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EVALUATION OF THE POSSIBILITIES OF USING THE KNOWLEDGE CAPITAL EARNINGS METHOD (KCE™) FOR DEPICTING INTELLECTUAL CAPITAL IN THE ANNUAL REPORTS OF POLISH COMPANIES

Anna Bagieńska[1]

Abstract

Intellectual capital is not sufficiently depicted in the annual reports of Polish companies, although it plays an important role in the operation and market valuation of enterprises. The aim of the paper is to evaluate the possibilities of using the KCE™ method for depicting intellectual capital in the enterprise annual report – in particular, in the integrated reports. The KCE method developed by Lev has been modified in the area of normalized revenues, of which the evaluation method is not controlled by the audit, which results in its subjectivity. We adopted the category of gross profit generated by an enterprise from sales (including a large share of costs of earnings) which is reported by the enterprise. On the basis of the financial data from annual reports, we conducted the Knowledge Capital Earnings measurement of selected IT companies and this method was evaluated by comparing the results with the market and financials indicators of the companies and their Market-to-Book Values.

The conclusions from the analysis confirmed a strong correlation of intellectual capital (evaluated by modified KCE™ method) with market indicators and return on equity. The method of intellectual capital evaluation of Market-to-Book Value did not give results related to market and financial indicators.

Therefore, based on the reported gross profit on sales, the KCE™ method should be recommended as a measure in the integrated reporting of an enterprise.

JEL classification: D24, E22, L21, M21
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[1] Bialystok University of Technology, Faculty of Engineering Management, e-mail address: a.bagienska@pb.edu.pl, ORCID: https://orcid.org/0000-0002-3053-8085.

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Introduction

Intellectual capital plays an important role in the operation, development and innovativeness of modern enterprises. More and more frequently, it is becoming the source of competitive advantage. In financial reporting of enterprises, there are no standards for reporting non-financial information, including intellectual capital. In Poland, since 2017, reporting non-financial information is obligatory only for big companies (those employing more than 500 persons and achieving a balance sheet total of above 200 million Euros or a net turnover above 40 million Euros). The guidelines regarding this reporting allow great freedom in the manner and scope of non-financial data presentation. Additionally, different definitions of the notion of intellectual capital and a number of proposed methods of measurement cause difficulties in measuring and reporting both on intellectual capital and its aggregated value.

The aim of the paper is to evaluate the possibilities of using the KCE™ method for depicting intellectual capital in the enterprise annual report. On the basis of the financial data from annual reports, we will conduct the Knowledge Capital Earnings measurement of selected IT companies and evaluate this method by comparing the obtained results with the market and financial indicators of the enterprises and their Market-to-Book Value.

Annual report as a tool of communication with stakeholders

According to Holland (1998), one of the greatest challenges of enterprise reporting is to present a comprehensive picture of the enterprise to investors in a way enabling a multi-spectual evaluation. The information system created by accounting allows for characterizing a given entity in terms of its operation mostly from a financial perspective (Holland, 1998, p. 256; Micherda & Stępień, 2016, p. 91). In fact, for the evaluation of a company, non-financial information is becoming increasingly important: this information is missing from the financial reporting system, which results in the occurrence of informational asymmetry (Fijałkowska, 2016, p. 117). According to the Accountancy Act (art. 49.3), listed companies should include additional information relevant to the assessment of their development, results and situation in the activity report. This information should comprise the following items:

1) key financial effectiveness indicators related to the entity activity,

2) key non-financial effectiveness indicators related to the entity activity as well as the information regarding the employee issues and the natural environment.

Intellectual capital paradigms require corporate governance members to think holistically about all the intangible resources that can be used to create value (Shahveisi, Khairollahi & Alipour, 2017, p. 67). The topic of narrative reporting has recently returned to the accounting research agenda. Its re-emergence is closely related to the growing interest in integrated reporting (Roslender & Nielsen, 2017, p. 161).

