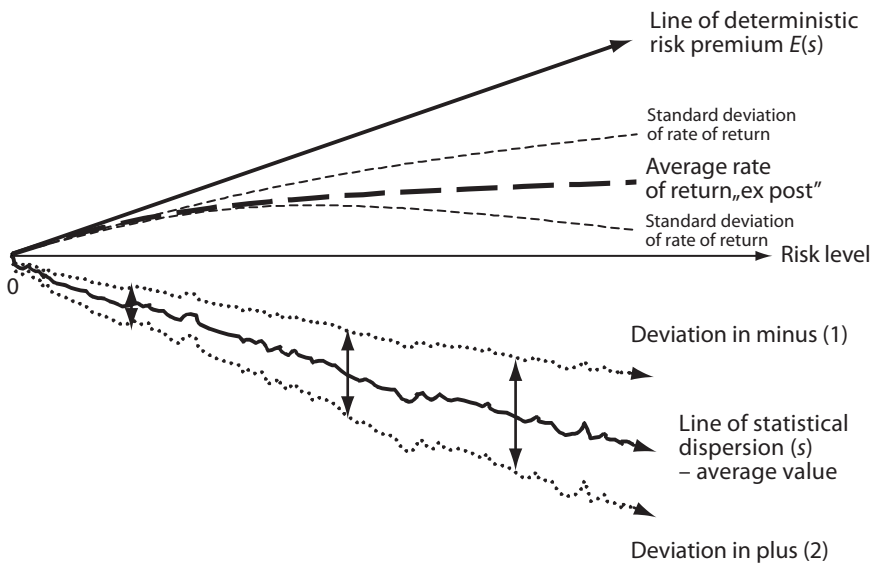
$C_{t,s,p,M}$  – ending concentration of capital (expressed in monetary terms), which has been subdued to natural dispersion  $s$ , risk premium  $p$  and a management variable  $M$  in a period  $(0; t)$ .

**Table 1.** Identifying and controlling business risks

Examples of business risks	Examples of controls to reduce business risks
Intellectual assets being stolen from computer files	Create firewalls that prohibit computer hackers from corrupting or stealing intellectual property
Products harming customers	Develop a formal and rigorous new product testing program
Losing market share due to the unforeseen actions of competitors	Develop an approach for legally gathering information about competitors' plans and practices
Poor weather conditions shutting down operations	Develop contingency plans for overcoming weather-related disruptions
A website malfunctioning	Thoroughly test the website before going "live" on the Internet
A supplier strike halting the flow of raw materials	Establish a relationship with two companies capable of providing necessary raw materials
A poorly designed incentive compensation system causing employees to make bad decisions	Create a balanced set of performance measures that motivates the desired behaviour
Financial statements unfairly reporting the value of inventory	Count the physical inventory on hand to make sure that it agrees with the accounting records
An employee stealing assets	Segregate duties so that the same employee does not have physical custody of an asset and the responsibility of accounting for it
An employee accessing unauthorized information	Create password-protected barriers that prohibit employees from obtaining information not needed to their jobs
Inaccurate budget estimates causing excessive or insufficient production	Implement a rigorous budget review process
Failing to comply with equal employment opportunity laws	Create a report that tracks key metrics related to compliance with the laws

Source: Garrison, Noreen, Brewer 2008, p. 28.

Capital will grow and increase its concentration only if  $p - s + M > 0$ . That condition represents at the same time ex post rate of return on invested capital<sup>3</sup>. Since management variable may act randomly, depending on managers' skills and good will, the outcome of each business activity is also statistical. However, in increased risk level conditions the spread of rate of return (measured e.g. via standard deviation of returns) is much greater than at low risk level (Figure 3). That observation has already been proved in a number of publications by Ibbotson Associates (2007). According to research conducted by that firm, average returns on common stock and their standard deviations are greater than average returns and standard deviations for T-bills and corporate bonds.



**Figure 3.** Capital growth model and ex post rate of return on capital

Source: Kurek 2007, p. 100.

## RISK PREMIUM ESTIMATION

The purpose of this paper is to assess the value of risk premium for average risk level conditions. Companies constituting Standard & Poor's 1500 Composite Index serve as a benchmark for that research. S&P 1 500 consists of three separate indices: Standard & Poor's 600 Small-Cap Index (S&P 600), Standard & Poor's 400 MidCap Index (S&P 400) and Standard & Poor's 500 Index (S&P 500) (Standard & Poor's, 2008).

<sup>3</sup> Technical note:  $e^x \approx 1 + x$ .

As commonly known, S&P 1500 is a broad market portfolio representing the large capitalization, middle capitalization and small capitalization segments of the U.S. equity market. Therefore, it is assumed that companies included in S&P 1500 Index represent average risk level conditions. What is moreover important, Standard & Poor's (2008) reports that indices are designated to reflect the U.S. equity markets, and through markets, the U.S. economy.

Further, strict criteria of index additions (and removals), such as liquidity, public float or financial viability were applied by Standard & Poor's to create the "trusted" index. Thus, it is guaranteed that companies included in the index are well managed entities, with management variable "M" at the highest possible level.

The assessment of the value of risk premium can be done by statistical estimation. The average value of financial ratio created from the general model of capital may serve as the estimator of risk premium *ex post* for average risk level conditions.

As it has already been presented, the growth model of capital takes the following form:

$$C_t = C_0 \times e^{(p-s+M) \times t}$$

Capital is an ability to perform labour, which is embodied in assets. Therefore:

$$A_1 = A_0 \times e^{(p-s+M)}$$

where:

$A_1$  – net cost of assets at the end of a one-year period under consideration;

$A_0$  – net cost of assets at the beginning of a one-year period under consideration.

Further, knowing that  $e^r \approx 1 + r$  it may be stated, that:

$$A_1 = A_0 \times (1 + p - s + M)$$

In the above formula, factors  $p$ ,  $s$  and  $M$ , taken together, create a rate of return on capital in a one-year period. The mathematical difference between random loss  $s$  and management variable  $M$ , equals to realised loss in a period  $s_a = s - M$ . Thus, the following equation may be written:

$$p = \frac{A_1 - A_0}{A_0} + s_a.$$

The increase in capital embodied in assets  $A_1 - A_0$  equals to realized income in a considered period  $I_{(0;1)}$ :

$$p = \frac{I_{(0;1)}}{A_0} + s_a.$$



However, business processes are continuous processes rather than discrete – in the case of high rotation new income is quickly capitalized. Therefore it seems more appropriate to compare realized income  $I_{(0;1)}$  to average value of capital (embodied in assets) in a considered period  $A_{av}$ :

$$p = \frac{I_{(0;1)}}{A_{av(0;1)}} + s_a.$$

At this moment it should be stated that factor  $s_a$  is equal to random loss that cannot be eliminated by good management. It is commonly known that extraordinary losses cannot be eliminated by any type of management. Therefore, the impact of extraordinary items must be eliminated from the numerator of the above formula. It can be done by using pre-extraordinary items income category.

Furthermore, it may be assumed that other possible costs that arise from risk can be eliminated by good management.

As a result of using income before extraordinary items in the numerator and assuming that all other risks are eliminated in well-managed companies, to which these constituting S&P 1500 Composite Index belong, it may be assumed that in the researched sample  $s_a \approx 0$ . It leads directly to the following formula for risk premium *ex post*:

$$p = \frac{I_{(0;1)}}{A_{av(0;1)}}$$

The presented ratio is one of Return of Assets (*ROA*) formulas. However, the chosen formula should not only represent income before extraordinary items, but also before dividends and taxes, since these are considered as income distribution. Furthermore, the amount of taxes (e.g. federal) is not proportional to the level of service that a company receives from the state (Hendriksen, van Breda 2002, p. 704).

Therefore, the following adjusted *ROA* formula was chosen to represent individual risk premium *ex post*:

$$ROA_{n;i} = \frac{PI_{n;i}}{\frac{1}{2} \times (A_{n-1;i} + A_{n;i})} \times 100\%$$

where:

$ROA_{n;i}$  – risk premium *ex post* in  $n$ -th year for  $i$  company;

$PI_{n;i}$  – pretax income in  $n$ -th year for  $i$  company;

$A_{n-1;i}$  – net cost of assets at the beginning of  $n$ -th period (which equals net cost of assets at the end of  $n - 1$ -th period) for  $i$  company;

$A_{n;i}$  – net cost of assets at the end of  $n$ -th period for  $i$  company.

Thus the estimator of risk premium *ex post* is the average value of adjusted *ROA* index in the researched sample:

$$\hat{p}_{ex\ post} = \overline{ROA}_{n;i}$$

The sample consists of companies constituting S&P 1500 Composite Index on the 22<sup>nd</sup> June 2006. Financial statements of the companies that have been filed in during 20 years period (1986–2005) were obtained from COMPUSTAT database (North America set, software: Research Insight version 8.0.0.11). In total, there were 22 952 observations of adjusted *ROA* ratio.

The two-sided confidence interval for the population mean of adjusted *ROA* index was constructed according to the formula well known in statistics (Hellwig, 1978, p. 214):

$$P\left[\bar{x} - t \frac{\sigma}{\sqrt{n}} < m < \bar{x} + t \frac{\sigma}{\sqrt{n}}\right] = 1 - \alpha.$$

The formula based on the standard normal distribution was chosen, since according to central limit theories, it may be used to estimate the population mean  $m$ , when sampling from any distribution with unknown variance and when sample size is large. The most commonly used values for degree of confidence are: 0.90; 0.95, 0.98, 0.99; 0.999 (Rusnak 2001, p. 244), (Stanisz 1998, p. 146). For the purpose of this paper, the highest value for degree of confidence has been chosen, i.e. 0.999. The point estimate of risk premium *ex post* in average risk level conditions equals to 8.57% with standard deviation of 14.81%. Finite population correction factor is not used to calculate standard deviation, since the population under consideration (i.e. all well managed business entities) is infinite.

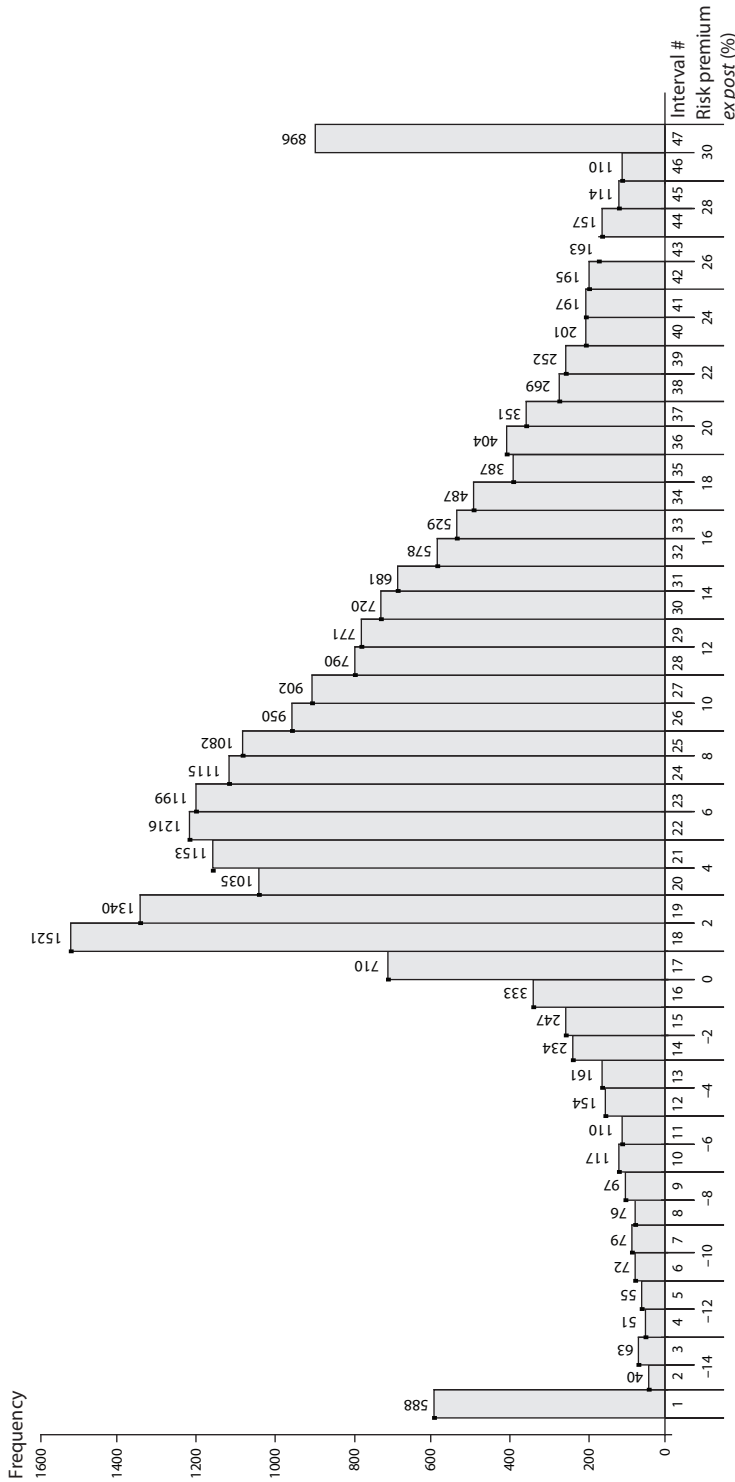
As a result of statistical estimation, the 99.9% confidence interval for risk premium *ex post* in average risk level conditions is equal to:

$$(8.25 \% ; 8.89 \%).$$

Relative precision of estimation equals to 3.75% therefore estimation is safe and fully acceptable. Concluding – the risk premium for average risk level conditions can be bracketed in a very narrow interval: from 8.25% to 8.89%.

At this moment it is worth mentioning that the results of statistical estimation of risk premium *ex post* may be slightly overstated. That stems from common practices in public limited companies known as “earnings management to avoid losses”<sup>4</sup>. It has been researched, that

<sup>4</sup> Such and similar practices are also known as “window dressing” and “income smoothing”.



**Figure 4.** Ex post risk premium frequency histogram (1986–2005; width of intervals: 1 percentage point; sample: public limited companies constituting Standard & Poor’s 1500 Composite Index on 22/06/2006)

Source: personal computations.

companies throughout the world (USA, Australia, Europe) in a situation, in which they should normally report small losses in its financial statements, tend to manage earnings and show small profits (Burgstahler, Dichev 1997; Holland, Ramsay 2003; Wójtowicz 2005, 2006). Around 30–44% of American companies manage earnings (Burgstahler, Dichev 1997, p. 124). Earnings management is carried out within allowed accounting policies, standards or generally accepted practices. That is why external auditors are not able to detect window dressing in a particular company (Wójtowicz 2006, p. 52). However, in a group of companies it is clearly visible that earnings management is performed, mainly because there is material inconsistency in rate of returns frequency histogram at the break-even point (Figure 4, Intervals #16 & #17 and also #17 & #18)<sup>5</sup>.

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<sup>5</sup> Inconsistency is also visible at the first (#1) and last (#47) interval and their neighbouring intervals. However, intervals #1 and #47 are cumulative, i.e. interval #1 contains all observations below (–15%) and interval #47 contains all observations over (+30%).

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**Maria Niewiadoma**

# SELECTED ELEMENTS OF SUPPORT FOR ACCOUNTANCY IN BANKING SECTOR

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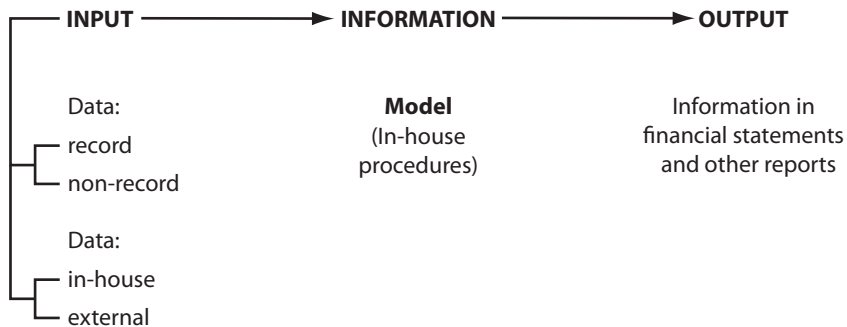
## Abstract

In the world of mature economy of financial sector, the increased competition and steady changes in respect to financial statement principles and standards, the importance of reliable disclosure on the part of banking organizations and other entities cooperating with banking industry is growing. Special attention in this respect must be directed to those elements that are involved in stabilization of those tools that provide basis for disclosure for decision making processes of banking industry, above all such issues as IAS/IFRS and XBRL. The challenges posed before the disclosure system of financial sector result from two dimensions: external (the obligation for Polish economy to adjust to banking industry conditions and standards of the European Union, the accession of member states to euro zone) and internal (such as the processes involved in accountancy standards improvements and requirements of knowledge-driven economy). One important issue here is the efficiency in utilization of information provided by accountancy for decision-making processes to provide compatibility with managerial needs and clarity for various target groups. How does the modern financial sector cope with the task, especially in relation to companies adopting IAS/IFRS, when foreign investors plan to change the country of financial involvement while simultaneously addressing the problem of impairment of banking assets? How to address the issues of real value of bank balance items in financial statements?

## 1. BASIC ELEMENTS OF INFORMATION SYSTEM OF AN ECONOMIC ENTITY

One of the accountancy functions is the provision of various information sets that are necessary for proper management of an economic entity. Banks also use accountancy to provide a prospective view on assorted product types offered on the market as part of their economic activities. The prevailing opinion is that information of “better quality” (i.e. more suitable for the purpose) should offer two qualities: usefulness and credibility. Usefulness of information for accounting purposes involves its capability to forecast results of the past, present and future events with potential correction of any deviations from the expected, forecasted or modelled prognoses as well as its influence on operational and strategic decisions (in accordance with IFRS 1). Credibility, on the other hand, is associated with “faithful reproduction” and “neutrality”, since reliability of a measurement is invariably related to accurate depiction of the measured value, while at the same time offering the certainty of its representative character. Another important issue is the selection of format (model, scheme) to be used in preparation of individual elements of the financial statement by a self-sustained economic entity of the financial sector. In the competitive market economy, proper presentation and choice of financial information in financial statements following the IFRS principles is of great importance for any potential investor, shareholder or bank customer. In practice, this may result in creative accounting.

**Input data** comprises quantified information (quantitative and qualitative) reflecting the past events and projecting the future events. This information pictures both events and processes within the bank and material/financial standing of bank’s present and potential customers as well as investors. The designed **information model** of a financial



**Figure 1.** Accountancy-supported information system in a company

Source: own research.

entity will influence the efficiency of future economic decisions (such as long-term credits granted, fixed-term deposit portfolio of fixed or flexible interest, etc.). Data processing results in **output information** expressed primarily in monetary values, as generated by accounting information system and presented in the form of various financial reports required by obligatory regulations as well as other in-house periodic reports prepared for headquarters or filial units. Data processing procedures typically involve the following activities:

- data identification (on the basis of source documents);
- data classification (by obligatory or facultative algorithms);
- registration and analysis of classified and processed data;
- presentation of processed information in codified (unified) form of reports, overviews, etc.

For bank management purposes, data is processed in such a way as to obtain information on: liquidity, solvency, profitability, credit service capability, financial efficiency.

### 1.1. Impairment of assets and its role in real data presentation for reporting purposes

In line with present regulations, banks listed on Warsaw Stock Exchange (in Poland) since 2005 have been obliged to prepare their financial reports in the IAS/IFRS format (Act of Dec. ... 2001; Act of Sept. ... 2002), while retaining the right to choose the form of financial reporting in respect to in-house reports as well as reports of own capital group subsidiaries. This right applies also to Poland-based subsidiaries of foreign companies, if their stocks are authorised on the EU public market. Adopting the IAS/IFRS format requires the consent from general meeting of the shareholders. All entities that adopt IAS/IFRS standard of financial reporting by law, are obliged to use it exclusively in their reports. In other words, only this format of financial reporting may be subject to scrutiny by chartered auditor, listed in registry and published<sup>1</sup> (Act of Dec. ... 2003).

In the case of banks, the individual items or groups of financial assets that have become impaired, resulting in loss are important elements of reclassification to IAS/IFRS standards. In such cases, one needs to reliably establish whether the impairment may be attributed to objective occurrence due to the events affected after the initial entry of the applicable assets in bank registers as well as assess the impact of impairment on future level of financial flows related to impaired assets.

The identification of sources (reasons) for asset impairment is done by the bank on the basis of objective qualitative and quantitative premises,

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<sup>1</sup> It must be noted that some smaller banks, not listed on the Warsaw Stock Exchange, have been obliged to adopt IFRS standards as late as for the 2006 financial year.

taking into account the assessment of customer's financial standing, history of transactions, as well as the overall business and legal situation. By analysing the level of banking risk elements, loss-incurring events (in terms of real premises for impairment) involve the following:

- significant financial problems of the issuer or debtor;
- breach of agreement on the part of transaction party, such as delayed settling or failure to settle capital dues or interests;
- high probability of financial reorganization or insolvency of creditor;
- granting the debtor (e.g. creditor) economically or legally substantiated credit facilities (or other forms of settlement to the advantage of the creditor) in response to financial problems, that would otherwise be deemed unacceptable by the bank;
- financial problems of the stock market or general lack of active market in regard to the given element of financial assets;
- forecasted decrease of future financial flows in respect to the analysed group of financial assets, including assessed prognoses on:
  - disadvantageous changes of settlement status of the debtors;
  - economic changes on national or local scale that may directly or indirectly correlate with bank asset impairment risk.