In response to the external stakeholder expectations, the reporting of enterprises is changing and there has been an increase in the amount of voluntarily reported non-financial information (Dumay, et al., 2016, p.167). One of the reasons is the fact that companies with a high level of intangible assets are not able to legitimize their status on the basis of fixed assets which are traditionally considered a symbol of corporate success. Therefore, they aim to use other broader ways of communication (An, Davey & Eggleton, 2011, p. 571). Traditional cost-based accounting information needs to be complemented with information on the intangible value drivers (Lev, Canibano & Marr, 2005, p. 42-55). Taking into consideration stakeholder needs and the benefits resulting from reporting non-financial information, it is becoming increasingly common to create sustainable development and social responsibility reports and integrated reports (Dyląg, Puchalska, 2014, p. 41; Sofian, 2018; Bagieńska, 2017). IIRC (*International Integrated Reporting Council*) defines integrated reporting 'as concise communication on the enterprise strategy, corporate governance, the achieved results of business activity and development perspectives in the context of external environment; these elements are supposed to contribute to the creation of values in the short, middle and long term' (www.theiirc.org). The integrated reporting (IR) focuses on many aspects, such as: the strategy and operations of a company, management, financial results and long-term prospects (Bommel, 2014, p. 1157), combining all the reports of a company. The IR emphasizes the connection between these reports based on the business model of the company and shows how each of these areas contributes to the organizational aims defined by various interested parties both in the

short term and in the long term (Lueg et al., 2016, p. 23). In order to achieve the objective of integrated reporting, it is necessary to reveal all the value creation sources, including the intellectual capital of a given enterprise.

What is crucial for preparing an integrated report in an appropriate way is 'integrated thinking' about internal and external factors influencing the enterprise (Feng et al., 2017, p. 330). In integrated reports, there is an increase of the degree of reporting the categories of intellectual capital and human capital (Haji & Anifowose, 2017, p. 380). The degree of reporting information varies depending on the region and kind of the industry (Rivera-Arrubla et al., 2017, p. 158). The trend to do the integrated reports with the lack of defined rules of such reporting poses a threat in which it becomes merely a mechanism (Gunarathne & Sepnarate, 2017), combining much information about the enterprise, without achieving the advantage constituted by a properly prepared report. Its character, contents and the way in which the credibility of information is ensured may influence the image of a given entity in a positive or negative way (Śnieżek, Czechowski & Doroba, 2016, p. 35).

Intellectual capital of an enterprise – concept and elements

In literature, scholars distinguish three main sources of the intellectual capital notion. The first one is "the Japanese approach based on the experience of Itami", related to the analysis of the influence of intangible assets on the management of Japanese corporations. The second approach is based on the compilation of various researchers' works developed by Teece: in this case, attention is paid to different presentations of the enterprise operation. The last of the discussed approaches relies on Sveiby's experiment referring to various forms of intellectual and human capital, which, as a consequence, provide for determining the value of an enterprise on the basis of the employees' knowledge and occupational competences.

In the literature on this subject, there is no commonly accepted definition of intellectual capital (Lev et. al., 2005, p.44; Sawicki, 2014, p. 83). In 1997, Sveiby was the first to propose its definition: 'the difference between the market value and the book value of a public limited company corresponds with the value of its intangible assets' (Sveiby, 1997, p. 10). Stewart offers the following definition of the notion in question: intellectual material: knowledge, information, intellectual property and experience which can be used to create wealth (Stewart, 1998, p. XI). Marcinkowska defines intellectual capital as employees' and management's knowledge which is a resource of strategic importance influencing the competitive position and market potential of an enterprise (Marcinkowska, 2008, p. 210). Generally speaking, the author of this definition points to the fact that intellectual capital is constituted by the whole knowledge possessed by employees of a given enterprise enabling the company to achieve a competitive advantage on the market.

Bratnicki and Strużyna divide intellectual capital into two main parts: the first one represents invisible resources and processes and constitutes organizational capital and social capital, while the second reflects people's knowledge and constitutes human capital (Bartnicki & Strużyna, 2001, p. 67). Sullivan defines intellectual capital as knowledge which can be transformed into profit (Sullivan, 2000, p. 228). Thus, the authors of this definition indicate the advantages related to the possession of intangible assets in an enterprise. An important aspect of this definition is the idea that value does not come from the possession of knowledge, skills and abilities but, knowledge only creates value when it is utilized (Meijerink & Bondarouk, 2018, p.33).