In such cases, banks distribute the dues to individual risk categories (*Instrukcja wypełniania formularzy...* 2006, p. 12) as:

- **normal dues:**
  - appraised individually and deemed with no objective evidence of impairment (in line with § 59 IAS 39/IFRS 7), but subject to portfolio appraisal (to reclaim losses incurred but not identified);
  - appraised by group (in line with portfolio assessment) if not deemed impaired dues (no loss reclaim),
- **dues under scrutiny** include those items that are not deemed as impaired by individual appraisal, despite occurrence of objective evidence of impairment<sup>2</sup>.
- **dues at risk** involve dues appraised individually and by group, for which objective evidence of impairment (in accordance with §59 IAS 39) was found<sup>3</sup>.

Each individual credit and leasing exposure is then subject to *asset impairment test*<sup>4</sup>. In case an impairment loss is recognized (through

<sup>2</sup> If, according to criteria set in the statutory instrument, the receivable is deemed questionable or lost, while the IAS criteria allow to deem it normal, the IAS ruling is decisive, with the provision that the receivable be marked under scrutiny (*Instrukcja wypełniania formularzy...* 2006, p. 12).

<sup>3</sup> Assignment of receivables to individual categories of risk should be done in accordance with (Act of Sept. ... 2002).

<sup>4</sup> Analysis of *asset impairment* may be performed:

- in relation to individual credit exposures of significant reporting value (e.g. upwards of 2 million PLN),
- in relation to portfolio of individually insignificant credit exposures.

objective evidence), the loss is recorded to update the real value of the dues. If no objective evidence of impairment loss is found, then the applicable credit or loan exposure is incorporated in the group portfolio and appraised collectively with other exposures bearing similar credit risk. The consequence of assessing the financial assets in group portfolio (categorized as loans and receivables, financial leasing dues or investments held to maturity), is the calculation of allowance as difference between balance value of the asset element and the current value of assessed future cash flows (excluding future credit losses that have not been incurred), discounted using the original effective interest rate calculated at the initial assessment of the given financial asset element.

**Example 1.** Asset impairment loss

Assumptions:

Bank H purchased for 88 million PLN, effective from 1.01.20X1, a company „Z” comprising of three business lines, being separate economic entities. The economic value of I business line, on the basis of DCF, is estimated at 24.6 million PLN.

**Variante A** – Settlement with option to allocate company value to business lines of the acquired „Z” company.

Impairment calculation for I business line:

Balance sheet value: 25.2 PLN, economic value 24.6 PLN – permanent asset loss of 0.6 PLN, hence overall loss of value for the company ascribed to I business line.

**Variante B** – Settlement with no possibility of allocating company value to individual business lines of the acquired „Z” company by Bank H.

Economic value of the acquired „Z” company is 96.0 million PLN, while economic value of I business line, based on DCF, is estimated at 24.6 million PLN.

Variante B requires comparison of company „Z” economic value with its balance sheet value.

Conclusion:

The solution in **Variante A** brings a value decrease for business line I. Consequently, Bank H balance sheet notes will show values different than those present in final business line I value in case of liquidation/resale/transfer in the form of non-cash contribution. On the other hand, **Variante B** represents a more “gentle” form of account for value loss results in a given asset item, since a managerial decision to devalue (by quantity or by value of the business line of acquired “Z” company) will bear different financial consequences. One should choose a variant best

suited from the bank development perspective, accounting for any and all aspects of the chosen variant.

Consequences for the financial reporting:

- presentation of initial and “reversed” value for each asset class, isolating capital-bearing items (and profit and loss account, if needed);
- detailed description of: dates, activities, circumstances of accepting (or reversing) the value loss;
- setting basis for economic value assessment for each asset class.

## 2. ROLE OF BANK DISCLOSURE IN SETTING GOALS FOR STRATEGIC MANAGEMENT

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Current analysis of financial sector legislature clearly shows the growing importance of information disclosed by banks to central management bodies and financial supervision authorities. Since April 1, 2007, Poland has introduced a statutory instrument obliging banks to disclose qualitative and quantitative data, with range of such disclosure dependant on banking classification (Act of Sept. ... 2002, §3), as follows:

- banks that are neither dominant nor subsidiary, disclose information on individual basis;
- banks that are dominant entities in EU legislature disclose information based on consolidated data;
- banks that are subsidiaries of EU dominant entities in financial holding disclose information based on consolidated data of the dominant entity;
- banks that are significant subsidiaries of EU dominant entity or EU entity dominant in a financial holding disclose information based on the highest available level of national consolidation or (in lack thereof) on the basis of individual data.

## 3. CONCLUSION

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To provide greater stability of banking operation, the accountancy system should not be limited to provision and transmission of data, but should also offer conceptual analysis of data. Favourable conditions for this approach are found in optimization of managerial and accounting staff towards supporting the decision-making processes, in the context of the risk of activity (Kwiecień 2007) and long-term planning via creative accountancy models involved in the management strategies of the financial sector. One important issue addressed herein is the problem of appropriate presentation of potential and real asset impairments in

financial reports as well as current appraisal of this group of report items, especially in the context of bank transition to new accountancy principles and policies. This is apparently stipulated by present legislative processes that stress the connection between accountancy and reliability of information, in the wider view that incorporates elements of asset impairment. Any negligence in this respect would lead to considerable loss of the financial sector at micro- and macroeconomic level in future reporting periods. Thus, improving in-house procedures of the bank information system in this area is an especially important issue that can be facilitated with proper accountancy involvement. It must also be noted that there are certain facultative prospects for preliminary solutions to managerial decision-making (such as individual appraisal of credit risk categories not included in asset impairment loss adjustments – in line with IAS 39/IFRS 7 principles addressing identification of gain-producing assets and asset impairment assessment). Hence, competences and knowledge of banking management as well as quality of forecast procedures used will *ex ante* influence future financial results of the sector and, consequently, the interest of foreign investors seeking to employ their resources in Poland, with its banking industry in over 80% owned by foreign capital (as of 2007).

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Mieczysław Dobija

# LABOUR PRODUCTIVITY RATIO AS A CORE OF INTERNATIONAL ECONOMIC COMPARISONS

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## Abstract

The significance of labour productivity ratio ( $Q$ ) is theoretically enlightened by a special production function formulated with no econometric approach. It appears that  $Q$  is a function of six important variables; among others are assets turnover, technical equipment of labour, and the relation of pay to employees' capital. Parity of  $Q$  helps to enlighten the economic position of an examined country in respect to another chosen country, for instance, the USA. Together with international comparisons of living standards and economic performance made using GDP per capita, it allows for deeper insight into a country's economic performance. GDP per capita as the only measurer meets a frequent criticism that it is a partial and ill-founded measure of social welfare and position of a country. The paper contains a ranking list of chosen countries arranged in line with the ratio  $Q$ . Computations are made assuming that the data concerning the USA, as well as average values of free market exchange rates are remarkably trustworthy.

## 1. THEORETICAL DESCRIPTION AND COMPUTATIONS OF LABOUR PRODUCTIVITY RATIO

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The ratio of labour productivity  $Q$  is simply arrived at as the real GDP per unit of labourer compensations. The last variable denotes a sum of all compensation parts, however in its disposable value. The mentioned value arises as total compensation less a part taken off by taxes for

salaries in the public sector. Thus the ratio  $Q$  determines a number of real GDP money units generated by one unit of disposable compensations. The ratio is clearly determined and it has an essential power of explaining some economic issues including, among others, the nature of the exchange rate. The ratio is simple by definition, but complicated in computation since it should express GDP as seen by the market, per unit of disposable earning of the working people. In the presented approach a careful collection of the required data (Table 1) is the first step.

In order to compute ratio  $Q$ , one can take into account adequate numbers of working people and their relevant wages and salaries. In the following computation two numbers of working people are taken into account. One number is registered in BLS with hourly pay \$18.84, and the second number is an estimation of people who make some input in GDP generating. To them the legal minimum wage is assigned. The first task is estimation of average hourly pay ( $AP$ ). For the USA the numbers are as follows:

$$AP = \frac{132\,604\,980 \times \$18.84 + 20\,170\,020 \times \$5.15}{152\,775\,000} = \$17.03$$

**Table 1.** Sources used in computing the labour productivity in the USA (2006)

Civilian labour force 16 years and over	152 775 000 persons	BLS <sup>1</sup>
Unemployment rate 16 years and over	4.5%	BLS
Working persons	145 900 125 persons	Computation
Not registered workers	20 170 020 persons	Computation
Legal minimum pay in the USA	\$5.15	BLS
Mean hourly wage	\$18.84	BLS
GDP per employee (GDPE)	\$90 112 \$90 158	TEDB <sup>2</sup> EconStat
Yearly hours of work	1791	TEDB
GDP	\$13 152.71 × 10 <sup>9</sup>	EconStat
Workforce	132 604 980 persons	BLS

<sup>1</sup> American Bureau of Labor Statistic, [http://www.bls.gov/oes/current/oes\\_nat.htm](http://www.bls.gov/oes/current/oes_nat.htm)

<sup>2</sup> Total Economy Database, January, 2007, Groningen Growth and Development Centre and the Conference Board.

Then it is assumed that disposable working peoples' income is arrived at by percentage 85%. The 15% involves a part of taxes designated for financing labour in the public sector. Thus  $\$17.03 \times 0.85 = \$14.48$ . Therefore, in case of the USA, an estimated value of the ratio  $Q$  is as follows:

$$\begin{aligned} Q_A &= \frac{GDP_A}{W} = \frac{\$13\,152.71 \times 10^9}{145.900125 \times 10^6 \times \$14.48 \times 1791} = \\ &= \frac{\$13\,152.71 \times 10^3}{\$3\,783\,727.154} = 3.476 \end{aligned}$$

In the above computation it has been assumed that all labour force is generating GDP, workers in the shadow economy and “not working” wives, either. It is as if a husband employed his wife for conducting household duties and childcare. Their hourly pay is assumed as the legal minimum pay. Another way of computing is strict in line with BLS data. Then we have a ratio:

$$\begin{aligned} Q_A &= \frac{GDP_A}{W} = \frac{\$13\,152.71 \times 10^9}{132\,604\,980 \times \$18.84 \times 0.85 \times 1791} = \\ &= \frac{\$13\,152.71 \times 10^3}{\$3\,803\,253.175} = 3.458 \end{aligned}$$

Assuming that the  $Q_A$  ratio is estimated sufficiently well, we take value 3.458 or 3.46 as a benchmark for all further computations.

An economic deeper sense of the ratio  $Q$  can be explained by a production function arising in an analytical approach rather than an econometric one, as discussed in earlier papers (Dobija 2001, 2004b). Reservations towards the econometric production function result from the observations of the features pertaining to money-goods economy, in which production factors are measured in money units; therefore the value of production outlays (labour costs, use of materials, etc.) is defined as an amount in a uniform unit of measurement. These production factors are **summed up** in the product according to the principles of cost calculation and common sense; therefore it is the **grand total of product components** as a result of combining production factors that should become the starting point for defining production function.

Taking into account the above fact, and applying the natural approach based on the calculus of costs, we arrive at a production function with seven specified arguments. As a result, the structure of arguments specifies all significant variables, and the basic analytical formula of the function does not require an estimation of parameters. A production function expressed analytically may be a tool of economic analysis using a differential calculus; or it may provide numerous non-linear models

describing the behaviour of a selected variable. The value of production in historical prices of outlays may be expressed as follows:

$$(W + M - R) = (W + z \times A - s \times A)$$

where:

$W$  – as defined above,

$A$  – assets as valued in the balance sheets,

$M$  – costs resulting from the use and depreciation of assets,

$R$  – natural loss of assets in production processes (costs of risk).

Denoting  $M/A = z$  and  $R/A = s$ , we determine product manufactured  $P$ , expressed in market prices, as is illustrated with the formula:

$$P = (W + z \times A - s \times A)(1 + r)(1 + I)$$

where:

$P$  – value of products in real market prices,

$z$  – index of annual assets' turnover,

$s$  – ratio of losses on the assets in the production processes,

$r$  – average increase of historical prices to market prices,

$I$  – additional increase over average increase of market value as a result of the presence of intellectual capital in a company and economy.

After reshaping, the value of production becomes:

$$P = W \times [1 + A/W \times (z - s)](1 + r)(1 + I)$$

As the variable  $W$  is related to human capital, we assume:

$$W = u \times H$$

where:

$u$  – rate of remuneration of human capital (pay off),

$H$  – total value of human capital of all employees

thus when we replace the equivalents we arrive at the formula:

$$P = W \times [1 + A/H \times (z - s)/u](1 + r)(1 + I)$$

Components of sums following one approximate zero, therefore when we apply the approximation of:  $1 + x \approx e^x$ , we may express the production function as the following formula:

$$P = W e^{r+I} [1 + A/H \times [(z - s)/u]] = W \times Q,$$

where:

$Q$  – labour productivity.

Thus work productivity is a dimensionless variable (multiplier) and as a function of several variables, it can be written as follows:

$$Q = \frac{GDP}{W} = e^{r+I} \left[ 1 + \frac{A}{H} \times \frac{z - s}{u} \right]$$

$Q$  therefore depends upon the capacity to generate market value ( $r + I$ ), technical equipment for the work ( $A/H$ ), assets rotation ( $z$ ), cost of risk ratio ( $s$ ) and the degree of remuneration for labour ( $u$ ). Then variable  $Q$  is the labour productivity ratio understood as a multiplier of labour costs which generates production volume, and  $Q$  represents value of production per one dollar of disposable compensations. There is, therefore, a functional relationship that expresses non-linear relations between the structure of variables and production as expressed in market prices.

An increase of ratio  $Q$  productivity means an increase in the society's wealth. If there were no assets, i.e.  $A = 0$  then  $Q$  would equal one. With no assets, we can hardly speak of a "market" thus  $r = 0$  while intellectual capital might be perhaps represented by a priest-magician able to evoke propitious circumstances. No assets means that the prehistoric man gathers food necessary for his survival, and this alone constitutes his wages. Then products equal earnings, and  $Q = 1$ . These days that index is usually higher than one and, for example in the USA, it approximates 3.458. What is more, as commonly known, real productivity is a significant element in the theory of currency exchange rates.

## 2. INVERSE VALUE OF $Q$ AS THE LABOUR SHARE RELATED CATEGORY

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As commonly known labour share has been pretty constant for years. As (McConnell and Brue 1986, p. 463) write:

*...In a social science characterized by frequent changes in critical variables, a seemingly constant share of national income paid to labor resources invites investigation. Second, the relative shares of the national income accruing to labor and property provide insights as to the relative importance of these two types of economic resources. Third, the relative sizes of property and labor income relate to the degree of inequality in personal income. Data show that income from property is more unequally distributed than income from work...*

Authors refer to J.M. Keynes' opinion who observed that:

*...the stability of the proportion of the national dividend accruing to labour is one of the most surprising, yet best-established facts in the whole range of economic statistics. It is stability of this ratio for each country which is chiefly remarkable, and this appears to be long-run, and not merely a short-period phenomenon...*

C.R. McConnell and S.L. Brue (1986, p. 463) introduce data showing that in years 1982–1984 the share of employee compensation was 74.8%, proprietor income was 4.8%, corporate profits was 8.7%, interest was 9.9%, and rent was 2.1%. Splitting proprietor income between

employee compensation and capital income in the same proportion that wages bear to capital income in the rest of the economy, we are able to estimate labour and ownership shares. In the considered case labour share is:

$$\frac{74.8}{74.8 + 20.7} \times 4.8 + 74.8 = 78.56\%.$$

Similarly, capital share is 21.44%. Interpreting labour share more broadly as the sum of compensations and proprietor income we find that labour share has been close to 80% and, what is more, data shows that such labour share has been virtually stable for decades of the twentieth century. Authors show that labour share broadly defined has fluctuated only 2 or 3 percentage points around 80% of the national income.

Economists have introduced many theories of labour share. No matter which is better, the labour share determined as  $1/Q = W/GDP$  depends on labour productivity ratio and others share as well. It results as of the two equations:

$$GDP = W + O$$

$$GDP = W \times Q$$

where:

$O$  – parts of GDP belonging to others (may be interpreted as owners or assets) but employees,

$W$  – disposable compensations,

$Q$  – labour productivity ratio.

Therefore  $O$  is a function of  $Q$  and one can write the relation as follows:

$$GDP = GDP \frac{1}{Q} + GDP \frac{Q-1}{Q} = W + O$$

To explain more clearly the nature and the meaning of a disposable compensation let us consider an economy with three workers only with a pay of 3 currency units (cu) each. GDP is assumed, let us say, 12 cu so that  $Q = 12/9 = 1\frac{1}{3}$ . Let us assume the second case when one of the employees is a teacher employed in the public sector, so the two pay tax in order to pay him the salary. Then the pays of the two of them are 4.5 cu. Tax is 1.5, so the disposable salary is 3 cu, and everybody actually earns again 3 cu. However, now the  $Q$  ratio is  $12/(4.5 + 4.5 + 3) = 1.0$ . For that reason payroll earnings ought to be adjusted to the disposal value equal to 9 cu in the considered case. Labour seen properly as a transfer of employee capital to products is always self financing, as is explained in the paper (Dobija 2005, 2007) and others. It is clear that labour share should be  $1/1\frac{1}{3} = \frac{3}{4}$ , and not 1 in the considered case.

The share belonging to others can be else interpreted as a share generated by assets. A bridge on a river belonging to a local community also

gives some input in generating the GDP. Thus, we can consider GDP as the sum of disposable wages and salaries plus share related to assets, which always have their owners. Speaking about compensation represented by the variable  $W$ , we do not refer to a payroll pay but rather to a disposal value of employee earnings which is determined as compensation less amounts of taxes designed for financing labour in the public sector.

The above formulas introduce the simplest theory of labour share. It explains that simultaneously with normal growth of labour productivity, the others share grows following a pattern determined by the function  $f(Q) = (Q - 1)/Q$ . This curve maps efforts and positions of countries climbing to a greater percentage of the others (owners, assets) share. We see that a positive number of the considered share appears if the  $Q$  ratio is bigger than one. Productivity growth changes in line with the growing global competition. A quick jump of labour productivity took place in the USA in the nineties as an answer to earlier Japanese advances in this field (see Mishel et al. 2007). It is worth noting that labour share does not conclude with employees welfare. Conversely, the less labour share the better situation of employees. As is computed further the above defined labour share in Romania is 0.8721 but in the USA it is only 0.2892. In addition, employees are also the owners of different stocks.

The ratio  $Q$  is rather stable since its parts change slowly. Despite a long period of stability and even an increase of labour share in the past, it is not true any more since in the USA the labour share in 2006 was equal to  $1 : 3.458 = 28.92\%$ , and not  $74.8\%$ . In its place the share belonging to others was 0.7108 or 71%. Labour share at the level of  $74.8\%$  means that the productivity ratio  $Q$  was equal to  $1/0.748 = 1.34$ . For the USA this ratio is much greater now but still many countries attain merely the level of 1.25 and even less. Destroying wars can cause the ratio  $Q$  to be even less than one in a period.

### 3. THE FUNDAMENTAL RELATIONS AND A METHOD OF ESTIMATING THE $Q$ RATIO

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Dollar values of GDP per capita or GDPE are usually estimated at PPP. This means that a basket of goods has been taken for computation of special unit called PPS. But a question of theory arises. As commonly known, the law of one price has been falsified by McDonalds' products and other empirical verifications. This "law" suggested that the exchange rate can be estimated by dividing prices of even one-element basket. Putting it in other words: the exchange rate is expected to transform prices into prices, not only in some numbers. It has appeared as not true either in respect to the price of goods or salaries and wages. It

is expected that increasing the number of comparable elements in baskets can improve estimation, however, it is still not a theory but practice made at discretion.

The ratio  $Q$  is a generalization of the productivity variable pointed out by B. Ballasa and P. Samuelson in their issues related to the exchange rate theory. This ratio involves all the working force and all products either marketable or not marketable. The following rationale leads to the formula describing the exchange rate behaviour as a function of two main parities: the parity of  $Q$  and the parity of GDPE. However, the  $Q$ 's parity participates with square since labour productivity is overpowering the variable in respect to an exchange rate.

In order to arrive at a method of estimating the labour productivity ratio using the observed values of the exchange rate and to recognize the relationships involved, we transcribe correlations in which GDP denotes the real GDP and  $W$  is a disposable compensation, as formerly. Indices  $P$  and  $A$  denote: Polish and American (The USA), respectively. We write the equations:

$$\begin{aligned}GDP_P &= W_P \times Q_P \\GDP_A &= W_A \times Q_A\end{aligned}$$

By combining the equations:

$$\frac{GDP_P}{GDP_A} = \frac{W_P}{W_A} \times \frac{Q_P}{Q_A}$$

we arrive at:

$$GDP_P [z1] = \frac{W_P}{W_A} \times \frac{Q_P}{Q_A} \times GDP_A [\$]$$

It is clear that the expression  $W_P Q_P / W_A Q_A$  involves some influence of the exchange rate. We are aiming at identifying a form of this participation. If we divide  $W$  by the number of employees  $L$  we arrive at formulas of average wages ( $AP$ ).

$$GDP_P [z1] = \frac{AP_P}{AP_A} \times \frac{L_P}{L_A} \times \frac{Q_P}{Q_A} \times GDP_A [\$]$$

Further, when we divide GDP by an appropriate number of persons employed, we arrive at the following equation:

$$GDPE_P [z1] = \frac{AP_P}{AP_A} \times \frac{Q_P}{Q_A} \times GDPE_A [\$]$$

where:

$GDPE$  – real GDP per one person employed.



The above formula shows that the average value of exchange rates participates in the above relation indeed. Actually, as the earlier research (Grabowski 2001; Dobija 2001) showed, the average value of the exchange rate in the past year determined by the factor of *AP* parity provided the same labour productivity ( $Q_P/Q_A = 1$ ). Then the two considered economies are fully comparable, and the law of one price holds. Instead, the general formula is as follows:

$$ER = \frac{D_p}{D_A} \times \frac{Q_A}{Q_P} = \frac{1 - d_p}{1 - d_A} \times \frac{AP_p}{AP_A} \times \frac{Q_A}{Q_P}$$

where:

$D$  – disposal value of employee earnings,

$d$  – relevant percentage.