The OECD defines intellectual capital as the economic value of two intangible asset categories of an enterprise: organizational (structural) and human (Urbanek, 2008, p. 32).

In its integrated reporting framework, the International Integrated Reporting Council (IIRC) - a global coalition of regulators, investors, companies, standard setters, the accounting profession and NGOs - defines six types of capital which constitute the enterprise value in the future, including intellectual capital. These are categorized and described as follows (www.theiirc.org):

1) financial capital – the pool of funds that is available to an organization for use in the production of goods or the provision of services and obtained through financing, such as debt, equity or grants, or generated through operations or investments,

2) manufactured capital – manufactured physical objects that are available to an organization for use in the production of goods or the provision of services,

3) intellectual capital – organizational, knowledge-based intangibles, including:

a) intellectual property, such as patents, copyrights, software, rights and licences,

b) organizational capital such as tacit knowledge, systems, procedures and protocols,

4) human capital – people's competencies, capabilities and experience, and their motivations to innovate, including their alignment with and support for an organization's governance framework, risk management approach, and ethical values – ability to understand, develop and implement an organization's strategy or loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate,

5) social and relationship capital – the institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being,

6) natural capital – all renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization.

The approach proposed by the IIRC limits intellectual capital to organizational capital and intellectual property. Human capital is categorized separately, which differs from the approach in the above-mentioned definitions. The difference in definition is an additional problem in the measurement, valuation or estimation of the role of this capital in the creation of value for an enterprise.

Knowledge capital earnings KCE™ – a method of measuring intellectual capital

Up to now, a universal method of enterprise intellectual capital measurement has not been developed (Chojnacka & Wiśniewska, 2015, p. 47; Dominiak, Mercik & Szymańska, 2013, p. 612). A variety of models have surfaced in an attempt to measure intellectual capital (Bontis, 2001, p. 41). Each of the methods and definitions proposed in the literature has positive and negative characteristics (Palimąka & Mierzejewski, 2017, p. 69)

Sveiby (2010) proposes four main groups of intellectual capital measurement methods, which comprise the following ones:

1) methods based on the market cap – these methods enable "determining the difference between the book value of an enterprise and its actual value"; this group comprises: Tobin's Q ratio, Market-to-Book Value (MV-BV), Investor Assigned Market Value (IAMV™), (Roszyk-Kowalska & Stańda, 2010; Dominiak, Mercik & Szymańska, 2013; Palimąka & Mierzejewski, 2017),

2) methods based on return on assets – this group includes: the Economic Value Added ratio (EVA™), the Knowledge Capital Earnings method (KCE™), the Value Added Intellectual Coefficient method (VAIC™), Calculated Intangible Value (CIV), Human Resources Costing & Accounting (HRCA), (Dominiak et al., 2013; Chojnacka & Wiśniewska, 2015),

3) methods of direct intellectual capital measurement – these methods allow for presenting the value of intellectual capital in the enterprise in the financial form, for instance: the patent ratio, the technology brokering model, the Total Value Creation model (TVC™), the Intangible Assets Valuation model (IAV), the Inclusive Valuation Methodology model (IVM). (Zarzecki & Piechota, 2012; Dominiak et al., 2013),

4) Scorecard methods – such as: Value Platform, Intangible Assets Monitor IAM, Skandia Navigator, the IC Rating™ model, the Intellectual Capital Index IC-Index, Sustainable Results Card BSC, Model Value Chain Scoreboard (VCS™). (Roszyk-Kowalska & Stańda, 2010; Dominiak et al., 2013).