The above formula has been already a subject of research. Z. Grabowski (2001) showed that the past average value of the exchange rate can be estimated by parity of average wages  $AP_p/AP_A$ , but only in case of labour productivity parity being held, *i.e.*  $Q_A/Q_P = 1$ . Dividing the presently established average hourly pays in the year 2006 for the USA and UK as \$14.48, and 8.38£ respectively (see further computations), we get a good and simple estimation of an average exchange rate;  $ER = \$14.48/£8.38 = 1.728$  \$/£, when EconStat's value is 1.8434 \$/£. This estimation holds if the parity of ratio  $Q$  holds. Table 2 shows some issues of mentioned research.

**Table 2.** Wage estimation of exchange rate

Country	Average disposable pay in the USA	Average disposable pay in the country	Estimated <i>ER</i>	Observed average <i>ER</i>
Germany	\$2 437	4300 DM	1.765	1.74 DM/\$
Japan	\$2 437	298 900 YEN	122.7	121.00 YEN/\$
UK	\$2 437	1.649 £	0.677	0.61 £/\$

Source: Grabowski 2001.

The above results concern countries where the parity of ratios  $Q$  is close to one, which means that the labour productivity of each economy is to some extent comparable to the USA's productivity. Since the UK's productivity at this time hardly followed the one of the USA, the difference was slightly bigger.

Combining the two above formulas by eliminating parity  $AP_p/AP_A$  we get a fundamental relation:

$$GDPE_P [zl] = ER \left[ \frac{zl}{\$} \right] \times \left[ \frac{Q_P}{Q_A} \right]^2 \times \frac{1 - d_A}{1 - d_P} \times GDPE_A [\$] \quad (A)$$

Hence:

$$Q_P = Q_A \sqrt{ER \left[ \frac{\$}{zl} \right]} \times \sqrt{\frac{1 - d_P}{1 - d_A} \times \frac{GDPE_P [zl]}{GDPE_A [\$]}} \quad (B)$$

Using formula B one can dependably compute ratio  $Q$  for countries, and prepare a ranking list of countries ordered in line with labour productivity. What is more, by applying formula (A) one can derive a formula describing the average value of the exchange rate. Then we get a pattern (C):

$$ER \left[ \frac{zl}{\$} \right] = \left[ \frac{Q_A}{Q_P} \right]^2 \times \frac{GDPE_P [zl]}{GDPE_A [\$]} \times \frac{1 - d_P}{1 - d_A} \quad (C)$$

where:

$P$  – means Polish,

$A$  – means American,

$zl$  – name of the Polish currency.

So far the variables GDP and GDPE denoted real GDP and real GDPE. Coming back to the normal meaning in which GDP and GDPE are expressed in current prices, we get a formula involving the parity of GDP deflators. Taking into account this change, the exchange rate formula is as follows ( $C$  means a country):

$$ER \left[ \frac{cu}{\$} \right] = \left[ \frac{Q_A}{Q_C} \right]^2 \times \frac{GDPE_C [cu]}{GDPE_A [\$]} \times \frac{1 - i_C}{1 - i_A} \times \frac{1 - d_C}{1 - d_A} \quad (D)$$

In the above formula both GDP and GDPE are in current prices.

Although the above formulas are introduced by clear deduction, a testing and verification of the above formulas is possible in econometric approach as well. Then one can estimate parameters of a model. In log form the hypothesis may be expressed as follows:

$$\ln ER = a + b \left[ 2 \ln P_Q + \ln P_{GDPE} + \ln P_{def} + \ln P_d \right] + \varepsilon$$

where:

$\ln ER$  – log of the observed average value of the exchange rate,

$\ln P_X$  – log of the relevant parity concerned in formula (D),

$\varepsilon$  – random error with zero mean and normal distribution.

Testing for formula (D) to hold the regression estimates would yield parameter  $a = 0$  and parameter  $b = 1$ . The exchange rate variable should be taken from EconStat as the average yearly values.

Here is, however, a place for a settlement of the ratio  $Q$  computed in line with formula (B) using the free market exchange rate and computed directly. We use the UK data as more easily accessible although still uncertain, but coming from a well organised country. In addition,  $(1 - d_{UK})/(1 - d_{US})$  is assumed as equal to 0.965 (0.82/0.85). We take into account, among others, that America's Tax Freedom Day<sup>3</sup> started in 2006 on April 28th but the same day started in the UK on June 1st. The number of employees is modified in line with the proportion applied to the USA data. It is  $145.9/132.6 = 1.1$ . Therefore  $GBPE_{UK} = \text{£}1\,283\,000/28.412 = \text{£}45\,157$ . Knowing that the parity of GDP deflators is equal to 0.99 (EonStat), formula B yields a result:

$$\begin{aligned} Q_{UK} &= Q_A \sqrt{ER \left[ \frac{\$}{\text{GBP}} \right]} \times \sqrt{\frac{1 - d_{UK}}{1 - d_A} \times \frac{1 - i_A}{1 - i_{UK}} \times \frac{GDPE_{UK} [\text{GBP}]}{GDPE_A [\$]}} = \\ &= 3.458 \sqrt{1.843 \frac{0.965 \times 0.99 \times 45\,157 \text{ GBP}}{\$90\,158}} = 3.2044 \end{aligned}$$

In order to compute  $Q$  with a direct method, we need adequate data. There is no information about the UK's hourly wages in 2006. Therefore the disposable hourly income is computed using the US data and exchange rate. It is possible because these two countries are in labour productivity parity. Then  $\$18.84/1.843\$/\text{£} = 10.22\text{£}$  and  $0.82 \times 10.22\text{£} = 8.38\text{£}$ . Direct computing leads to a result:

$$Q_{UK} = \frac{GDP/(1 + i_{UK})}{EMP \times hours \times pay} = \frac{1\,249\,270}{28.412 \times 1624 \times 8.38} = 3.2309$$

The difference is sufficiently small. Achieving the exact consistency is impossible taking into account this kind of data and different estimations. Let us note that these issues received by entirely different modes of computation confirm exactness of formula (B) and others.

Beneath, in the Table 3 is a sample of computations of ratio  $Q$ . Parity of  $GDP$  deflators are computed using data from EonStat. The general formula with involved deflators is:

$$Q_C = Q_A \sqrt{ER \left[ \frac{\$}{\text{cu}} \right]} \times \sqrt{\frac{1 - d_C}{1 - d_A} \times \frac{1 - i_A}{1 - i_C} \times \frac{GDPE_C [\text{cu}]}{GDPE_A [\$]}}$$

<sup>3</sup> America's Tax Freedom Day® Arrives April 30 in 2007, Two Days Later Than 2006 <http://www.taxfoundation.org/news/show/52.html>

**Table 3.** Data (2006 year) and example computation of productivity ratio

Country	ER – average value (2006) Cu per \$	GDP current prices Millions	Number of employees Millions	Parity of GDP deflator	Ratio of disposability	Productivity ratio $Q_c$
Switzerland	1.2532	469 820	4.211	1.058	Ni	3.534505198
Canada	1.2563	1 430 790	16.529	0.999	Ni	3.021506806
China	7.9723	168 878 500	765.883	0.970	Ni	1.886352585
India	45.186	363 292 700	405.606	0.960	Ni	1.588666260
Indonesia	9090.9	28 938 010 000	94.948	0.934	Ni	2.037906586
Brazil	2.1758	2 107 820	72.480	0.911	Ni	1.270808833
Mexico	10.975	8 735 650	42.810	0.815	Ni	1.417667532
Israel	4.4545	576 880	2.776	1.002	Ni	2.489947808
Morocco	8.7475	490 590	11.406	0.986	Ni	0.801884831
Nigeria	127.47	13 112 280	48.307	0.867	Ni	0.494837363
Poland	3.0642	997 920	14.581	0.998	Ni	1.719427147
Sweden	7.3718	2 804 960	4.392	1.000	0.9	3.215805457

Ni – not identified

## 4. ESTIMATING AN ADEQUATE VALUE OF THE EXCHANGE RATE. UKRAINIAN CASE

In addition to its theoretical meaning, the pattern (D) can serve for establishing an adequate value of an exchange rate when free market does not exist, as is the case in Ukraine. This is a large European country which has been independent since 1991. The government applies a rigid exchange rate at the level of 5 hrn/\$. A. Petryk (2005) tries to explain the rationale of this policy and he does some estimations of a more adequate value of the exchange rates at the level of 3.5 hrn/\$ for the year 2006 .

Research shows that the hourly disposable pay is not greater than 9.5 hrn per hour<sup>4</sup>. Estimating directly  $Q_U$  we have the value:

$$Q_U = \frac{465.19 \times 10^9 \text{ hrn}/1.1268}{20.68 \times 10^6 \times 9.5 \text{ hrn} \times 1830} = 1.1483$$

In order to estimate a reasoned value of the average exchange rate in case of Ukraine, the needed data for 2006 are listed as follows:

Number of employees =  $20.680 \times 10^6$

GDP =  $465.19 \times 10^9$  hryvna

GDPE =  $465.19 \times 10^9$  hryvna/ $20.68 \times 10^6 = 22\,495$  hryvna per employee

GDP deflator for Ukraine is  $1 + i_U = 1.1268$

GDP deflator for the USA is  $1 + i_A = 1.0216$

Parity of GDP deflator = 1.1029

Number of hours = 1830

$Q_U = 1.1483$

Assuming  $Q_U = 1.1483$  and parity  $d_U/d_{US} = 1$ , we apply formula (E) in order to determine the adequate size of the average exchange rate [hrn/\$] in 2006.

$$\begin{aligned} ER \left[ \frac{\text{hrn}}{\$} \right] &= \left[ \frac{Q_A}{Q_C} \right]^2 \times \frac{1 + i_A}{1 + i_C} \times \frac{GDPE_C (\text{hrn})}{GDPE_A (\$)} \\ &= \frac{11.96}{1.32} \times 1.1029 \times \frac{22\,495 \text{ hrn}}{\$90\,158} = 2.4933 \left[ \frac{\text{hrn}}{\$} \right] \end{aligned}$$

Thus, for  $Q_U = 1.1483$  the average exchange rate in 2006 is estimated as equal to 2.4933hrn/\$. The exchange rate at the level of 5.0 hrn/\$ must cause many obstacles in Ukrainian economy, as was the case earlier in Poland and other countries.

<sup>4</sup> Estimation is made by Professor Franc F. Butyniec, Zhytomyr State University of Technology, Ukraine (private letters, 2007).

## 5. THE RANKING LIST OF COUNTRIES

A direct computation of the labour productivity ratio is possible but doubtful. The difficulty lies in little data dependable on countries. Our doubtfulness is related, among others, to the existence of the shadow economy in many countries (in lesser or greater size) and the uncertainty of the wage data. In such situation the wages are uncertain and so is the size of GDP. To solve this problem we can use the formula (B). This relation enables to use *EconStat*, and *Total Economy Data Base* and other more dependable sources in order to compute ratio  $Q$  for a chosen country. Applying the formula we compute the values placed in the body of Table 4.

**Table 4.** Ranking list of chosen countries in relation to labour productivity

Ratio $Q$	Name of countries	Labour's share	Others share	GDPE(\$) at PPP (TEDB, EconStat)	GDPC(\$) at PPP (EconStat)	Adequacy of minimal pay <sup>5,6</sup>
	Group 1					
1.1467	Romania	0.8721	0.1279	25 924	9 730	
1.1483	Ukraine	0.8709	0.1291	17 717	7 803	52%
1.1850	Russia	0.8439	0.1561	25 407	12 143	
1.2699	South Africa	0.7875	0.2125	32 945	11 385	
1.2708	Brazil	0.7869	0.2131	22 625	9 132	
1.3260	Turkey	0.7542	0.2458	29 314	9 421	
1.3757	Malaysia	0.7269	0.7171	31 307	11 915	
1.4143	Latvia	0.7071	0.2929	34 220	15 805	
1,4177	Mexico	0.7054	0.2946	28 177	11 302	
	Group 2					
1,5401	Lithuania	0.6493	0.3507	37 297	15 481	
1.5887	India	0.6295	0.3705	9 661	3 490	
1.6783	Estonia	0.5958	0.4042	40 269	18 959	
1.7194	Poland	0.5816	0.4184	40 204	15 212	75%
1.7405	Portugal	0.5746	0.4254	45 999	20 847	
1.7548	Slovak Republic	0.5699	0.4301	44 328	17 689	
1.8730	Czech Republic	0.5339	0.4661	45 142	22 402	80%

<sup>5</sup> Minimal pay adequacy percentage; see subsequent section.

<sup>6</sup> Empty place means; not estimated.

1.8864	China	0.5301	0.4699	11 650	6 761	
1.9012	Croatia	0.5260	0.4740	44 750	14 253	
1.9463	Hungary	0.5138	0.4862	49 601	19 328	85%
	Group 3					
2.0379	Indonesia	0.4907	0.5093	9 739	4 095	
2.0811	Greece	0.4805	0.5195	62 630	26 058	
2.1655	Spain	0.4618	0.5382	63 075	30 871	
2.2107	Taiwan	0.4523	0.5477	67 852	28 789	
2.2663	Slovenia	0.4413	0.5587	52 340	24 044	
2.3341	South Korea	0.4284	0.5716	49 794	23 608	
2.4900	Israel	0.4016	0.5984	67 791	23 800	
2.4928	Italy	2.4928	0.4012	72 799	30 921	
2.4970	Germany	0.4005	0.5995	66 631	31 461	100%
	Group 4					
2.5006	Netherlands	0.3999	0.6001	72 608	36 471	100%
2.5992	Finland	0.3847	0.6153	77 674	36 037	
2.6292	France	0.3804	0.6196	81 151	33 592	100%
2.7117	Singapore	0.3688	0.6312	57 773	29 591	
2.7635	Belgium	0.3619	0.6381	85 480	35 058	100%
	Group 5					
3.0215	Canada	0.3310	0.6690	70 784	35 348	100%
3.0238	Australia	0.3307	0.6693	72 298	36 376	100%
3.0690	Japan	0.3258	0.6742	65 628	32 828	
3.2044	United Kingdom	0.3333	0.7777	74 457	34 904	100%
3.2158	Sweden	0.3110	0.6890	72 298	36 376	100%
3.2824	Iceland	0.3047	0.6953	70 615	40 241	100%
3.4337	Denmark	0.2912	0.7088	70 555	36 337	100%
3.4580	USA	0.2892	0.7108	90158	44 010	100%
	Group 6					
3.5345	Switzerland	0.2829	0.7171	67 797	37 942	100%
3.7320	Ireland	0.2679	0.7321	86 751	42 927	
3.7481	Norway	0.2668	0.7332	85 051	43 802	100%
3.9128	Luxemburg	0.2556	0.7444	100 286	66 193	100%

Sources of data: GDP current prices: EconStat, Number of employees: Total Economy Data Base, Average value of exchange rate for 2006: EconStat, GDP deflator: EconStat.

The computations showed existence of countries where ratio  $Q$  is less than 1. One reason is explained by the Ukrainian case. The government applies a policy of rigid exchange rate, which is too high. The estimation showed an adequate rate of 2.5 hrn/\$, and then ratio  $Q$  is greater than 1, which is consistent with a good judgment with considerable confidence. The second reason are extraordinary events such as wars and/or a quick increase of internal debt. On the other hand, the country's exchange rate could be applied as less than its free market value. Then the ratio  $Q$  is higher.

**Table 5.** Sample of countries with ratio  $Q$  less than 1

Country	ER	GDP	Emp	Deflator Parity	$Q_c$
Ukraine	5.0000	465 190	20.680	0.8500	0.740920624
Ukraine	2.4933	465 190	20.680	0.8396	1.061822189
Morocco	8.7475	490 590	11.406	0.9860	0.801884831
Bulgaria	1.5997	45 270	3.325	0.6500	0.856583457
Iran	9172.6	2 216 539 000	27.293	0.6800	0.893599947
Egypt	5.7757	625 760	16.883	0.9400	0.894465423

It is worth noting that we cannot use a reshaped formula (A) in order to estimate country's GDPE in dollars as follows:

$$\frac{GDPE_c(\text{cu})}{ER(\text{cu}/\$)} = \left[ \frac{Q_p}{Q_A} \right]^2 \times \frac{d_A}{d_c} \times GDPE_A[\$]$$

There is not a proof that dividing GDPE (cu) by the exchange rate would yield true value of GDPE (\$). Instead, one can estimate country's GDPE (\$) taking into account the relation of productivity and the fact that American GDPE (\$) = \$90 158. For example Polish  $Q = 1.72$  and American  $Q = 3.46$ . Relation  $1.72/3.46 = 0.497$  shows that per one unit of American productivity Poland matches only 0.497 unit. Therefore  $GDPEP(\$) = 0.497 \times \$90\ 158 = \$44\ 809$ .

There are some countries such as China, India and Indonesia where differences between computation based on the introduced theory and the data taken from databases are extremely high. Therefore some countries achieve higher ratio  $Q$  not paying fair compensation for employees' labour (see subsequent section). In spite of that, the ratio  $Q$  is correct as well as its consequences. Ukraine is a well recognized case of a country with a too low minimum wage, and consequently low basic wages for most of the employees. It is the main reason of the differences. Workers



are paid too little so the demand for goods is smaller and prices are lower. Therefore comparing a bundle of goods one can attain to a lower value of GDPE or GDCP estimated at PPP.

The compared estimations are more consistent in case of countries where basic wages and salaries are significantly consistent with employees' human capital, *i.e.* compensations are on the fair level. The Western countries form the benchmark group where compensation is consistent with employees' human capital. Let us see a hypothetical calculation. The Polish ratio has been computed as  $Q = 1.72$ . It means that  $GDP/W = 1.72$ . Since  $GDP = 998$  billions so  $W = 580$  billions. If increased by, let us say, 15% then  $W = 667$  billions, and relevant  $Q = 1.49$ . Then  $GDPE = \$38\,972$ , not  $\$44\,418$ . On the other hand, a country's employing class can be weak and little productive and improving the process needs years, so the questioning of the real compensation is not a good way.

**Table 6.** GDPE in dollars for 2006 computed in line with theory and at PPP (TEDB)<sup>7</sup>

Group	$Q$	Country	$Q_c/Q_A$	ER [cu/\$]	GDPE(cu)	GDPE(\$) (theory)	GDPE(\$) at PPP (TEDB)
1	1.15	Ukraine	0.33	5.00(2.49)	22 495	30 226	17 717 <sup>7</sup>
	1.19	Russia	0.34	28.25	35 606	31 008	25 407
	1.33	Turkey	0.39	1.44	23 847	35 162	29 314
2	1.59	India	0.46	45.19	89 568	41 431	9 661
	1.72	Poland	0.50	3.07	68 440	44 818	40 204
	1.89	China	0.55	7.97	220 502	49 248	11 650 <sup>7</sup>
3	2.04	Indonesia	0.59	9090.90	28 369 223	53 157	9 739
	2.17	Spain	0.63	1.2563	22 413	56 544	63 075
	2.50	Germany	0.72	1.2563	58 472	65 143	66 631
4	2.60	Finland	0.75	1.2563	66 687	67 749	77 674
	2.63	France	0.76	1.2563	69 643	68 531	81 151
	2.76	Singapore	0.80	1.5882	89 149	71 990	57 773 <sup>7</sup>
5	3.07	Japan	0.89	116.31	8 019 199	79 996	65 628
	3.46	USA	1.00	1.00	90 158	90 158	90 158
	3.53	Switzerland	1.02	1.2532	111 570	91 982	67 797
6	3.75	Norway	1.08	6.41	798 686	97 715	85 051
	3.91	Luxemburg	1.13	1.2563	91 885	101 884	100 286

$$GDPE_A(\$) = \$90\,158$$

<sup>7</sup> Own computation in line with EconStat: GDP based on PPP per capita GDP US dollars, Variables Pop, Emp, come from TEDB, Rest data are from TEDB.

The explanation of the forces of the introduced theory, in comparison to such an anti-theory approach as the Big Mac index, is shown in the well known Japan-USA hamburger case. Omitting the inflation parity and the disposability ratio, which are close to 1, the coefficient  $Q_C/Q_A$  is equal to:

$$\frac{Q_C}{Q_A} \approx \sqrt{ER \left[ \frac{\$}{\text{cu}} \right] \times \frac{GDPE_C(\text{cu})}{GDPE_A(\$)}}$$

thus

$$ER \left[ \frac{\text{cu}}{\$} \right] \approx \frac{GDPE_C(\text{cu})}{GDPE_A(\$)} \times \frac{Q_A^2}{Q_C^2}$$

It is a better way of estimating  $ER$  than the Big Mac index<sup>8</sup>. For example Japanese hamburger price in 2006 would yield the estimation 80.645 Yen/\$ = 250 Yen/\$3.1. It is charged with the error -30.621% in respect to real  $ER = 116.31$ . Instead, applying the above formula  $ER \approx (9.4249/11.9716)^{-1} \times (8\,019\,199/90\,158) = 112.98$  Yen/\$. The error is only -2.75%.

## 6. RATIO $Q$ IS HIGHER WHEN THE COMPENSATIONS ARE UNDER A FAIR LEVEL

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The percentage of pay adequacy expresses the degree of basic pay fairness. According to the human capital theory, as discussed in earlier papers (Dobija 2000, 2004a, 2007, Ch. 4) and elsewhere, the employee's human capital is preserved if the present value of the future stream of pays is equal to the employee's capital. This rule holds when the basic pay is determined as 8% of the employee capital. Research done shows that Western capitalistic countries apply this rule entirely establishing their legal minimum wages. The latter is a benchmark for the basic pay for others. This is not the case in, for example Eastern European countries. The Ukrainian basic pay is only 52% of that resulting from the human capital calculation. Consequently, Polish and Ukrainian workers go to Ireland and other Western countries where they enjoy fair pay, and the countries gain progress in their labour productivity.