The KCE™ method, proposed by Lev, is one of those based on return on assets and it measures the value of intellectual capital developed by an enterprise. The starting point of the KCE™ method is the assumption that the main source of income, in particular future income, is intellectual capital involved in its creation. It is a prospective method, comprising all intangible resources. Lev and Gu calculate actual return on using physical, financial and intellectual capital, which is not equal to the contribution of these capitals to income. Their actual contribution may be lower or higher, because average measures (in this case the average return rates) may either overstate or understate the calculated value. In addition, incomes are the result of accumulation of both physical (material) capital and intellectual (intangible) material. It is this synergy that constitutes value. The KCE™ method is based on the assumption that material and intangible capital of an enterprise generates income thanks to which the enterprise achieves the economic result and thus realizes the productive function of an enterprise (Lev

& Gu, 2004, p.1).

This method is based on the function of enterprise production which is calculated by means of the following formula (Ujwary-Gil, 2008, p. 40, Michalski, 2014, p.16):

$$ER = a(C_{phys}) + b(C_{fin}) + c(IC) \quad (1)$$

in which:

ER - economic result of an enterprise,

C_{phys} – physical capital,

C_{fin} – financial capital,

IC – intellectual capital,

a, b, c – productivity coefficients of individual capitals.

Knowledge Capital Earnings - KCE™ is determined in 5 stages (Dominiak et. al., 2013, p. 612; Ujwary-Gil, 2008, p. 40):

Stage 1: Determining the value of enterprise normalized revenues for the last three years on the basis of historical data (FRL– Forecasted Revenue Level) and the value of forecasted revenue.

Stage 2: Estimating the values of normalized revenue generated by physical capital – FRL_{phys}. In order to calculate the FRL_{phys} value, the following operations should be conducted:

1) to determine the physical capital value (C_{phys}) using the formula:

$$C_{phys} = FAV + S - LTL \quad (2)$$

in which FAV – is the fixed assets value,

S – stocks,

LTL – long-term liabilities.

2) next, the value of physical capital is multiplied by the return on physical capital ratio (ROA_{phys}).

$$FRL_{phys} = C_{phys} * ROA_{phys} \quad (3)$$

According to Lev, the return on physical capital ratio should be set at the level of 7%. It constitutes the average return on physical capital ratio for the whole economy of the USA (Lev & Gu, 2004; Ujwary-Gil, 2008).

Stage 3: Estimating the values of normalized revenues (FRL) generated with the use of financial capital – FRL_{fin}. In order to calculate the FRL_{fin} one should multiply the value of financial capital (C_{fin}) by the return on financial capital ratio (ROA_{fin}).

$$FRL_{fin} = C_{fin} * ROA_{fin} \quad (4)$$

The financial capital (C_{fin}) is calculated by means of the formula given below:

$$C_{fin} = CA - S + LTI - STL \quad (5)$$

in which:

CA – current assets,

S – stocks,

LTI – long-term investments,

STL – short-term liabilities.

According to Lev's research studies, the return on physical capital ratio amounts to 4,5%, which constitutes the annual return ratio from ten-year government bonds in the period 1980–1990 (Lev, Gu, 2004, p.1).

Stage 4: Estimating the normalized revenue generated by intellectual capital (revenues from knowledge capital) using the following formula:

$$FRL_{IC} = FRL - (FRL_{phys} + FRL_{fin})$$

Stage 5: Calculating the KCE™ ratio which is the quotient of the normalized revenues generated by intellectual capital (revenues from knowledge capital) and intellectual capital discount rate. KCE™ = FRLIC / discount ratio

The author of this method sets the discount ratio at the level of 10.5%, 'which constitutes the average return ratio from the stocks of biotechnological companies and those dealing with developing software' (Ujwary-Gil, 2008).

The KCE™ method can be described as subjective due to the dominance of arbitrarily adopted factors in the total calculation, i.e. the forecasted ratio of return on physical and financial capital and the discount rate for intellectual capital. Depending on many factors, the ratios of return on physical and financial capital may vary in individual branches or countries. However, the adoption of one common interest rate for evaluation revenues (profits) from knowledge capital and intellectual capital for all enterprises facilitates the comparability of results.

A certain subjectivity also occurs in the case of determining the normalized revenue of an enterprise, based on the forecasted revenue. As a consequence, it causes difficulties in auditing and verifying intellectual capital value.