The category of capital, as considered here, is understood along with modern contemporary approach as an abstract ability of performing work. Capital does not mean fixed assets, nor land or money, and is abstract and only measurable in money units. Human capital is employees' ability of doing work. Instead, intellectual capital of a company is its

<sup>8</sup> <http://www.oanda.com/products/bigmac/bigmac.shtml> (Data from 2006).

ability of performing over average profitability. Capital is abstract and homogeneous, and its concentration on products determines the level of its value. Capital, defined as the abstract capability of doing work, is for economic sciences as energy in physics and chemistry. Therefore the second law helps to explain the nature of capital especially its spontaneous and random diffusion, which is the reason of the existence of the phenomenon called risk. The risk is an unavoidable but random dispersion of capital, and is an indirect source of income as well. The very nature of reality is the reason that the free market exchanges disclose an economic constant known as the risk premium. As plenty of research has proved (Dobija 2003, Kurek 2007) the size of this constant is 8% of an initial capital. Economic activities and a game between risk and premium stimulated by good management create income. This explanation is in accord with F. Knight (1921), a well known consideration about uncertainty as a source of profit. The second law and the risk premium helps, moreover, to realise the existence of the fair values in economy, fair compensation and fair prices particularly.

The denominator of ratio  $Q$  is the sum of employees' disposable earnings. This means that the size of compensations has an essential impact on labour productivity. In order to do a fair comparison of countries' labour productivity, a level of remuneration should be examined. The shape of production function points out that an optimal pay level exists because the compensation payoff ratio ( $u$ ) appears both in nominator and denominator.

$$P = u \times H \times e^{r+I} [1 + A/H \times [(z - s)/u]]$$

This means that the  $u$  ratio is limited to a determined value. In fact, it is known that the bottom limit of the payoff ratio  $u$  is 8% of employees' human capital. Eight percent determines the right basic pay but some premium can increase it. The research done in Poland points out that a typical payoff ratio ( $u$ ) is about 10% in an average prospering company. Eight percent determines the basic pay and 2%, which makes 25% in respect to the basic pay, indicates an average size of premium.

The human capital model is derived from the general model of capital as introduced in (Dobija, 2004a). The general model of capital joins three forces affecting initial capital  $C_0$ :  $s$  – the rate of initial capital diffusion,  $p$  – the market risk premium,  $m$  – a variable called management.

$$C_t = C_0 \times e^{-st} \times e^{pt} \times e^{mt} = C_0 \times e^{(p-z)t}$$

where:

$$z = -s + m$$

$t$  – time

The case of the human capital of growing children variables ( $s$ ) and ( $m$ ) does not affect their human capital because these are parents and

society who cover costs of living and others. Therefore the above model births the human capital model by removing ( $s$ ) and ( $m$ ) as follows:

$$H_t(p) = H_0(p) \times e^{pt}$$

where:

$H_t(p)$  – human capital,

$p$  – 8% risk premium,

$H_0(p)$  – stream of costs of living and professional education capitalised by  $t$  years.

Having determined the model of employee's capital, one can derive that a fair pay is determined as a factor of the 8% risk premium and

**Table 7.** Minimal wages of Western countries in comparison to pay computed in line with human capital model (2006)

	USA ( $t=17$ )	Sweden <sup>9</sup> ( $t=18$ )	UK ( $t=18$ )
Monthly costs of living	375–425 USD	3000–3500 SEK	275–325 GBP
Personal human capital $H$	162 001 USD	1 460 550 SEK	134 820 GBP
Yearly labour costs ( $H \times 8\%$ )	12 960 USD	116 844 SEK	10 785.6 GBP
Monthly costs of labour (theoretical)	1 080 USD	9 737 SEK	899 GBP
Legal minimum wage	5.50 USD/hour	55 SEK/hour	5.35 GBP/hour <sup>10</sup>
Legal monthly costs of labour	5.50 USD $\times$ 176 = = 968 USD	9 680 SEK	5.35 GBP $\times$ 171 = = 914.85 GBP
Relation between legal and theoretical wage	90% 100% <sup>11</sup>	99,4%	101%

<sup>9</sup> In Sweden, which unlike a number of other EU Member States has no legislation on a national minimum wage, term used in the sense of the minimum rate which by collective agreement must be paid in all circumstances for certain work or to employees of a certain category. <http://www.eurofound.eu.int/emire/SWEDEN/ANCHOR-MINIMIL-Ouml-N-SE.html>

<sup>10</sup> The UK minimum wage is to rise by 17p – about 3% – from £5.35 to £5.52 an hour from October 2007. Workers aged 22 and over: £5.52 an hour, Workers aged 18 to 21: £4.60 an hour, Workers aged 16 and 17: £3.40 an hour

<sup>11</sup> On May 25, President Bush signed a spending bill that, among other things, amended the FLSA to increase the federal minimum wage in three steps: to \$5.85 per hour effective July 24, 2007; to \$6.55 per hour effective July 24, 2008; and to \$7.25 per hour effective July 24, 2009.

employee's capital. The fair compensation means that the employee's capital is preserved by an adequate size of wages. Briefly speaking, the present value (*PV*) of the stream of wages is equal to the employee's initial capital (*H*):

$$PV = p \times H_i(p)/p = H_i(p).$$

It is a rule that Western democratic and capitalistic countries execute 8% rule. It is, however, not a rule in case of many other countries. Table 7 and Table 8 present a calculation of minimal wages consistent with the human capital of an employee. Computations are made on the basis of the human capital model as applied to a young person just starting their first job. Such a person has neither experience nor a serious

**Table 8.** Minimal wages of Central Europe countries in comparison to pay computed in line with human capital model (2006)

	Poland ( <i>t</i> = 18)	Ukraine ( <i>t</i> = 17)	Hungary ( <i>t</i> = 17)
Cost of living (4 persons)	450–550 zł	380–420 hrn <sup>13</sup>	35 000–45 000 ft <sup>14</sup>
Value of human capital <i>H</i>	224 701 zł	162 001 hrn	1 620 000 ft
Yearly cost of labour (0.08 <i>H</i> )	17.976 zł	12 .960 hrn	1 296 000 ft
Monthly cost of labour (MCL)	<b>1498 zł</b>	<b>1080 hrn</b>	<b>108 000 ft</b>
Legal minimum wages	936.0 zł/month <sup>12</sup>	400.0 hrn/month	66 000 ft
Monthly cost of labour at legal minimum wage (LMCL)	936.0 zł × 1,20 = = 1123 zł	400.0 HrN × 1.366 = = 546 hrn	66 000 ft × 1.19 = = 90 321 ft
Ratio LMCL to MCL	75%	51%	84%

<sup>12</sup> In July 2005, the lower house of the Polish parliament approved new rules for adjusting the national minimum wage, whereby it will increase by forecast inflation plus two-thirds of the *GDP* growth rate, until it reaches half of the national average wage.

<sup>13</sup> The Ukrainian costs of living were estimated by academics: Olena Wojnalowicz and Katarzyna Romańczuk, Zhytomyr State University of Technology, Ukraine, Date: January, 2007.

<sup>14</sup> Own rough estimations.

professional education. Using economic constant  $p = 8\%$  as capitalization rate we capitalize costs of living through  $t$  years. For the USA it is  $6 + 10 = 16$  years at least. Capitalization formula is:

$$K = k \frac{(1+p)^t - 1}{p}$$

or

$$K = k \frac{e^{pt} - 1}{p}$$

where:

$k$  – yearly cost of living,

$p$  – 8% risk premium,

$K$  – capitalized cost of living by  $t$  years.

In opposition to Western countries many other countries apply legal minimum pay beneath 8% theoretical level. It causes migration of labour force to the Western countries, because compensation less than 8% of initial human capital means its depreciation. This flow of human capital raises labour productivity in developed countries.

## 7. SOME NOTES ABOUT PPP THEORY

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Human experience with exchange rate is natural and simple. He or she goes into an Exchange Office and sees a table informing him/her about the relation between currencies. He or she buys the required currency, if they accepted the given price, and the transaction is accomplished. In addition, an individual comprehends more or less his/her money with his/her earnings from the accomplished labour, if any comprehension takes place. Certainly, it is the charge of the past that in economics, conversely to an individual, the exchange rate is comprehended with goods and their prices manifesting in both countries.

It is indisputable that currency exchange rates are formed by the market and applied for converting units of different currencies. On the other hand, it remains an open question whether currency exchange rates can be used for translation of the prices between goods expressed in different currencies. Economists were hoping so, and they expressed their hope in the *law of one price*, which, however, became one grave disappointment. Searching for a better theory researchers divide goods into groups for instance: tradable and not tradable, trying to find a better explanation because “the law of one price” works poorly. As commonly known the principle called the *law of one price*, was proven erroneous and consistently false in relation to McDonald’s products. Among economists there are those who claim that the *law of one price* is correct, and it is the exchange rates that are wrong. This may be true in a situation

when exchange rates are manipulated as a result of a certain policy, but otherwise, in any other situation, stating that is disrespectful of market mechanisms and there is no point in discussing this matter further.

B. Balassa and P. Samuelson (Pilbeam 1998, p. 154) published papers in the year 1964, which paid attention to productivity. But again, this productivity is considered in respect to groups of products, for example barber's product is not tradable but car is tradable so apparently respective productivities of labour play their role. Moreover, this productivity is considered in respect to a number of employees and a ratio is measured in the value of products produced and sold per one employee. The question arises about the multitude of state officers, professional soldiers, teachers and so on? Do not they have any influence on the exchange rate both by their number and their salaries? What happens if there is not a parity in these matters between countries as is often the case? What happens when one country increases military production and simultaneously conducts military operations much more than other countries? As far as the money exchange market is free, all the mentioned agendas have some pressure on an exchange rate. This pressure is involved well in dimensionless ratio  $Q$ .

As stated by (Kasa 1995), PPP is one of the oldest economic theories. The author traces it back to the philosopher D. Hume and the year 1752. We know, however, that it has been used in practice ever since commerce existed and currencies were exchanged. In operation, though, this simple theory comes upon considerable operational difficulties, as not all goods are subjected to market arbitration, and furthermore, price levels can be measured differently – therefore a very low efficiency of PPP in explaining the behaviour of exchange rates. A lot of research done by K. Kasa (1995), Lothian (1998), Beachill and Pugh (1998), Rogoff (1989) and others signalizes that testing the PPP hypothesis leads to rejections. The recent examinations made by I. Drine and Ch. Rault (2007) confirm existing difficulties with the PPP theory and its explanatory potential. The researchers still hope that the hypothesis shall not be rejected over a longer period of time and/or upon application of more sophisticated methods of statistical analysis.

The results of research upon exchange rates may be presented and summarised as follows. Exchange trends are influenced by relationships (parities) of GDPE, the inflation and labour productivity. As far as the inflation and productivity are concerned, a hypothesis may be formulated, stating that the variable of the **real productivity of labour as determined in this paper** is essential in explaining the nature of money purchasing powers and currency exchange rates. The parity of ratio  $Q$  affects with square. Fluctuations in the exchange rates very precisely mirror the influence of those particular variables changing. We can see that clearly from the analysis of rates' fluctuations according to the degree of their market liberation. At the time of the Polish currency

(zloty's) denomination, that relationship was at the level of approximately 9500 zł per dollar, i.e. 0.95 PLN (new zloty) per dollar. Due to a far higher labour productivity in the USA compared to Poland, the zloty had systematically decreased in value, falling as low as 4.5 zł/\$. The USA's decision to direct high outlays for "star wars", military operations in Afghanistan, and then Iraq, decreased the real labour productivity in the USA since war products are not fully marketable. Moreover, wages of most of the labourers in Poland are low, and the working time of many employees is getting longer. Thus productivity of work as described by the analytical production function is also growing. This state of affairs has led to the reversal of the trend, and now the zloty is getting stronger, as commonly known.

It is worth noting that money, which by its very nature constitutes abstract receivables for work, has not become liberated, and its value has not manifested itself in the free market exchange until the year 1973 – the time of departure from rigid currency exchange rates, after the Bretton Woods system failure. It was then when money became liberated and broke through the too narrow, doctrinaire views, according to which money is not even defined in qualitative terms, nor is its nature explained. That particular event provided an opportunity for reflecting upon the capacity of rejecting false theories. In the case of money theoreticians, instead of active attempts at falsifying theories, there is an apparent reluctance to depart from falsified monetary doctrines.

## 8. CONCLUSION AND SOME NOTES ABOUT COUNTRIES' ECONOMIC GROWTH POSSIBILITIES

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Albert Einstein<sup>15</sup> is credited with a statement often repeated in Business Schools. Referring to the compound interest formula this great scientist told that it is ...*the greatest mathematical discovery of all time*. Although one can see some exaggeration in this statement, it is not necessarily a funny story opinion since he himself introduced the rule 72 explaining when initial capital is doubled if percent is equal to (a). It comes after 72/a years. There is some rationale for a high appreciation of the compound interest formula. Discerning the compound interest formula as an economic growth model; we see that it is an essential law indeed, provided of understanding the complexity of the rate of growth. According to the present knowledge (Dobija 2007), the rate of growth  $a = p - s + M$ , where subsequent variables denote: the risk premium as the economic

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<sup>15</sup> Referring to compound interest, Albert Einstein is quoted as saying: "It is the greatest mathematical discovery of all time", <http://www.ruleof72.net/rule-of-72-einstein.asp>



constant ( $p = E(s) = 0.08$  [1/year]),  $s$  – the rate of diffusion of capital determined by the nature of reality, and  $M$  denotes management *i.e.* activities being able to limit  $s$  in order to generate income and growth.

To show the relation between the rate of growth and productivity ratio  $Q$  one can use and reshape the formerly introduced formula.

$$Q = \frac{GDP}{W} = e^{r+I} \left[ 1 + \frac{A}{H} \times \frac{z-s}{u} \right] \approx e^{\frac{A}{H} \alpha M}$$

Variables  $r, I, z, s, u$  rely upon a current management so they all are involved into the variable  $M$  with adjusting parameter  $\alpha$ . Now putting it into the capital growth model with adjusting parameter  $\beta$  we get formula as follows:

$$C_t = C_0 \times e^{\left( p-s + \frac{\beta \times H \times \ln Q}{\alpha \times A} \right) \times t} = C_0 \times e^{-st} \times e^{pt} \times e^{\lambda \frac{H \times \ln Q}{A}}$$

In the above formula the subsequent factors denote pressure on the initial capital  $C_0$  of the thermodynamic arrow of time ( $e^{-st}$ ), the market risk premium ( $e^{pt}$ ), and the widely understood management manifesting in the productivity ( $Q^{\lambda H/A}$ ). In addition,  $p = E(s) = 0.08$  [1/year]. Interpreting the above model one can see that even at  $\ln Q = 0$  ( $Q = 1$ ) some growth may take place. It is because the sun shines and rains fall so grass grows, trees yield their fruit, and wild animals and fishes multiply. But the case is to have a high ( $Q$ ), as well as adequately paid off people ( $H$ ) eager to work and able to work wisely and productively. Assets do not decline growth since the assets variable is also in numerator of  $Q$ , so the formula shows only for existence of an optimal value of assets similarly to optimal value of compensations.

Since basic pay  $L = p \times H$ , we may replace  $H$  by  $L/p$ . In order to introduce the briefest model of a rate of capital growth in a country let us observe that  $p - s$  is equal to random zero, so  $e^{(p-s)t}$  is random 1. Denoting  $\xi$  as a random number coming from a normal distribution  $N(1, \varepsilon)$ , where  $\varepsilon$  is a very small close to zero random number, the rate of growth in form  $C_t/C_0$  is as follows:

$$\frac{C_t}{C_0} = 1 + \frac{\Delta C}{C_0} = \xi \times Q^{\frac{\lambda L}{pA}}$$

Here it is clearly disclosed that a fair pay  $L$  paid for the employees, a sufficient amount of peace time  $t$  for peace activities conducted with a fairly high productivity  $Q$  is a reliable recipe for a quick growth *i.e.* a progress and a success of a country (*nihil novi sub sole*).

Consideration, computations, and examinations lead to a compact theory having the ability of explaining many agendas of international comparisons involving the exchange rate of money. The core of the theory is a dimensionless labour productivity ratio as discussed in the paper.

The parity of this ratio is also the main factor shaping the exchange rate trends. On the other hand, it allows for a new look on countries positions from the economic developments point of view. This insight should take into account a set of information such as productivity ratio ( $Q$ ), labour and others share percentages, GDPE(\$), GDPC(\$), and compensation pay off ratio. The last ratio together with Gini's coefficient computed for labour income explains much about country's economic affairs. As commonly known, ratio  $Q$  slowly changes by years (constancy of labour share), so its sudden jump gives a significant insight into a country's economic matters. One of the immediate benefits of its computing is, in case of  $Q$  less than 1, the necessity of improving the economic policy. Disrespect for the free exchange rate, often exercised by politicians, is evidently evil for economy, and the ratio  $Q$  can show senselessness of such a policy. What is more, this ratio is a good benchmark of country policies, reforms, and strategic decisions. To pass to the group of states with a higher productivity is a serious task. Countries being able to use their workforce as well as the workforce from abroad productively, as for instance Ireland, can achieve quick economic progress. Conversely, countries wasting their workforce can only dream about unfulfilled comparability and a status of the highly productive countries.

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PART VI

EXTENSIONS



Susan W. Martin

# USA CREDIT CRUNCH IMPACT ON MUNICIPAL BOND MARKET

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## Abstract

The sub-prime mortgage market crisis in the USA continues to wreak havoc in the national credit markets creating liquidity crises in unexpected sectors. The sale of Bear Stearns with the intervention of the Federal Reserve for a proposed \$2 a share is an event that would have been considered unimaginable. The liquidation of a major New York investment bank in a few short weeks adds to a continued decline in consumer confidence. One unexpected effects of these events is the sudden and dramatic impact on the municipal bond market with failures in recent auction rate securities driving the cost of capital up far above normal tax-exempt rates. The instability in the municipal credit market is beginning to impact the student loan market, major infrastructure projects, hospitals and health care credit making access to capital extraordinarily expensive or even unavailable. The municipal bond market has long been considered a safe haven for low-risk secure investment and now faces a shaky and uncertain future.

The credit and liquidity crunch in USA financial markets, as a result of the sub-prime mortgage meltdown, has caused a decline in consumer confidence, which is evidenced in recent stock market declines as well. A new victim of the continuing liquidity crisis is Bear Stearns; a long-standing investment bank whose \$1.2 billion headquarter building in New York City is now its single most important and valuable asset. Within a period of two weeks a sudden lack of confidence in the ability of Bear Stearns to cover their aggressive leveraged bets on numerous complicated securities and derivative products, resulted in the US Federal Reserve Bank and JP Morgan agreeing on a forced sale price of \$2 a share (recently rising to \$10 a share). Executives and employees of Bear Stearns were encouraged to hold their position in the stock of

the company and saw their fortunes evaporate overnight. The long-time Chairman who always advised employees to hold their stock, saw his personal stake decline in value from \$1.2 billion to less than \$100 million overnight and recently had to sell most of his holdings to pay the tab on a \$26 million apartment he had recently purchased at the New York Plaza Hotel. The investment positions of Bear Stearns were so complicated that it was almost impossible for the firm to be valued by a swarm of JP Morgan and Federal Reserve Bank personnel over the weekend of the sale. The events were so sudden that a rumor goes around that the Chairman was playing bridge in a tournament while most of the events took place. Lehman Brothers, another investment bank in New York, was rumored to be the next to fall and its stock declined by half and then rebounded as the firm valiantly provided reassurance to the market about their ability to meet their obligations.

Municipal bonds have long been considered as boring “old-lady” investments compared to the excitement and risk of owning or even day-trading individual stocks on-line via the Internet. In the dot-com stock boom (a bubble that later burst), everyone became an expert on stocks and traded individual stocks valiantly in the hope of “beating” the market. For the risk-averse, the municipal bond market provided a “safe haven” to park your money in the long-term and to ensure a safe retirement investment that would generate both Federal and State tax-free interests that were solid and secure. Many municipal bond issuances bought bond insurance through providers like AMBAC, MBIA, etc to reduce their interest cost. The cost of the bond insurance in basis points was far less than the net present value savings of having “purchased” an AAA bond rating due to the insurance. The credit market crunch cast a big floodlight upon the bond insurers and raised questions about their own investment portfolio. The result was a devaluation in their stock market value and confidence in their ability to deliver payment upon their insured portfolio, if required. The bond insurers were effectively eviscerated in the stock prices’ market value to the point that Warren Buffet offered to buy-out and “shore up” the bond insurers. Warren Buffet’s offer failed as it only offered to “take-out” the better credits – he wisely partitioned the debt into two sectors and offered to “bail-out” the better slice. Who would handle the other riskier slice then? Insurance is all about a portfolio of risk that requires the good guys (low risk of default) to be in with the bad guys (higher risk of default) – if you split them into two bundles and sell them off – who buys the bad guys? No one will buy the bad guys (higher risk of default), was the strong answer in this market. Therefore, Warren’s offer failed, as the split was impossible to sell.

The interest-rate swap suddenly led the municipal bond market into a troubled space that it still is having trouble recovering from. What is an interest-rate swap? It is a derivative product that is fairly complex to understand.



The GASB issued standards on repurchase agreements in 1986 in Statement 3<sup>1</sup> recognizing the importance of educating financial officers that enter into such agreements about the importance of understanding and disclosing the counter party risk when investing public monies. Governments often have large amounts of short-term cash available to invest due to tax collection due dates and a more even flow of expenses. How can they effectively manage and invest the available short-term cash? A repurchase agreement can be entered into by a government with a counter party financial institution using the excess cash. Basically, the government transfers excess cash and in return the counter party financial institution offers collateral for the cash that will be returned with interest (fee) in a specified time period, usually 24–72 hours. The collateral is to be held by the counter party – highest risk, to be held by third party – secondary medium risk, which is most common in practice due to fast turnaround of dollars, or in the best case, lowest risk and it is very uncommon that collateral is held by the government. The GASB required governments to disclose the level of risk on where the collateral was held (by the counter party – highest, by third party – medium level risk, or by the government – lowest risk). This forced governmental units and financial officers to try and understand the complex product they were engaged in and the level of risk involved. Many governmental units, including the State of Nebraska, experienced significant losses in the early 1990s when some counter party financial institutions (ESM being an example) built up a significant level of trust and business and then walked away with the cash. Hence, the GASB issued financial reporting requirements to force governmental units to understand and disclose the level of risk they were undertaking in these complex investment transactions.

The interest-rate swap (or trade) is a mechanism where generally a weekly auction matches buyers and sellers (governments), which enables governments to obtain a lower cost of capital and interest rate. A governmental unit normally should hold no more positions in swaps than its total amount of debt. Governmental units that felt sophisticated enough to understand these markets made decisions to issue a part of their long-term debt portfolio into effectively a short-term weekly auction-rate market. The interest rates paid were significantly less than if they had financed this borrowing with long-term fixed rate bonds.

Jefferson County, Alabama (home to 660,000 people, including the City of Birmingham, Alabama) is facing bankruptcy as it was playing the derivatives interest-rate swap market with 13 interest-rate swaps valued at \$5.4 billion compared to \$3.2 billion in debt outstanding. Moody's is quoted as noting that they are unaware of another large municipality

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<sup>1</sup> GASB Codification, Governmental Accounting and Financial Reporting Standards I 50.

that had a greater amount of swap to debt than Jefferson County in on Alabama (*Crunch Settles...* 2008).

Moody's downgraded Jefferson County's rating to B3 from A3 – a huge devaluation of the outstanding bonds of Jefferson County that impairs and challenges the restructuring of their troubled situation. Standard & Poors downgraded Jefferson County's rating to CCC – essentially a junk rating. Recently, Jefferson County faced a call to produce the collateral of \$200 million in some interest-rate swap contracts and failed to deliver the collateral or cash to close the swap deal it entered into while playing the markets to their own benefit (*Swaps Backfire...* 2008). Jefferson County is now being forced to consider bankruptcy protection, yet at the time of this writing still had not delivered the \$200 million required in the derivative product contract.

The Wall Street Journal notes that Jefferson County is not the only foolish municipal player in a complex derivative of financial instrument:

*During the past three years, municipalities have entered into more than \$500 billion of interest-rate swaps...*

(ibidem)

*There are more than 100 municipal entities around the country trying to deal with the same problem as Jefferson County, only on a lower magnitude...*

(ibidem)

Confused? What is happening in an interest-rate swap is that two interest rates generally move very closely together enabling a weekly auction to flip cash back and forth in a smooth, relatively seamless low-risk to all parties engaged in investing cash in the short-term and investors peeling off low-risk short-term interest earnings with excess cash as well. It is a trillion dollar market that has worked smoothly for some time. It becomes dangerous when either party does not understand the risks or the derivative instrument involved and is not prepared for it when balancing their overall investment portfolio. Greed can overcome the need to balance risk. The participation in interest-rate swaps of the City of Houston definitely cost their cost of borrowing, saving taxpayers \$18 million over three years as opposed to issuing a fixed-rate debt. However, now that the auction-rate securities market has failed, Houston is paying close to 8% while their counter party is only on the hook for about 2% (ibidem). Houston has to pay the spread. Other stories are much more difficult. The Port Authority of New York was paying 18% on one bond issue as a result of failure of the auction-rate market. The Marquette General Hospital in the upper peninsula of Michigan is currently paying 15% as a result of the weekly failure of its auction rate securities.

The State of Michigan MI-Loan program that provided student loans to Michigan students recently shuttered its windows and closed shop entirely due to an inability to sell any long-term bonds to finance student loans. Other financial institutions that were big players in the student loan markets recently announced they will no longer service student loans.

Where will the credit crunch and liquidity crisis in the USA end? No one could have expected Bear Stearns to be effectively liquidated, that the municipal credit market would become perilous and spread a frosty chill upon the student loan market, nor that a low-risk municipal bond market would be increasingly questioned.

The Conference will take two months after publishing this article, so we can all enjoy and reflect upon the continuing and surprising epilogue that is taking place in the USA as the credit and liquidity markets struggle to find stability.

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**Victoria Vovk**

# THE IMPORTANCE OF ACCOUNTING INFORMATION EFFICIENCY FOR THE SUCCESSFUL FUNCTIONING OF AN ADMINISTRATIVE SYSTEM

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## **Abstract**

The success of a person in charge largely depends on the efficiency of the administrative decisions made in an enterprise in the continuously changing markets conditions. Information plays a significant role in this. It allows not only an estimation of the current activity of an enterprise but also optimises it in a certain way. The purpose of this paper is to investigate to what extent the information formed in a registration system can be adequately and fully used for the effective management of an enterprise.

## **1. INFORMATION RESOURCES**

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The level of production activity of an enterprise can be measured with a large number of parameters. It can be estimated by both quantitative and cost indexes. However, these parameters must acknowledge the results of financial and economic activity, which is formed as a result of the permanent use of material, labour and financial resources. Besides, all the listed resources are reflected in another resource – the informative one. The information itself is a basis for the estimation process that

already took place, it embodies the present situation, and allows planning and forecasting future activity of the enterprise.

Information resources play a great role in the modern environment. They enable not only the rational usage of materials, capital funds, labour and finances, but also substantially increase the efficiency of their usage.

Information systems in the enterprise management are closely tied with the development of information technologies, which allow to collect information, generalise it or make it detailed and process and represent it in a way needed for the users, in the form of advanced computing engineering software.

Any transaction of information in an enterprise acts as a primary source on the basis of which administrative services can form certain conclusions regarding certain management aspects.

## 2. ACCOUNTING AND BOOK KEEPING SERVICES

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Collecting information on the activity of an enterprise is the responsibility of the accounting service. The record keeping itself is accompanied by financial and economic transactions and provides information to users on the past activity of an enterprise and some possible alternatives.

The carried out research shows that the requirements regarding the accounting service officers of an enterprises restrict their real capabilities. Usually all accounting information is concentrated on a chief accountant who is the chief of the book keeping service and the managerial staff at the same time. However, due to demands of time, general requirements on both the registration and the chief accounting system of an enterprise require certain improvements. Let us consider the basic requirements regarding the registration service and their influence on the administrative system of an enterprise in the frame of two directions:

- the organisational aspects of the activity of the book keeping service officers;
- the functional aspects of the mentioned activity.

The requirements that are brought forward to the registration service in the frame of the organisational aspects are grouped in Table 1.

The quoted requirements which are brought forward to the book keeping service officers only partly characterise the specific nature of the book keeping activity and outline the qualification requirements of the position of chief accountant; however they do not represent the basic goals of accountants that are required at their everyday complex job. The requirements regarding the registration service in the frame of functional aspects are shown in Table 2.

**Table 1.** Features of the organisational aspects of the book keeping service

The basic requirements to the book keeping service officers	Cooperation with the administrative system	Cooperation type
<p>Persons that can apply to the position of chief accountant must not only have a higher education but also work experience on the managerial position (office) from 3 to 5 years.</p> <p>The approval of an assignment by a chief accountant, transferring and dismissal of financially responsible persons.</p>	<p>The mentioned requirements imply the presence of experience, therefore the capability not only to generalise and acknowledge the results of the enterprise activity but also to diversify the obtained actual data depending on the necessities of the managers.</p>	Exists
<p>The book keeping officers must obey the laws, decisions, decrees, orders, directions, etc, as well as the civil law and the labour, financial and economic legislation.</p>	<p>Data related to the changes in the organisational structure of personnel do not influence the administrative decisions.</p>	Absent
<p>A chief accountant must provide rational organisation of book keeping and accounting in an enterprise on the basis of centralisation and progressive forms and methods of record keeping.</p>	<p>This limitation is true from the point of view of the accounting and book keeping system on the state level. Nevertheless, these systems do need such information that will allow to research more profoundly and to evaluate the subject that is researched in order to raise its effectiveness as to usage in future periods</p>	Absent
<p>Rational organisation of book keeping and accounting in relation to the results of enterprise activity in theory predicts a differentiation of information for administrative needs, however at legislative level [3] there are hard restrictions regarding how this organisation should be run.</p>		Exists partly

**Table 2.** Features of the functional aspects of the book keeping service

The basic requirements regarding book keeping service officers	Cooperation with the administrative system	Cooperation type
<p>The director and chief accountant of an enterprise take care of the authentication of crediting, the financial and accounting documents and the documents that are the bases for taking out and issuing some material assets and funds.</p>	<p>The outlined function points out that the chief of book keeping service needs to be aware of the activity in any sphere of the enterprise, which allows to tie up actual data that are given with the information for managers.</p>	Exists
<p>Providing control and reflecting all economic operations on the book keeping accounts, drafting and presenting in the set terms of accounting control with the purpose of exposure and mobilisation of internal business reserves.</p>	<p>Regulation can be traced in relation to forming information on actual account plans, however the legislative forms of accounting are very general. Insufficient attention is paid to the approaches to the exposure and mobilisation of internal business reserves and the forms of presentation of such information.</p>	Exists partly
<p>Issuing of operative information on the enterprise activity and the realisation of its analysis.</p>	<p>Practice shows that most domestic enterprises are superficial enough to conduct an economic analysis of the enterprise activity. Forms, terms and the order of the presentation of such information are not regulated.</p>	Exists
<p>Realisation of control of the conduct of the inventory of enterprise values.</p>	<p>The inventory allows management officers to be informed of the content of the enterprise property, however the form of the presentation of the information needs to be changed.</p>	Exists partly
<p>Providing storage for and transferral of primary documents and registers which passed processing to the archive.</p>	<p>The pointed out function of book keeping service does not answer to the operative needs of managers, however this information can be used to trace the dynamics of the explored phenomenon.</p>	Exists partly
<p>Development and realisation of the measures directed on the keeping of financial discipline.</p>	<p>The indicated measures will help improving the accounting and payment discipline of an enterprise; they will influence the enterprise re-putation in a certain way, as well as the level of its business activity, however for managers this information is of general type.</p>	Absent

The conducted analysis in Tables 1 and 2 shows that the book keeping service is closely linked to the administrative system; however this link mostly exists only partially. Besides, the requirements put forward by the enterprise regarding the registration service, which are firmly established at the level of post instructions, limit the usefulness of the accounting information for the management staff.

The supposed connection between the registration and administrative systems can be traced at a legislative level. According to the Law of the Ukraine for enterprises regarding “record keeping and financial reporting in the Ukraine”, “the development of the system and the form of administrative accounting and control of economic operations” is required (Ukrainian Law B...). However, a specification of this work direction does not exist in the indicated document. It is indeed difficult to unify this work assignment at legislative level and it varies depending on the specific work of every separate industry.

The outlined problem is discussed in various works of domestic and foreign researchers. To underline the value of accounting information for the control system, professor M. Pushkar describes this concept as “creative account”, which means the “enhanced type” of accounting, which is

*intended for the expansion of informative resources of management activity, which are not represented in official courses on accounting. In particular, it is the psychological aspects of the conduct of information users that are not taken into account; accounting is not divided into classification features such as types, space, time, or the levels of management and creativity*

(Pushkar 2006, p. 7)

Another approach can be traced in the requirements for forming accounting information in overseas practice. Isaac N. Reynolds, A. Douglas Hillman and Richard F. Kochanek in their work “Principles of Accounting” specify that “the accounting system provides special reports for each responsible manager” (Reynolds et al. 1987, p. 8). This statement establishes that accounting information is formed not only for the needs of the administrative system but is also differentiated for every separate officer of this service depending on his specific duties.

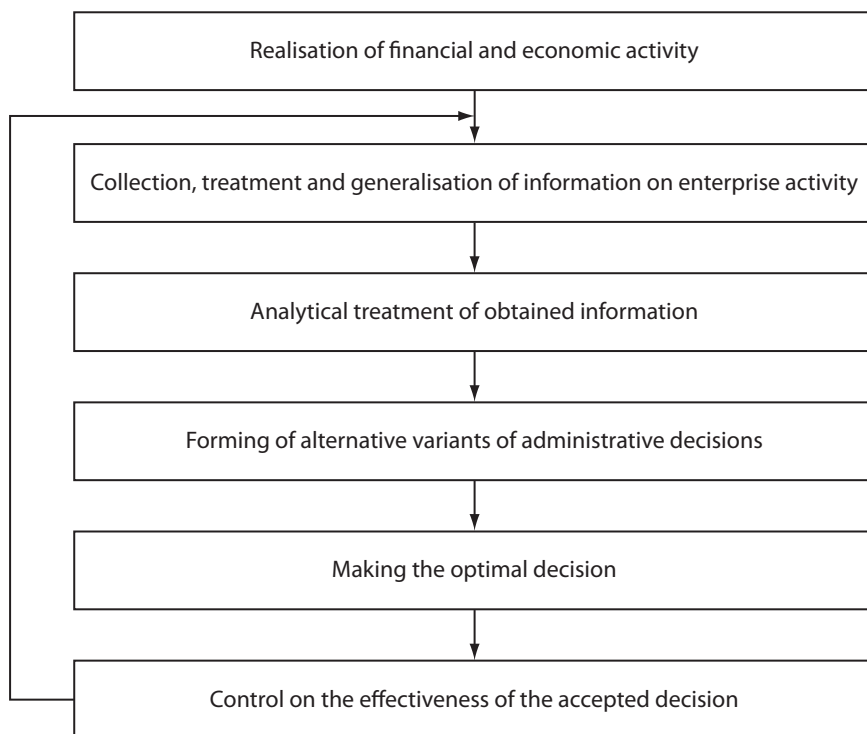
Glenn A. Welsch and Daniel G. Short point out the role of the limited influence when forming accounting information on a series of external factors, which includes management, the economic branch and economic system types, form of ownership etc. (Welsch, Short 1989, p. 21).

Despite different approaches to the accounting information, the importance of accounting information is essential to the enterprise activity process.



### 3. CIRCULATION OF ACCOUNTING INFORMATION

Accounting information establishes the results of the enterprise activity in relation to the events that have taken place already, however it simultaneously contains information about the results of the influence of the management staff on the enterprise activity process. That is why the question of accounting information circulation is important in the enterprise activity process. Figure 1 shows the motion of such information in the operating loop of the enterprise.



**Figure 1.** Circulation of the accounting information in the decision-making process

Figure 1 shows that any conducted financially-economic operation is fixed and is summarised by the registration system, which in turn is a reason for making administrative decision, which at a new level will influence enterprise activity, the effectiveness of which can be traced by processing the information obtained from registration services. Thus, the resulted chart underlines the usefulness of accounting information in the process of forming and making administrative decisions. In addition, it represents the importance of coordination of the account and management service actions.

It is also important to stress that the accounting information will have a positive influence on the service of management giving that it will respond to certain demands . The accounting information has to:

- relate to the investigated problem;
- entirely characterise the investigated problem;
- be given in an operative order and on a regular basis.

The indicated requirements allow the control system officers not only to be constantly informed about the results of enterprise activity but also allows them influence the activity process.

#### 4. PERSONALITY FACTORS OF INFLUENCE ON THE MANAGEMENT PROCESS

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Considering the question of efficiency and utility of accounting information, the influence of the personality of the manager and accounting clerk not only on forming but also on the interpretation of the given information is not supposed to be left without attention.

Both the decision-making process and the process of forming accounting information are carried out by a group of performers, which implies that the operations performed by them are influenced by the human factor. Therefore, due to the fact that accounting clerks and managers have to coordinate problems, information exchange must be provided for the effective functioning of the enterprise. At the same time the correct interpretation of the obtained information by both manager (for the subsequent adequate production process control) and the accounting clerk (part of forming of the required information) is an important moment. Determining factors that influence the correct interpretation of the obtained information are:

- officer's qualification;
- experience;
- skills and experience in the explored work assignment;
- limitations of the establishment;
- clearness of posed problems;
- detail of the given information;
- intellectual development;
- operational efficiency of presenting and processing information etc.

However there are a number of second-rate factors that can also substantially influence the correctness of information interpretation. These are:

- status of a person;
- communication style;
- authority of a person;

- emotional state;
- interpersonal relations;
- group character;
- temperament of a person;
- social state;
- problems in personal life;
- motivation of the posed problems;
- personal persuasions etc.

Practice shows that the creation of an effective system of information exchange that would satisfy the outlined productions needs, is a substantially complicated problem, because the human factor is in most cases unpredictable. However, to lower the risk of obtaining the wrong information, it is necessary to provide reliable feedback that will allow to control the perception of the given information and the correctness of its interpretation.

## CONCLUSION

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During the process of the enterprise activity and the estimation of the level of its development, besides the accustomed material (labour and financial resources) the informative resources also play an important role. These resources are a primary source that is formed in the sphere of the registration system and serves as an initial element in the chain of the acceptance and introduction of administrative decisions. Accounting information influences and characterises all spheres of enterprise activity and therefore must correspond to the demands of all user groups.

Our considerations lead to the main conclusion that every enterprise needs to develop their own research and process method for the necessary amount of information that allows to form an effective control system. Taking into account the administrative needs and structure improvements allows to enhance the quality of administrative decisions, which influence the financial state of an enterprise.

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Justyna Franc-Dąbrowska

# THE EVOLUTION OF DIVIDEND POLICY IN THEORY AND IN PRACTICE<sup>1</sup>

## Abstract

Decisions on dividing the financial result are still very difficult, just as the issues connected with forming the structure of capital in an enterprise. Although there was much research carried out in this area, the golden mean” for dividend policy has not been found yet and still, apart from certain general regularities, its positive or negative influence for the image and financial situation of a company is determined by an individual situation of a given entity<sup>2</sup>. Starting with the article of Modigliani and Miller from 1961 *Dividend Policy, Growth and the Valuation of Shares*<sup>3</sup> there are different voices concerning the form and ability to choose the dividend policy.

The aim of this article is to study the evolution of the opinions on forming the dividend policy in the economic theory and its verifications with the use of empirical research.

## 1. EVOLUTION OF DIVIDEND POLICY IN ECONOMIC THEORY

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The economic thought has its origins in the ancient culture. Already in that period the economic category (profit) was acknowledged and the only ethically accepted source of profit was agriculture. The consequence

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<sup>1</sup> The article prepared as part of the habilitation research project under the title: *Profit management and a financial situation of agricultural enterprises* N11300732/303.

<sup>2</sup> Forming of dividend policy is influenced by internal as well as external factors such as preferences of investors in the scope of dividend or capital profits (Pluta 2003, p. 108).

<sup>3</sup> In fact, the first article appeared in 1958 in the series under the title: *The cost of capital, corporation finance and the theory of investment*.

of making profit was a decision on its use, which was expressed by Platon in his views when he formulated the idea of a perfect state where the division of wealth follows the needs (Gudowski 2007, p. 147). Agriculture was considered as the most essential sector of economy that constituted the source of income growth (work on the field was considered as a source of growth of value, which constituted the basic element of economic thought in the XVIII century) and the profit and its maximization became a paradigm of classical economics. In Owsiak's opinion, the category of income is connected with perceiving economics as science (Owsiak 2002, p. 65). Similar importance is prescribed by Begg, Fischer and Dornbusch to income category, they recognize income and decisions connected with its division as a basic issue in economics: „The second issue which is the subject of interest in economics relates to income division” (Begg et al. 1995a, p. 31). Owsiak recognized that „One of the form of income and profit occurring is dividend that is paid to the shareholders constituting remuneration for the owners of the enterprise's (company's) assets”<sup>4</sup> (Owsiak 2002, p. 66).

In the economic theory a term economic profit is defined as a surplus of income of the enterprise over its own recorded costs. The concept of economic profit is based on the assumption that the surplus of income over costs increases by alternative cost of capital use and by bonus for risk related to the loss of the capital invested. Economic profit constitutes a category which is wider than accounting profit<sup>5</sup> (Wiszniewski 1994, p. 82, Owsiak 2002, p. 67). From the beginning of the economic thought the profit has occupied the central place in discussions: the aim of the enterprises is to maximize the profit and it has become the paradigm.

The economic functions of profit division are extremely important, especially the following:

- aim – profit in the economic theory as the basic aim of economical activity<sup>6</sup>,
- remuneration for showing entrepreneurship
- source of financing aims of the subject (investments, bonuses, dividends),
- motivation to stimulate the activity and entrepreneurship in order to make greater mass of profit or a unit profit,
- financial reserve as a result of leaving the profit in the enterprise (Owsiak 2002, p. 67).

<sup>4</sup> In the article the profit division concerns the profit according to its book value.

<sup>5</sup> It can not be forgotten that unequivocal definition of the value of economic profit is difficult considering the necessity to estimate the alternative cost of capital invested and bonuses for the risk of capital loss.

<sup>6</sup> Distinguishing the issue of profit maximization as the aim of enterprise functioning from profit maximization as the criterion of estimating the possibilities of meeting other targets must be stressed.

Although classical economics offer a model presentation of market behaviour depending on the changeability of factors, on the other hand, it does not study the behaviour of enterprises (Gruszecki 1994, p. 688). Smith – as the founder of classical economics in his examinations of decisions made in the scope of profit division recognized that the owners of shares expect a dividend and they do not think about the effects of profit division for the enterprise development. (Smith 1954, book 5, p. 468) (quoted after Gruszecki 2002). Although there is no precise reference to the profit division in the scope of classical model of economics, there are precise rules concerning conditions of profit maximization.