In our opinion, adopting the revenues from the current period and the forecast as a measure generated by particular kinds of capitals is not an appropriate measure because of the following reasons:

1) subjectiveness of evaluation of future revenues and no possibility of controlling them,

2) high share of operating costs in the sales revenues (approx. 80%-90%), which causes that the generated high amount of sales revenues does not ensure a high level of profit on operating activities,

3) the essence of the ROA indicators used "for transforming of the normalized revenues" into the revenues generated by individual capital; their main function is to inform how much profit (not revenue) is generated by 1 PLN of the involved assets.

Therefore, gross profit on sales (GPoS) should be a value to be estimated as the one which generates individual capital. In the research part of the present study, calculations will be conducted on its basis.

The aim of an annual report is to present the previous period results to stakeholders. We are of the opinion that one should base the calculation of gross sales profit generated by individual capital on the value for the year in which the amount of capital is determined. The forecasts cause difficulties in verifying the obtained results.

Research method

In order to determine the KCE™ value (Knowledge Capital Earnings) in an enterprise and the correlations with financial and market results, we have chosen companies from the IT sector. In this sector, knowledge and intangible assets influence the results of activities to a greater extent than tangible assets. Modified to some extent, Lev's KCE method, comprising gross profit on sales instead of sales revenues, is used to calculate the value of intellectual capital and gross profit generated from intellectual capital. On the basis of financial reports of the analyzed companies, the calculations are done in the following stages:

1) calculating the value of physical capital and financial capital according to the assumptions of Lev's KCE method,

2) determining the value of gross profit on sales (GPoS) in particular years,

3) calculating which share of gross profit on sales has been generated by physical capital ($GPoS_{phys}$) – estimating at the assumed return ratio of 7%,

4) calculating which share of gross profit has been generated by financial capital ($GPoS_{fin}$) – estimating at the assumed return ratio of 4.5%,

5) calculating which share of gross profit has been generated by intellectual capital – as a difference between gross profit and the sum of GPoS divided between physical capital and financial capital, using the following formula: $GPoS_{IC} = GPoS – (GPoS_{phys} + GPoS_{fin})$

6) calculating the value of intellectual capital by discounting gross profit on sales generated by intellectual capital ($GPoS_{IC}$) with a ratio of 10.5%.

The case study includes three companies from the IT sector, selected randomly. The IT sector is one of the most profitable non-financial business in Poland. Furthermore, IT sector turnover is steadily growing - 65 billion PLN in 2018 (www1). Therefore, the role of intangible assets is vital in this sector. The employees in these companies work in a highly competitive environment which requires regular knowledge transfer. The present research study analyzes the financial reports covering the period of 2012-2016, retrieved from the Emis database. The analysis comprises the level of calculated intellectual capital and the share of gross profit on sales generated by this capital in the total gross profit.

In the second part of the analysis, the intellectual capital calculated by the described method is compared with the following market and financial results:

1) Market-to-Book Value which measures the presence of intellectual capital,

2) price to book value,

3) earnings per share,

4) return on equity (ROE).

By means of Pearson's correlation index, we analyze the relation of intellectual capital calculated in this way and the financial and market results.

Research results

Three companies from the IT sector have been selected randomly: Asseco Business Solutions Inc., PGS Software Inc. and Talex Inc. Asseco achieved the highest annual revenues of approx. 169 000 thousand PLN in 2016, Talex – approx. 114000 thousand PLN, and PGS – 76000 thousand PLN. In comparison with 2012, the revenues in 2016 increased by 20% in Asseco, by 21% in Talex and by 232% in PGS – a company with the fastest increase of total revenues. The calculated gross profit on sales generated from physical capital was highest in Talex in all the analyzed period (from 2200 PLN in 2012 to 3232 PLN in 2016) (Table 1). In Talex, the share of gross profit on sales

Table 1: The structure of the gross profit on sales generated by physical, financial and intellectual capital in the years 2012-2016 (in %)