If one assumes that function of profit of the producer selling their products can be illustrated as (Czarny 2006, p. 122–123):

$$\Pi(q) = TR(q) - TC(q)$$

where:

$\Pi(q)$  – profit of the enterprise,  
 $TR(q)$  – total income obtained from sales,  
 $TC(q)$  – total cost of production  $q$ .

than the maximization of profit can be defined according to the formula:

$$\max_q \Pi(q) = \max_q (TR(q) - TC(q))$$

The optimal choice of production level to maximize the profit can be made according to the formula:

$$\Pi'(q) = (TR(q) - TC(q))' = 0$$

that is:

$$TR'(q) = TC'(q)$$

In a situation with continuous and differential functions of total income (takings) and total costs, it can be stated that prerequisite for existence of profit function is defined by the following formula:

$$MR'(q) = MR(q)$$

where:

$MR(q)$  – final income (takings),  
 $MC(q)$  – final cost.

The condition sufficient to maximize the function of the profit of the enterprise in terms of perfect competition has to be fulfilled in the form of:

$$\frac{\delta^2 \pi}{\delta q^2} = \frac{\delta^2 TR}{\delta q^2} - \frac{\delta^2 TC}{\delta q^2} < 0^7$$

The moment when the enterprise achieves the highest profit can be defined precisely, but till now there is no model that would allow on „optimal”

<sup>7</sup> More in Czarny 2006, p. 122–142.

division of such profit. Certain analysis on profit division can be seen in the scope of equimarginal school recognizing that the most beneficial income division is where the final usefulness of one monetary unit spent on one certain commodity is the same for each choice (Blaug 2000, p. 299, Gruszecki 2002, p. 55). Marshall, the founder of neoclassical economics, has also contributed to the economic theory in the scope of profit division and pointed out the difference between short-term decisions and long-term decisions. He also divided the premises in decision making process according to the criteria of time. As Duliniec points out, different decisions will be made in the enterprise in the scope of profit division depending on the level of development of the enterprise<sup>8</sup> (Duliniec 2007, p. 107–115).

The definite division of owner's and manager's functions emphasized by Smith and strongly underlined by Veblen has its consequences in decisions made in the scope of profit division, especially in joint-stock companies with diversified shareholding. As a result owners and managers constitute separate groups with different targets. According to Wiszniewski, the targets of managers are dominant and subjected to one condition, namely the interests of shareholders can not be violated excessively and often. In this situation, the results of the enterprise are "protected" thanks to competitors, who enforce the rationality of activities. (Wiszniewski 1994, p. 127). On the other hand, in the hypothesis of maximization of sales as the target of the company, Baumol stated that management always has to achieve profits that are sufficient for payments of dividends satisfactory for shareholders (profit was established by limiting category)<sup>9</sup>. In the model of growth Baumol modified the assumptions recognizing that the required profit becomes the means of receiving capital necessary for financing the development (Wiszniewski 1994, p. 127–129, Blaug 1995, p. 233 and 237).

The contemporary theories of the enterprise also examine the issues of profit division. In behaviourism and in the concept of the enterprise where it is defined as a coalition of coalitions with diversified targets and often contradictory interests: "... dividends have to be paid and new development funds have to be created". The profit made by the enterprise constitutes not only the end effect of "quality" of its functioning, but part of the profit (a dividend) constitutes a form of payment for solving conflicts between different interests groups inside the company (Wiszniewski 1994, p. 145–147).

<sup>8</sup> Duliniec explains that in the initial phase and in the early development, the company reinvests profits entirely (2007, p. 108), in a growth phase, profits are most often reinvested and dividend payments are low or do not appear (2007, p. 109), in a maturity phase, the majority of companies conduct the policy of stable dividend payments (2007, p. 111) whereas in the end phase, there can appear very high dividend payments constituting the form of capital return to the owners (2007, p. 112).

<sup>9</sup> The presentation of Baumol was criticized for not defining precisely the term required profit (Wiszniewski 1994, p. 127).



Elements of issues connected with profit division can be found in the assumptions of “contract” school of Alchian and Demsetz who give arguments that passing a resolution on dividend payment becomes a contract that influences the financial situation of the enterprise in the short run (liquidity) and in the long run (investments possibilities), so it is important for the financial situation of the enterprise.

A model of balanced development of Morris seems essential from the point of view of dividend policy. He recognizes that increasing profit is one of the basic conditions of the growth of enterprise. In a situation when the decision on profit division is made, the shareholders (especially minority ones) prefer the payment of dividend, managers, on the other hand, prefer the reinvestment of the profit. In order to implement the balanced growth of the enterprise, the shareholders and managers have to accept the average level of profit on a share (Gruszecki 2002, p. 184).

Rothschild expressed his opinion directly on the issue of profit division recognizing that a company striving for safety will always reinvest majority of its profits. Galbraith and Reder had a similar attitude (Wiszniewski 1994, p. 137).

Finally, a real dividend policy emerged on the verge of economic theory and finances, which can be defined as a sequence to a dividend payment (Ross et al. 1999, p. 576). A dividend (latin *dividendum* – thing for division) is the income obtained by shareholders, which results from possessing shares and constitutes their participation in an annual profit of the joint-stock company (or limited liability company with the right of shareholders to share the profit on the basis of the shares they possess)<sup>10</sup> (*Encyklopedia PWN* 2004). According to Begg, Fischer and Dornbusch, a dividend is a payment, whose sources are the profits decreased by predicted expenses on purchase of machines and expansion of the company (Begg et al. 1995, p. 405). Brigham defines dividend policy as decisions concerning division of net profit on a dividend and retained profit (Brigham 1996, p. 221), similarly to Pluta (2003, p. 108).

According to Duraj (2002, p. 82) policy of dividend payment can be understood as the activity of company’s management with the aim to use dividends as an instrument allowing to plan effectively and fix the conditions of growth of market value of the enterprise. Duraj defines dividend policy in a narrow meaning as the activity of company’s bodies aiming at decision making about payment of profits in the form of dividends or at keeping profits in order to reinvest them in a company (including redemption of shares to reinvestments) (Duraj 2002, p. 84).

<sup>10</sup> In Poland – the payment to the state treasury on account of using by state-owned companies the allotted part of state treasury, the amount of obligatory dividend depends on the amount of initial fund of companies and on interest rate of dividend collection, established annually in the Budget Act (*Encyklopedia PWN* 2004).

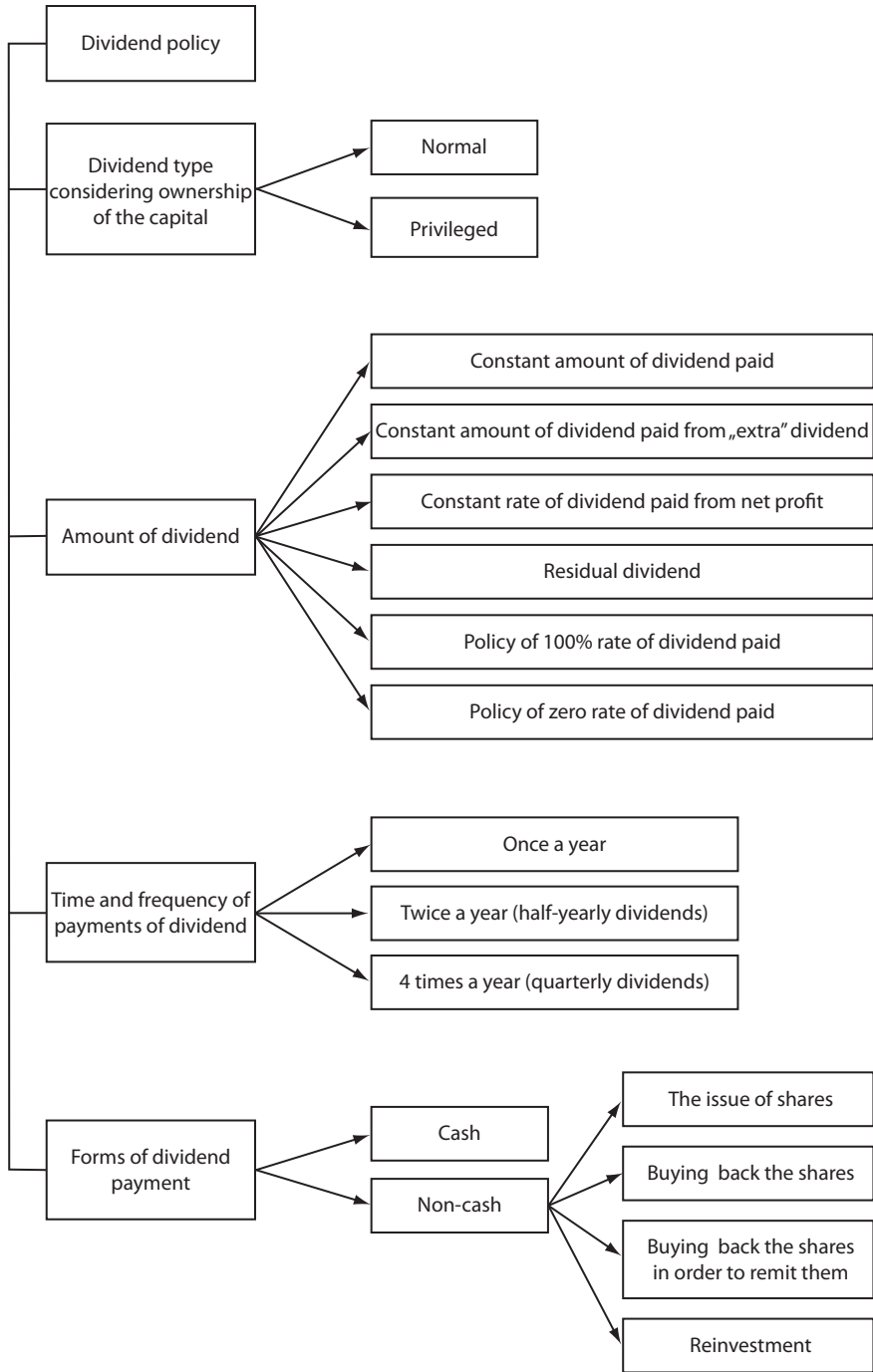
Decisions made in the scope of dividend policy should be recognized as crucial from the point of view of financial situation of the company in the short as well as in the long run. According to Sierpińska decisions relating to dividend policy are one of more important areas of financial decisions of companies, apart from those concerning the choice and implementation of investments projects and forming the optimal structure of the capital (Sierpińska 1999, p. 7). Similarly, the importance of dividend policy is justified by Ross, Westerfield and Jordan (1999, p. 572), Pluta (2003, p. 108) and Duliniec (2007, p. 39–40).

According to Modigliani and Miller (M&M), a perfectly competitive capital market, the division of profit into the reinvested part and into the part paid in the form of dividends is neutral from the point of view of the value of the company. The value of an entity depends on the assets capability to generate profit and not on the way it is divided (Modigliani and Miller 1961, pp. 411–433). In reality, the market is not perfectly competitive and this issue should be discussed more widely (Franc 2006a, pp. 239–244; 2006b, p. 100–105). High share of reinvested part of the profit means a low level of dividends. It can cause a financial deficit for the shareholders and, as a result, it can lead to debts. M&M think that debt of the company can be perfectly substituted by the debt of shareholders. In reality, it is not the case. In case of company's bankruptcy shareholders can lose their shares. In case of individual bankruptcy, a shareholder can lose his personal assets. As a result, the management of the company cannot apply any policy of profit division. In companies' functioning the manner of financing influences the value of the enterprise. This fact is not questioned in the literature, however, there are no precise rules which would allow to define what kind of management of profit is most beneficial for individual companies.

It cannot be forgotten that discussions on profit management (including dividend policy) can be made from the point of view of different theories of capital structure. Theory of substitution concerns setting such relation of debt to equity capital by which the value of enterprise will be maximized. Risk connected with external capital is compensated with tax advantages connected with payment of interest (tax shield)<sup>11</sup>. On the other hand, theory of hierarchy defines priority sources of capital obtaining and not the optimal relation debt/equity capital. It assumes that:

- entrepreneurs prefer internal sources of financing, they will strive to reinvest the profit (Pluta 2000, p. 115–150, McManus and Gwilyn 2006, p. 518–536),
- if the use of debt is necessary, debt securities are issued first (Duliniec 2007, p. 108).

<sup>11</sup> Agricultural companies are payers of income tax when incomes from the non-agricultural activity exceed 40% of incomes altogether.



**Figure 1.** Policy of dividend payments

Source: Duraj 2002, p. 88.

Research conducted in the 80s and 90 confirm the theory of Donaldson (described in 1961) that internal sources of financial means constitute over 50% of all sources. Most research confirms the theory of hierarchy – enterprises making high profits reinvest them and have relatively low rates of debt. In this way, they limit division of profit and the payment of dividend (Czekaj and Dresler 1998, p. 104, Ross et al. 1999, p. 572, McManus and Gwilyn 2006, p. 518–536, Franc 2006a, p. 239–244, 2007, p. 163–173).

Policy of dividend payment constitutes the effect of multifaceted decision process, the course of which was presented on the Figure 1. As a result, the dividend payment in a company can be made according to:

- policy of constant amount of dividend per share,
- policy of constant dividend with “extra dividend”,
- policy of constant rate of dividend payments,
- surplus dividend policy,
- policy of 100% rate of dividend payment,
- policy of zero rate of dividend payment.

The implementation of a certain dividend policy is connected with the necessity of to consider several factors determining it:

- preferences of owners for a profit division (so called clientele effect),
- differences in taxation of dividends paid and capital profits taken,
- stability of dividend payments,
- law regulations influencing profit division,
- liquidity of the enterprise,
- profitability of planned investment ventures,
- capital needs of the enterprise for financing development investments,
- availability of external sources of capital,
- optimization of a structure of enterprise capital (Duliniec 2007, p. 40).

## 2. GOAL, METHODOLOGY AND SCOPE OF THE RESEARCH

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The aim of the empirical part of this article is to study the preferred dividend policy the management of joint-stock companies of agricultural-food industry in the years 2001–2004. For the purposes of the research the homogenous group of joint-stock companies (15 entities) noted on the Warsaw Stock Exchange in a given period was taken. The information on the division of financial result was gained from financial statements published in Monitor B and contained the resolutions of bodies taking this decision.

This article verifies the research hypothesis: in joint-stock companies of the agricultural-food industry, the management prefers the internal sources of financing (according to hierarchy theory), reinvesting the profits made and limiting dividends payment.

In order to realize the goal and verify research hypothesis, the correlation analysis was used, studying the relationships between the value of dividend cash payments and chosen measures and financial indicators. The financial situation of studied companies with special consideration of capital structure (in order to state whether the management prefers internal sources of financing, according to hierarchy theory) and basic financial indicators (including return on equity, fast liquidity ratio) was analysed.

### 3. RESEARCH RESULTS AND DISCUSSION

Figures presented in Table 1 characterize companies of agricultural-food industry in the scope of dividends payments in 2001–2004. The conducted analysis shows that the majority of companies (10–12) implemented the policy of zero rate dividends payments. However 20–30% of studied community made payments from profits for shareholders<sup>12</sup>. Paying attention to large group of companies not realizing cash payments from profit, it can not be forgotten that in this group there were also entities that made a loss, especially in 2001 when the loss was made by 6 out of 11 companies realizing policy of zero rate dividend payment. In the following years, this proportion was smaller, however a good deal

**Table 1.** Characterization of joint-stock companies of the agricultural-foodstuff sector in the scope of dividend payment in 2001–2004

Details	Year			
	2001	2002	2003	2004
Number of companies subjected to the research	15	15	15	15
Companies paying dividend	4	3	5	4
Companies not paying dividend	11	12	10	11
Companies bringing loss	6	2	3	3
Share of companies paying dividend in a research sample (%)	27	20	33	27

Source: own preparation on the basis of resolutions on profit division.

<sup>12</sup> In 2001 dividend payments were realized by: Jutrzenka S.A., Polmos Białystok S.A., Mieszko S.A. and Żywiec SA, in 2002: Jutrzenka S.A., Żywiec S.A., Polmos Białystok S.A., in 2003: Jutrzenka S.A., Hoop S.A., Polmos Białystok S.A., Żywiec S.A., and Duda S.A., and in 2004: Jutrzenka S.A., Hoop SA, Polmos Białystok S.A. and Żywiec S.A.

of companies had problems with negative financial results from previous years. The attention is drawn to 3 companies that in 2001–2004 realized the policy of constant dividend payment: Jutrzenka S.A., Polmos Białystok S.A. and Żywiec S.A. In addition, the fact of constant payments of bonuses and rewards for employees in Polmos Białystok S.A. motivating and making them feel responsible for results and profits gained deserves special attention (Franc 2007, p. 167–168).

Figures presented in Table 2 are the result of analysis comparing the amount of dividend payment with specified financial measures. Conducted analysis shows that there was a strong connection between amount of cash payments from profit for the owners and financial situation of companies. The calculations indicate that there is a strong connection between the amount of dividend payments and the value of assets. In spite of reducing the value of assets altogether<sup>13</sup>, in case of cash payments from the profit, the companies in good financial position made decisions on profit division and transferred only part of dividend payments (in the whole studied period none of companies decided to conduct policy

**Table 2.** Characterization of relationship power between the amount of dividend payment and selected financial measures (factors of correlation for  $p < 0.5000$ )

Details	Year			
	2001	2002	2003	2004
Amount of dividend payment and the value of assets <sup>14</sup>	0.99	-0.92	0.99	1.00
Amount of dividend payment and the value of equity capital	0.99	-0.93	0.99	0.99
Amount of dividend payment and sales incomes	0.98	-0.83	0.76	0.93
Amount of dividend payment and a result on operational activity	0.88	-0.79	0.96	0.91
Amount of dividend payment and net cash flows from operational activity	0.99	-0.91	0.94	0.99
Amount of dividend payment and net cash flows from investment activity	-0.97	0.87	0.37	-0.77

Source: own work on the basis of financial statements.

<sup>13</sup> Precise values of equity capital that could be intended for increasing elements of assets.

<sup>14</sup> Book value of assets according to the balance sheet.

of 100% dividend payment). Similarly strong relationship appeared between the amount of dividend payment and the value of equity capital. As the calculations show, the amount of dividend payment influences strongly the amount of sales income. Excessive decreasing of accessible means by cash payments from the profit can result in limiting the development possibilities as well as possibilities of increasing sales revenues (according to the concept of value based management, it is the increasing volume of sales income that reflects a good financial situation of the company and creates the value for the owners).

Strong statistical relationships between the amount of dividend payment, the results on operational activity, net cash flows from operational activity and net cash flows from investment activity can constitute argument for not paying dividend and leaving the profit made for reinvestments. Therefore, one can suppose that majority of companies do not decide to issue spectacular dividend payments nor to implement the policy of 100% of dividend payments or even policy of a constant dividend payment.

In table 3 one can see the figures illustrating the power of relationships between amount of dividend payment and selected financial indicators. From the conducted analysis results that the power of relationship was diversified in reference to individual indicators. The most powerful correlation was observed between the amount of dividend payment and

**Table 3.** Characterization of the relationship power between amount of dividend payment and selected financial indicators (factors of correlation for  $p < 0.5000$ )

Details	Year			
	2001	2002	2003	2004
Amount of dividend payment and ROA	-0.57	0.46	0.72	0.62
Amount of dividend payment and ROE	-0.60	0.42	0.72	0.07
Amount of dividend payment and ROS	0.11	-0.50	0.76	0.58
Amount of dividend payment and $P_1$ <sup>15</sup>	-0.54	0.85	-0.57	-0.60
Amount of dividend payment and $P_2$ <sup>16</sup>	-0.58	0.91	-0.55	-0.53
Amount of dividend payment and share of equity capital	-0.03	0.51	0.15	0.59

Source: own work on the basis of financial statements.

<sup>15</sup>  $P_1$  – current liquidity ratio.

<sup>16</sup>  $P_2$  – fast liquidity ratio.

**Table 4.** Share of spare capital in equity capital, share of equity capital in total liabilities and selected indicators characterizing joint-stock companies of agricultural-foodstuff sector, registered on the Warsaw Stock Exchange in 2001–2004<sup>17</sup>

Company	Selected data for years															
	2001				2002				2003				2004			
	KZ <sup>18</sup> (%)	KW <sup>19</sup> (%)	ROE <sup>20</sup> (%)	P <sup>21</sup>	KZ (%)	KW (%)	ROE (%)	P	KZ (%)	KW (%)	ROE (%)	P	KZ (%)	KW (%)	ROE (%)	P
Jutrzenka S.A.	2.6	84.2	3.4	3.3	63.2	81.8	0.5	3.4	57.1	80.7	5.7	3.0	50.2	45.9	7.9	0.9
Wawel S.A.	3.5	52.9	9.7	1.1	46.2	54.2	6.9	1.7	42.7	51.3	10.5	1.5	30.3	59.7	27.7	1.8
Hoop S.A.	1.2	24.3	33.5	0.8	82.9	20.7	49.9	0.8	99.1	34.7	1.3	0.8	111.9	35.3	-3.9	0.5
Kruszwica S.A.	1.8	24.3	6.1	0.2	9.2	24.0	7.6	0.7	12.5	34.3	25.3	0.9	30.3	34.0	19.5	0.3
Sokolów S.A.	0.6	50.8	-10.0	0.6	48.8	53.7	0.1	0.7	46.7	55.7	2.9	0.9	43.8	57.9	4.5	0.7
Ekodrob S.A.	6.7	10.7	-147.1	0.5	0.0	1.7	-598.0	0.6	0.0	6.6	7.7	0.8	25.3	1.6	-311.7	0.5
Pepees S.A.	0.7	64.3	1.8	0.6	20.7	62.3	0.3	1.1	20.1	59.5	4.5	1.5	19.7	58.1	4.1	0.6
Mieszko S.A.	1.4	24.2	2.5	0.8	51.2	31.3	12.2	0.7	88.6	19.1	-36.2	0.6	45.0	37.1	0.2	0.6
Wilbo S.A.	1.6	59.6	1.6	1.2	71.3	54.4	-7.2	1.6	69.2	59.2	2.9	1.8	80.7	61.8	-2.1	1.0
Żywiec S.A.	1.7	53.7	-10.0	0.5	116.2	59.2	7.0	0.3	66.9	66.2	18.5	0.8	64.1	55.6	24.0	0.4
Indykpol S.A.	2.7	29.5	6.7	0.7	54.4	30.7	3.5	1.5	50.4	32.0	11.8	0.9	52.3	34.8	16.4	1.2



Polmos Lublin S.A.	0.3	43.4	-5.5	1.2	0.1	27.6	15.7	1.2	5.4	38.8	17.3	1.2	17.3	31.8	25.3	1.1
Polmos Białystok S.A.	2.1	58.7	19.9	2.1	59.6	66.0	18.2	2.6	21.3	65.1	14.1	2.6	71.6	16.9	84.6	1.1
Duda S.A.	1.8	36.8	0.6	0.8	5.4	47.5	8.8	1.3	44.9	62.1	10.0	2.7	63.0	56.2	7.8	1.0
Strzelec S.A.	8.4	41.9	-2.0	1.1	60.2	31.8	1.2	0.5	76.3	23.7	-30.0	1.2	.	.	.	.
Średnia	1.8	47.8	-3.3	0.7	80.0	49.7	6.8	0.9	53.8	52.8	12.2	1.1	56.8	46.3	17.8	0.7

Source: own preparation on the basis of financial statements.

<sup>17</sup> Companies realizing cash payments from the profit were marked in grey.

$$^{18} KZ - \frac{Kz}{Kw} \times 100$$

where:

$Kz$  - spare capital

$Kw$  - equity capital

$$^{19} KW - \frac{Kw}{P} \times 100$$

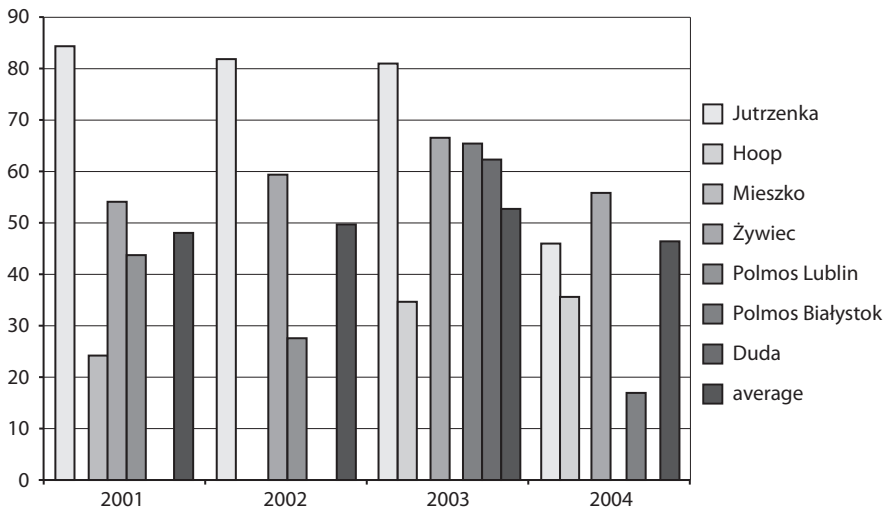
where:

$Kw$  - equity capital

$P$  - total liabilities

$$^{20} ROE - \text{return on equity} = \frac{\text{net financial result}}{\text{booking value of equity}} \times 100$$

$$^{21} P - \text{fast liquidity ratio} = \frac{\text{current assets} - \text{inventories} - \text{prepayments}}{\text{current liabilities}}$$



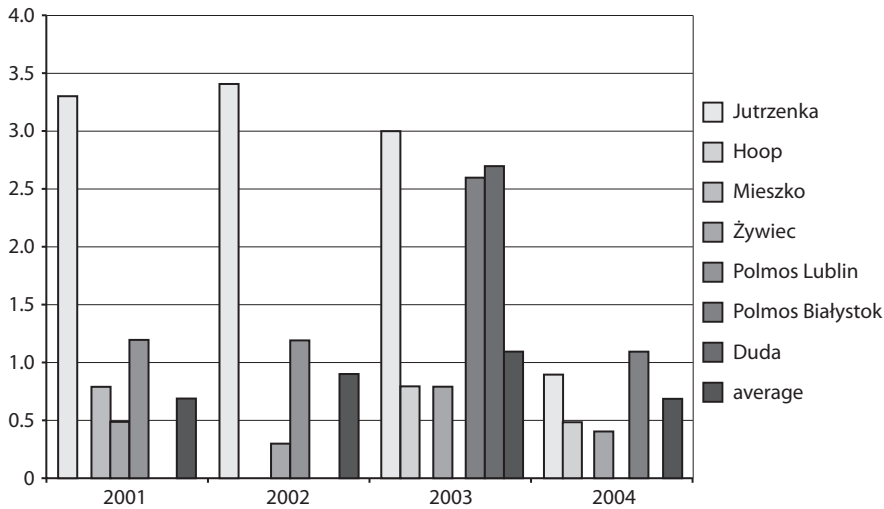
**Figure 2.** Share of equity capital in total liabilities in companies of agricultural-food industry registered on Warsaw Stock Exchange and paying dividend in 2001–2004

Source: own preparation.

the level of profitability of assets, return on equity and liquidity indicators. These results constitute the confirmation of previous analysis and justify explicitly that decision on cash payments from the profit does not remain without meaning for the financial situation of the company. What is more, the relationships between selected financial indicators and the amount of dividend payment are statistically significant.

In order to specify discussed relationships, Table 4 presents financial indicators characterizing all the studied companies. The studied analysis shows that in 2001 none of the companies possessed the share of spare capital in equity capital more than 30%<sup>22</sup>, however it was systematically increased. The situation in the scope of the share of equity capital in total liabilities is definitely more advantageous (from the point of view of financial security). Its share was very diversified, however, on average, it was running about 49% (for example the differential between extreme values in 2004 amounted to more than 60 percentage points). It is clearly visible that the decision on dividend payment was made in companies characterized by higher than average share of equity capital in sources of financing. – Figure 2 (lower share was observed in: Mieszko S.A. in 2001, Polmos Lublin S.A. in 2001–2002, Jutrzenka S.A. and Polmos Białystok S.A. in 2004).

<sup>22</sup> Obligation to keep 30% of spare capital in equity capital has existed since 2006.



**Figure 3.** Level of indicator of fast liquidity in companies of agricultural-food industry registered on Warsaw Stock Exchange and paying dividend in 2001–2004

Source: own preparation.

It can be assumed that the research hypothesis was confirmed, i.e. the management strived to increase the share of equity capital in sources of financing. Generally saying, only these companies decided to pay dividends where the level of self-financing exceeded 50% (except for Polmos Lublin S.A. in 2001–2002, Jutrzenka S.A. and Polmos Białystok exclusively in 2004).

Similar relationships can be observed analyzing the level of return on equity. Policy of dividend payment was implemented by companies characterized by higher than average level of return from equity. The situation is presented less clearly when it comes to the relationship between payments from the profit and the level of financial liquidity, though it seems that majority of companies making decisions on dividend payment had slightly higher level of fast liquidity than average values for a group (Figure 3). In the case of this indicator (companies with lower than average level of financial liquidity) there are slightly more deviations than in the case of the share of equity capital in total liabilities and return on equity.

Generally it can be stated that policy of dividend payment was implemented by relatively small number of companies and these companies were characterized by explicitly better financial situation.

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**Natalia Kaschena**

# METHODICAL ASPECTS OF ESTIMATING THE INVESTMENT ATTRACTIVENESS OF UKRAINIAN INDUSTRIAL ENTERPRISES

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## **Abstract**

The article discusses a very current issue in the Ukraine; the investment attractiveness of the food-processing industrial enterprises. The results of theoretical and methodical research on the given question are presented and specific recommendations are formulated concerning the organisation of a complex rating estimation of the investment objects. A system of estimate indicators and factors of comparative importance are offered, an economic-mathematical model is developed to rate the dairy industry enterprises and to assess the rating of their investment attractiveness. The qualitative characteristics of the enterprise categories are rated and, accordingly, also the categories of the reliability of their shares. The investment characteristics of the shares of an investment object are also given.

## **1. INTRODUCTION**

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The recent investment activity of many Ukrainian investors is increasingly more often guided by the share market. The fast changes of conditions in this market create the necessity to assess the reliability of corporate securities in order to make correct and beneficial decisions on the financial investment of temporarily free funds. Such an assessment, in our opinion, should consider all aspects of the issue; the circulation of

individual kinds of corporate securities in the Ukraine, the interrelation between the processes occurring in the market and the economic potential of the emitter, the safety level and profitability of shares and bonds, the degree of their liquidity and many other factors.

The researches that have been carried out show that there are quite a few assessment criteria for the investment attractiveness of enterprises and the reliability of their securities, depending on the branch, the emitter's managing results, the character of their circulation on a share market and the conditions of getting to it. At the same time, only an integrated approach allows potential investors to make the correct decision on capital investments and helps them to obtain a stable income in the future (Brigham, Gapensky...; *Accounting and analysis...* 1991, p. 319; Gruber 1999, p. 296; Edronova, Mizikovsky 1995, p. 434).

Unfortunately, in the Ukraine there still is no uniform methodological approach to quantitative and qualitative standards of securities reliability of public joint-stock companies and their investment attraction. The Ukraine loses considerably compared to countries with a developed infrastructure of the share market where a substantial assistance is rendered by rating agencies as to the choice of investment objects.

In our opinion, the approach to the assessment of investment attractive enterprises and the degree of reliability of their shares should be based on an integrated assessment of investment objects, which would consider the stability of the activity of the emitter and the perspective of obtaining incomes from the investors. It is certainly useful to typify and divide the procedure of the integrated rating assessment of investment into a number of relatively independent stages (Figure 1).

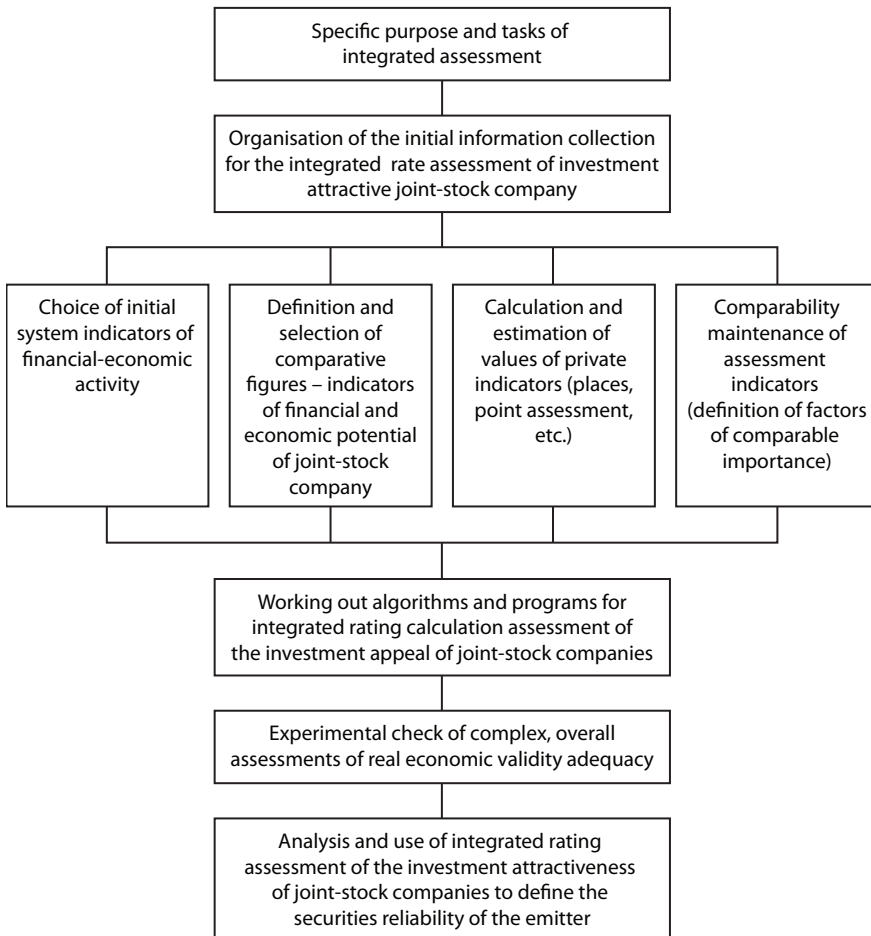
## 2. THE ASSESSMENT OF INVESTMENT ISSUES

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The analysis of modern economic literature (Brigham, Gapensky...; *Accounting and analysis...* 1991; Gruber 1999, Edronova, Mizikovsky 1995; Maslichenkov 2004, p. 34; Sheremet, Saifulin 1998, p. 343) shows that despite of the diversity of approaches to assessing investment attractive enterprises, Ukrainian and foreign experts are uniform in the opinion that:

- the calculation of the following groups of indicators is necessary in order to determine the rating of investment attractive corporate securities: financial stability, solvency, activity, profitability and the market position of securities. Thus, the technique of a financial substantiation of the choice of the enterprises securities that appeared on the share market for the first time includes the calculation of the four groups of indicators (financial stability, solvency, activity and profitability), and the already operating enterprises are assessed on quality and efficiency of the transactions made with their securities;

- the financial and economic assessment of the investment potential of an enterprise is made on the basis of the comparative figures (factors) reflecting the availability and use of financial resources, the composition and structure of the financial sources and the stable position of the enterprise on the share and commodity markets. The calculation of these indicators is carried out on the basis of the information contained in the financial reports of the analysed corporations, with a special focus on the required data concerning the production volume, main types of production, sales volume, capital investments (present and planned in the future), costs structure, etc. The advantage of these factors is that they eliminate the inflation influence affecting the accounting information.



**Figure 1.** A scheme showing the stages of complex rating assessment of an investment attractive enterprise and the reliability of its securities



- the conclusion regarding the degree of investment attractiveness of an enterprise is made by comparing its relative factors with the standard values, the average in the branch or the averages in a competing group. As a basis for comparison the values can be taken that have been theoretically proven or received as a result of expert assessments and indicate the optimum or critical, from the point of view of stability, financial position of the value indicators. These values specify the financial coefficients, though a technique of their calculation that would depend on the national economic branches does not yet exist.

At the same time, the set of the comparative indexes applied in the analysis of investment attractiveness of enterprises is not stable. In order to assess individual aspects of financial and economic activity of companies the surplus amount of indicators is frequently offered. Thereupon we consider it useful to define an integrated rating indicator of investment attractiveness of enterprises on the basis of a small number of financial coefficients meeting the requirements of tax authorities, financing banks, shareholders and partners of the enterprise in contractual relations, and also the precise and fully described financial and economic activity of the enterprise.

When selecting the most important universal indicators that best describe the activity of dairy industry enterprises, we have proceeded first of all from the specific branch formation and the use of financial resources, namely:

- the frequency rates of a cycle and circulating assets speed;
- the specific functions that are carried out in this branch only;
- the income and profit formation features
- the availability (absence) of the buyers' delayed receivables
- the forms of product realisation
- the possibilities to attract long-term and short-term credits from banks for the formation of financial resources.

### 3. INDICATORS OF ECONOMIC POTENTIAL

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When choosing the indicators, besides the specific characteristics of the branch, also the simplicity of calculation, availability of information, exception of repetitions in the assessment of those or other parties of a financial position, as well as the maintenance of an integrated approach to the assessment have to be considered with a limited number of indicators (Garkusha, Kaschena 1996, p. 121–126). The indicators to determine an integrated rating indicator of an investment attractive enterprises that meet these conditions are given in Table 1 and belong to the following indicator groups:

Table 1. The system of indicators of the financial and economic potential of joint-stock companies

Nº	The indicator name	Symbols	Admissible values	Algorithm of calculation	Classification group
1	2	3	4	5	6
1.	Factor of security of stocks by own circulating assets	$K_{SSA}$	$\geq 0.5$	Own circulating assets Stocks and expenses	Solvency and capital conditions
2.	Factor of the ratio of own and a loan capital	$K_{ELC}$	$\geq 1.0$	Equity capital Loan capital	Solvency and capital conditions
3.	Current ratio	$K_{CRL}$	$\geq 1.5$	Current actives Current liabilities	Liquidities of actives
4.	Share capital net profit ratio	$P_{SC}$	$\geq 0.2$	Net profit Share capital average	Payment-ability and conditions of capital, profitability
5.	Payout ratio	$K_{PR}$	$\geq 0.5$	Dividends under ordinary stocks Net profit	Market potential of shares
6.	Turnover coefficient of current assets	$K_{CAT}$	$\geq 6.0$	Gain from realisation Average of current assets	Commercial activity
7.	Factor "price-profit"	$K_{RPP}$	$\geq 5.0$	Share market price Cumulative earnings per share	Market potential of shares

- Profitability: characterises the profitability of the enterprise and the management quality of its assets. It also reflects the effective use and profitability of the invested capital.
- Solvency and capital conditions: reflects the efficient use of the company's own and loan capitals and characterises the company's ability to answer for the obligations on a long-term basis.
- Commercial activity of the enterprise (asset turnover): shows the potential production of the enterprise and how effectively the enterprise uses its funds.
- Liquidities of assets: characterises the protection of shareholders' funds in the case of bankruptcy of the enterprise.
- The market potential of shares; reflects prospects of the stock value growth, characterises the developing dynamics of the enterprise, its export potential and also serves as a reference point for the choice of reliable and safe securities, from the investment point of view.

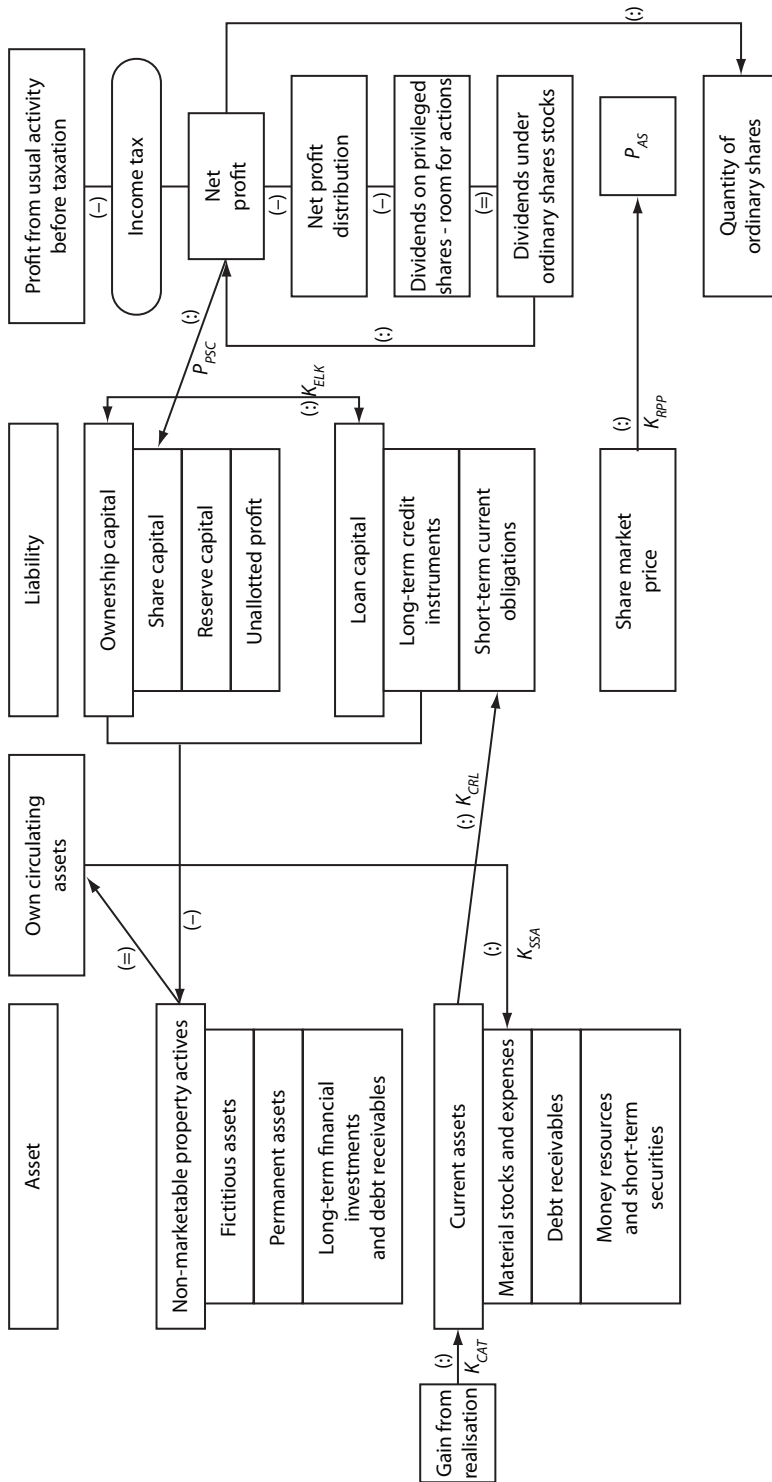
The scheme shown in Figure 2 enables to understand that the criteria selected for the calculation of an integrated indicator of investment attractiveness of an enterprise fully reflect the condition and degree of the effective use of financial resources by the given object.

The offered system of indicators in an economic sense has an identical orientation and is based on public reporting data of the enterprises. This requirement makes mass assessment; allows to manage changes in a financial condition of the enterprise by all participants in the economic process.

In the world practice there are various methods of obtaining the integrated rating assessment of the financial and economic potential of an enterprise. All of them consider rating as a measure of assessment of an enterprise categorising it to a class or group depending on the quantitative and qualitative characteristics of its activity.

The simplest and most widely used method in the practice of American and Russian firms is the mark method (Brigham, Gapensky...; Sheremet, Saifulin 1998, p. 343). It is appealing because of its simplicity and efficiency. We consider its application possible in the establishment of the degree of investment attractiveness of joint-stock companies whose securities have entered the market for the first time and there is no data on their market value.

In the Ukraine the algorithm fixed by the Technique of an integrated assessment of investment attractiveness of the enterprises (*Technique of integral assessment...* 1998, p. 212–231) is used when defining the integrated rating assessment of the financial and economic potential of an enterprise. However, as a result of its application it is impossible to state accurately enough the degree of reliability of securities emitted by the enterprise, as the Technique does not provide a range of enterprises based on classes and an integrated indicator of investment attractiveness.



**Figure 2.** Interrelation of basic data in the calculation of indicators of a joint-stock company's financial and economic potential

The technique of a rating definition of an enterprise described by V.N. Yedronova and Ye.A. Mizikovsky is more progressive in this respect (Edronova, Mizikovsky 1995, p. 434). They offer the definition of the emitter class as an average arithmetic value measured from ratings on separate indicators (financial coefficients). The emitter's rating definition is based on the division of preliminary indicators of a joint-stock company's financial and economic potential into classes by the principle: "the better the indicator, the higher the class". A division into the highest, the first, the second, the third and the fourth class is offered. We consider such an approach admissible. However, there is the question of how to develop a criteria matrix of indicators for each specific class.

Working out such criteria is connected not only to an establishment of the top and bottom border of each indicator, but it also reveals the rating of each key indicator in the system of indicators, i.e. its importance. The assessment criteria are set in classes.

In our opinion, the differentiation of indicators as to the character of the enterprise activity on the basis of classes is simply inadmissible in view of the distinctions in the structure of their capital and the division of similar enterprises is obviously not possible at this moment because of the enterprises' unstable market activity on the share market. We believe that at the given stage of the corporate securities market, the development of this technique of rating definition will not work efficiently, but can be used under the condition that the activity of all branches of the national economy is stabilised (Kaschena 2004).

The analysis of the available methodical approaches to the construction of the integrated rating indicator of the joint-stock company's financial and economic potential assessment has revealed the necessity to create models that consider the specific management of the individual branches of the national economy and to provide a differentiated approach in order to define the reliability of an enterprise.

When modelling an integrated indicator for the rating assessment of the dairy industry incorporated enterprises' investment attractiveness we have considered two factors:

- prospects to obtain income ( $P_{OI}$ );
- the stability of financial activities ( $S_{FA}$ ).

These factors have been considered as the synthetic (aggregated) assessment results including concrete analytical indicators. Such indicators of the financial and economic potential of a joint-stock company are being used. Thus are split into two groups corresponding to the factors, selected for the modelling of the integrated rating indicator of the investment attractiveness of the enterprise and they are ranged on the degree of their influence on the synthetic indicator in an expert manner. Then the rating importance of the aggregated factors is established (using an expert method) and afterwards the economic-mathematical

model to establish the definition of the integrated rating indicator of the investment attractiveness of the enterprise is developed.

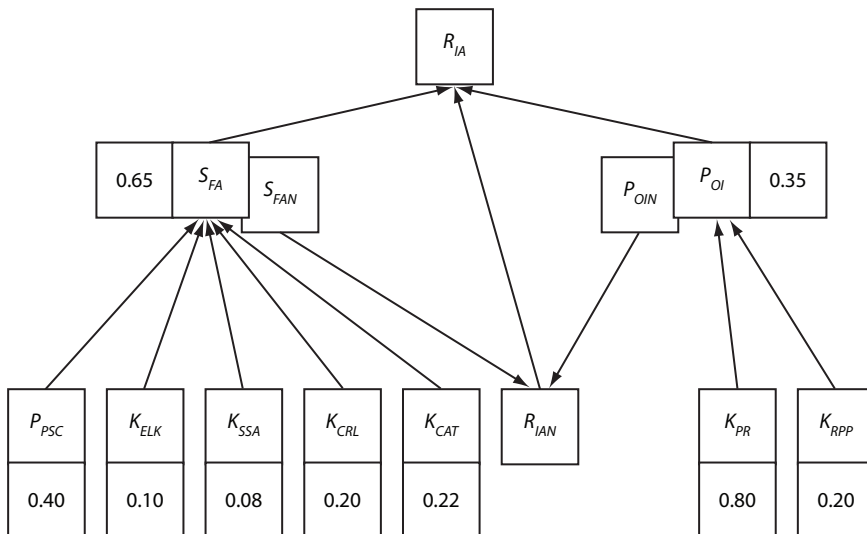
The central moment in the creation of the investment attractiveness model is defining the importance of the indicators and factors. To establish the importance of individual indicators, the symbiosis of the two methods (expert assessment and economic-mathematical modelling) seems to be methodologically proven.

The expert assessment of the indicator system has shown that in the opinion of 100 % of the experts, the stability of financial activities is of primary importance in the assessment of investment attractiveness of enterprises ( $S_{FA}$ ), and in second place come the prospects to obtain income ( $P_{OI}$ ). As to the formation of these indicators, we have noticed that almost 100 % of the experts put profitability of the share capital on the first place ( $P_{SC}$ ), on the second place the turnover of current assets ( $K_{CAT}$ ) and as to other indicators the opinions differ.

In the formation of the prospects to receive income 98 % of the experts consider the level of dividend payments ( $K_{PR}$ ) to be the decisive factor, the ratio coefficient of “price-profit” ( $K_{RPP}$ ) comes on the second place.

It is necessary to stress the conformity of the indicator values that are received in an expert manner and the calculations that confirm the correctness of the received results. In this case, time and the particular conditions of the share market sectors are important factors to be considered.

Figure 3 shows a structurally logical diagram of indicators defined in the integrated assessment of the emitter’s attractiveness.



**Figure 3.** A structurally logical diagram that defines the rating integrated indicator of the investment attractiveness of an enterprise

Thus, the model to define the degree of the investment attractiveness of an enterprise is:

$$R_{IA} = 0.26P_{SC} + 0.065K_{ELK} + 0.052K_{SSA} + 0.13K_{CRL} + 0.143K_{CAT} + 0.28K_{PR} + 0.07K_{RPP} \quad (1)$$

where:

$R_{IA}$  – the integrated rating indicator of the investment attractiveness of an enterprise;

$P_{SC}$  – the share capital net profit ratio;

$K_{ELK}$  – the ratio of equity and loan capital;

$K_{SSA}$  – the factor of stock security by equity circulating assets;

$K_{CRL}$  – the current ratio liquidity;

$C_{CAT}$  – the coefficient of current asset turnover;

$K_{PR}$  – the payout ratio;

$K_{RPP}$  – the ratio coefficient “price-profit”.

According to the technique described by Ye.N. Edronova and Ye.A. Mizikovskiy (1995), classes are divided into the highest, the first, second, third and fourth.

For an expert substantiation of the division borders of the enterprises into classes, we have developed a criteria matrix of indicators divided into classes depending on the financial and economic potential of the enterprise and corresponding to the offered model of the integrated indicator definition of the emitter’s investment attractiveness.

According to the allocated classes and the rating indicator of investment attractiveness of the emitter, it is recommended to establish an appropriate reliability category of shares based on the principle “the higher the class, the higher the reliability”. The reliability characteristic of investments into shares depending on the degree of investment attractiveness of their emitter is given in Table 2.

The practical realisation of the assessment technique of reliable investments into the enterprise shares has been carried out in the course of the analysis of the financial and economic potential of the dairy industry public joint-stock companies in the Ukraine. The results of the assessment of the investment attractiveness of the enterprises in Kharkov, Zhitomir, Vinnitsa, Poltava, Volynsk, Rovno, Ivano-Frankovsk, Khmel-nitskiy, Kherson, Odessa and other areas of the Ukraine using the offered technique are given in Table 3.

The data in Table 3 show that 17 from the 28 investigated enterprises are not attractive for investors (that is almost 61 %) and the reliability of their shares is below average, 2 enterprises are on the verge of bankruptcy and the investment into their shares is connected with big risks, the shares of 6 enterprises have an average degree of reliability, 2 of the enterprises have a high reliability and only 1 the highest. These are public company shares “Krivorozhsky dairy plant No. 1” in the town of Krivoi Rog. The received results reflect the real economic circumstances

**Table 2.** Assessment of the reliability of shares on the basis of an integrated indicator of the emitter's investment attractiveness

R-criterion border	Rating class	characteristic of the enterprise class of the rating	Share index	Reliability category	Investment characteristics of shares
>4	highest	High credit status, absolutely stable condition. High degree of reliability. Causes great interest of potential investors.	AA	highest	Guaranteed ability to bring in stable income in the form of dividends
3-4	first	High solvency and credit status, tries to use new technologies in its activity. Conditions for financial provision of priority activity are created.	A	high	High enough probability to receive income in the form of dividends
2-3	second	Average degree of reliability. The enterprise has a steady enough financial position, carries out measures against any risks, has good prospects on improvement in future activity	BB	average	Capable of bringing in income in the form of dividends, but sensitive to adverse economic conditions
1-2	third	In the enterprise's financial position there are signs of stress. The enterprise is at risk, credit status is limited. Financially it is not attractive.	B	below average	Uncertainty in obtaining income and exposure to risk, solvency can be interrupted in time.
<1	fourth	The enterprise is at high risk, is insolvent, is on the verge of bankruptcy. Sanitation application is possible.	C	low	Are of speculative character and have low security of income from shares



**Table 3.** The investment attractiveness and reliability of shares of dairy industry enterprises in the Ukraine

R-criterion borders	Class	Category of reliability of shares	Number of enterprises as of 01.01.99	Relative density of enterprises in general %
>4	highest	highest	1	3.57
3–4	first	high	2	7.14
2–3	second	average	6	21.44
1–2	third	below average	17	60.71
<1	fourth	low	2	7.14

regarding the shares of the enterprises of the food-processing industry on the share market of the Ukraine.

It can be concluded that it is necessary to stress that the offered technique of reliability assessment of investments into shares has a number of essential advantages, the essence of which is in the following:

- an individual approach to the assessment of the investment attractiveness of the enterprises in the dairy industry of the Ukraine;
- the use of the modified system of indicators in the assessment of the financial and economic potential of joint-stock companies;
- a complex and at the same time differentiated approach to the assessment of the investment attractiveness of enterprises;
- an account of the real condition of the sectors of the share market, the finished goods market, etc.;
- a quantitatively measured assessment of the investment attractiveness and the reliability of the business partner;
- the use of a flexible computing algorithm realising possibilities of a mathematical model of the enterprise's financial and economic potential assessment;
- a logically grounded degree of reliability of investments into enterprise shares.

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**Andrzej Szplit**

**Piotr Hnidan**

# “E-EKONOMIA” PROJECT – HOW TO SET UP AN E-LEARNING DEPARTMENT AT A UNIVERSITY FROM SCRATCH

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## Abstract

The article presents problems and solutions which were made during the realization of the “e-ekonomia” project. Over 80 people were involved in the realization of the project. Most of them were beginners in distance learning. We had to develop the organization and provide trainings. We managed to reach our goal – the ability to provide distance learning in economics in less than half a year. The project had to meet the following requirements:

- abide by Polish legal regulations,
- should not generate too many additional costs,
- teaching and the IT staff should be fully prepared for work within six months,
- students may use it without the need to buy third party software.

Solution which was developed in our organization could be considered as the proposal of an effective competences rising tool not only for education institutions, but also for any company.

## BACKGROUND

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At the beginning of the year 2006 The School of Economics and Law (Wyższa Szkoła Ekonomii i Prawa) in Kielce, Poland, was able to offer courses to students on BA and MA level only in traditional way. Although some IT solutions for students and teachers (mostly based on the ASP model) were in common use, they were aimed at communication

and support in the organisation of the learning process. Thanks to the initiatives of a group of teachers and the IT team, the authorities of the Economics Department made a decision to offer the students an opportunity to study on-line. The aim was to establish a user-friendly solution which could be used by students.

The project had to meet the following requirements:

- abide by Polish legal regulations,
- should not generate too many additional costs,
- teaching and the IT staff should be fully prepared for work within six months,
- students may use it without the need to buy third party software.

In fact, our project was not the beginning of developing e-learning at The School of Economics and Law (SoEL). It was rather final step strictly connected with the strategy. Early stages of implementation of the web based on-line learning were taken up in 2004. A few people, enthusiasts of modern technology (both academic and technical staff) prepared a first version of a website which could support information and communication between students, teachers and administration. Within almost half a year, the number of regular users of this site has reached more than 20 percent of students and about half of the teachers. The First encouraging experiences pushed the authorities of SoEL to make e-learning development an element of the school strategy. After hard and long process of choosing the best solution which should perfectly suit our organization, the open source software package Moodle became the backbone of SoEL learning community. This open source software gave us an opportunity to make some experiments and prepare a web-based application which including modules designed for administrative tasks (accounting and planning, communication) and learning (on-line courses for students and additional materials both for students and teachers). Thanks to the open source software the main costs were connected with personnel and hardware.

Moodle software was not also chosen accidentally. From 2004 SoEL was one of the twelve European Higher Education organisations which were preparing LOLIPOP – the Language On-Line Portfolio Project (<http://lolipop.wseia.edu.pl/>). The software part of this project was based on Moodle, so it was in common use among our teacher and IT specialists.

## PREPARATIONS

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At the beginning of 2006 Polish Ministry of Higher Education held a contest for preparing a programme of on-line BA and MA studies in economics (co-financed by EFS). After a strong competition SoEL became one of the five winners. Within three months we had to prepare 36 courses on BA level studies and 26 courses on MA level.

## CHARACTERISATION OF THE SOLUTION

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The realization of the “e-Ekonomia” project was preceded by the research on students’ needs. The findings of the research and former experiences let us formulate the main areas of activities which were taken. These are divided into five groups:

*Learning model* – having studied corporate and academic forms of e-learning, we developed our own form of the model, which may be best described as the “blended learning”. In our model we assume that about 30% of whole courses time takes place in a traditional way (sports events, language courses, seminars, as well as initiation of each course). The rest will be done on-line. Each course should include materials which allow learning basics of a focused subject.

*Legal issues* – although according to the Polish law students should spend a fixed number of hours at lectures, there are some exceptions connected with the individual learning programme. This allowed us to meet legal requirements.

*IT solutions* – the software base of our solution is the Moodle platform, which is running on a server at our school. This part of realization of the project is in fact connected with specialized IT workforce. Our programmers and web developers were trained enough, so there was no need of the extra training.

*Staff* – the project team are selected and specially trained teachers and IT specialists from our school. The organization of trainings is included in the next chapter.

*Coordination and timing* – is the crucial part of the project – we created a special organization chart and divided all the involved members of the team into groups which were focused on separate aims and led by highly qualified leaders.

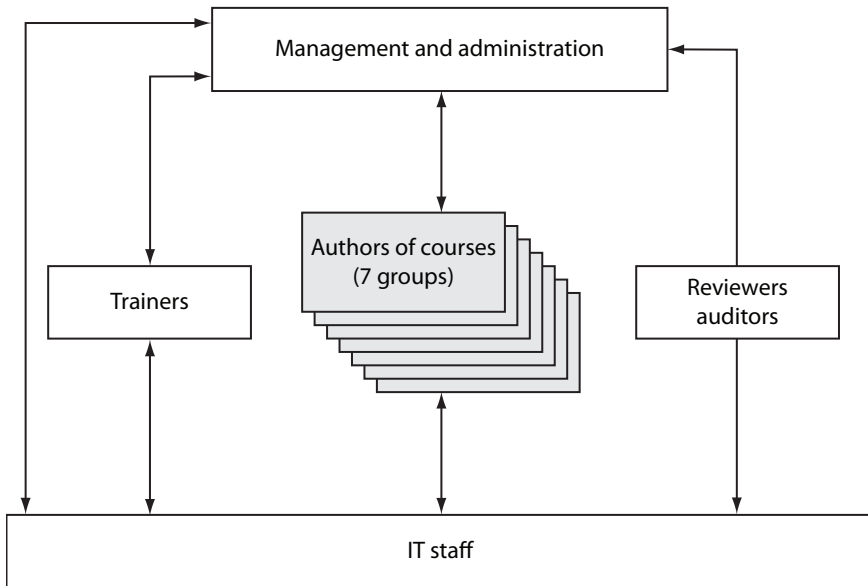
## ORGANISATION CHART AND TIMING

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The staff which was involved in the project can be divided into five groups:

- management (overall supervision, decision making) and administration (book-keeping, back office support),
- trainers (trainings for authors),
- authors of the courses,
- reviewers, auditors (each course should be reviewed, the whole project needs internal and external audit),
- IT staff (developing and administration of Moodle software, helpline for trainers and authors).

The relationships between these groups are clearly seen in Figure 1.



**Figure 1.** “e-Ekonomia” project organisation chart

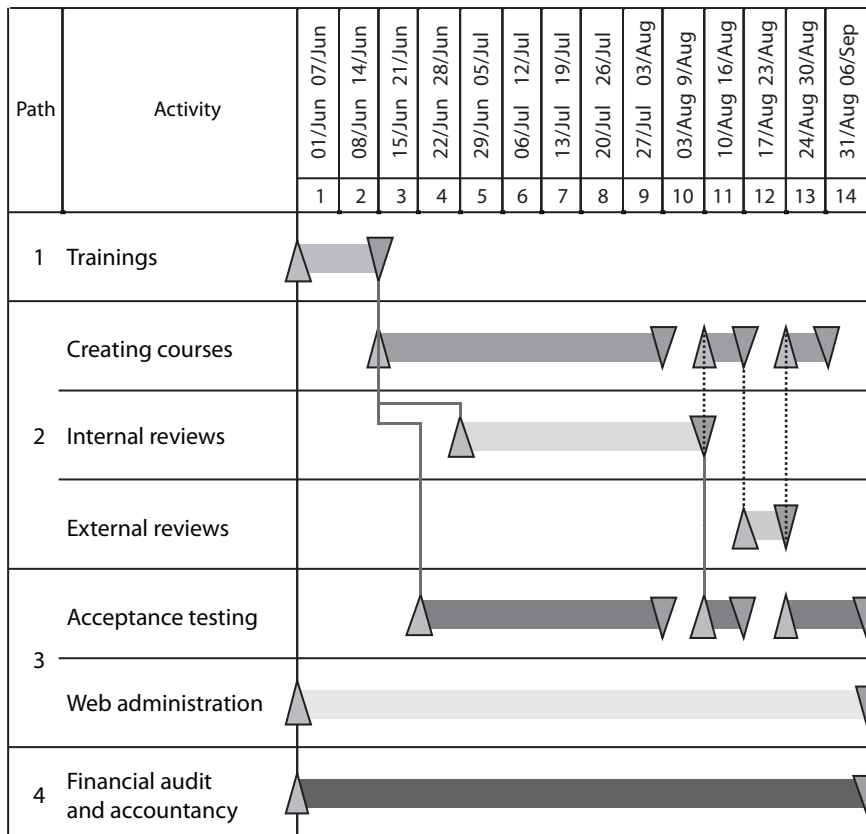
The most important part of the successful realisation of the project was activities which were taken up by the authors. They were divided into seven groups (each group was responsible for a few courses). Works on a specific course were done solely by the trained author, but work progress was constantly supervised by the leader of the group of authors (among leaders were the most experienced professors which were involved in distance learning development). Simultaneously, courses were checked by the testers (members of the IT staff). Their remarks were presented to the authors and leaders of each group.

“e-Ekonomia” project lasted three months (June 1<sup>st</sup> – August 31<sup>st</sup> 2006). Within this time the actions were taken up, which could be divided in 4 paths:

- trainings,
- creating courses,
- IT works,
- administration tasks.

The precise timetable is presented in Figure 2.

The first stage of the realization of “e-Ekonomia” project was trainings for recruited authors. The main subject of this training was the methodology of distance learning. They also completed a course on using the Moodle platform. The training took two weeks; each participant spent over 40 hours of lectures and workshops and later, during the next stage of the project, could consult trainers about methodology and



**Figure 2.** Gantt chart of “e-Ekonomia” project

technical problems. This support was available both by phone and the web page (also powered by the Moodle software) which was operational during the realisation of the project.

The process of creating courses has already been described. As we see in Figure 2, the authors had 9 weeks for doing their work. In fact, they had 7 weeks for creating the first version and additional two weeks for finalising works (a week after internal reviews and another one after external reviews). The last step was the acceptance testing. This work was made by the IT staff. They were responsible for user-friendly performance of courses and clearing software bugs (for example checking content to avoid blind links). After testing, the core part of the project was closed.

Two activities ran parallel to those described above:

- hosting and administrating web page of the project
- financial audit and bookkeeping.

## CONCLUSIONS

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Over 80 people were involved in the realization of the project. Most of them were beginners in distance learning. We had to develop the organization and provide trainings. We managed to reach our goal – the ability to provide distance learning in economics in less than half a year. Our strategy and solutions could be helpful for others, not only teaching institutions. It does not mean that a month after the end of the project our school was able to provide on-line studies. This goal should be achieved in the academic year 2007/2008. Nevertheless, all students registered on SoEL Moodle platform could use materials during 2006/2007 academic year and there were also some beta courses for interested students.

The whole experience which we gained thanks to “e-Ekonomia” project led us to a conclusion that there are no special technical requirements for efficient on-line learning, just a quick Internet connection and a server capable of running Moodle platform.



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