GPoS	2012	2013	2014	2015	2016
Asseco Business Solution					
$GPoS_{phys}$	0,21	0,19	0,15	0,13	0,12
$GPoS_{fin}$	0,69	0,64	0,64	0,60	0,55
$GPoS_{IC}$	99,10	99,16	99,21	99,27	99,33
PGS					
$GPoS_{phys}$	0,22	0,33	0,54	0,39	0,56
$GPoS_{fin}$	5,53	4,77	3,91	3,80	3,66
$GPoS_{IC}$	94,26	94,90	95,56	95,82	95,78
Talex					
$GPoS_{phys}$	20,40	11,45	10,94	16,00	16,59
$GPoS_{fin}$	3,04	3,46	2,90	0,46	0,78
$GPoS_{IC}$	76,56	85,08	86,16	83,54	82,63

Source: Own elaboration based on calculation

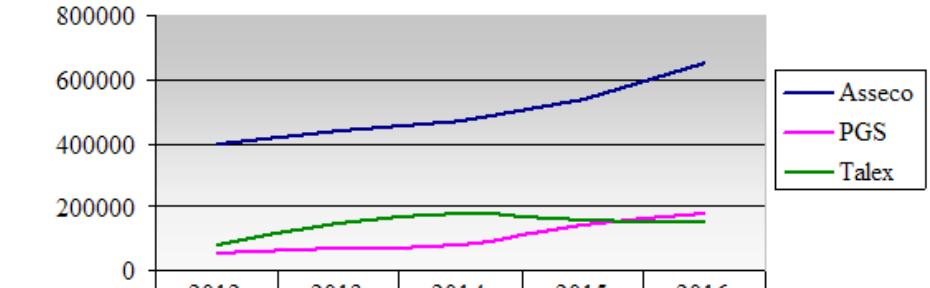
from physical capital constituted from 20% to 16% of the total gross profit on sales. In terms of amount, the highest profit on financial capital was generated in Asseco where it amounted to approx. 3500 thousand PLN. However, the share of gross profit on sales from financial capital in the total gross margin amounted to approx. 0.6%. Financial capital had the highest share in the gross margin in PGS – approx. 3.5% in 2016. The lowest gross profits on sales from intellectual capital were generated in Talex (approx. 16 thousand PLN), which constituted approx. 82% of the total gross margin. The highest amount of gross profit on sales was generated by intellectual capital in Asseco (68 thousand PLN), which constituted approx. 99% of the whole margin. The intellectual capital of PGS generated 19 thousand PLN (95% of total margin).

On the basis of the results presented in Table 1, it can be concluded that in each period intellectual capital of the analyzed companies generated more gross profit than physical capital and financial capital.

Figure 1 presents the results of calculated intellectual capital in PLN in the analyzed companies with the discount rate of 10.5%.

Asseco possesses the highest intellectual capital: 397266 thousand in 2012 and 651 000 thousand in 2016; in comparison with 2012, its size increased by 85%. In 2016, PGS possessed intellectual capital in the amount of 181450 thousand PLN. Compared with 2012, the size of this capital grew three times, which confirms the important role of intellectual capital in the intensive progress and development of a company. The sales revenues increased

Table 1: The structure of the gross profit on sales generated by physical, financial and intellectual capital in the years 2012-2016 (in %)



	2012	2013	2014	2015	2016
Asseco	397266	436235	467410	535719	651418
PGS	59138	73996	81096	144865	181450
Talex	81846	147723	180770	162312	153350

Source: Own elaboration based on calculation

Table 2: The structure of the gross profit on sales generated by physical, financial and intellectual capital in the years 2012-2016 (in %)

Company	The relation of the calculated intellectual capital value and		
	price to the book value ratio	earnings per share	return on equity
Asseco	0,976	0,988	0,988
PGS	0,906	0,998	0,861
Talex	0,962	0,986	0,975

Source: Own elaboration based on calculation. MV/BV, earnings per share and ROE retrieved from www.emis.com

fastest in PGS in this period. Talex possesses intellectual capital worth 153350 thousand PLN, which increased by 88% in comparison with 2012. The analysis of correlation between the price to the book value ratio and the value of the calculated intellectual capital shows that it is very strong in all the analyzed companies – above 0.9 (Table 2). The strongest relation (0.976) was observed in Asseco, slightly weaker – in PGS (0.906). The most intensive correlation occurs between the earnings per share ratio and intellectual capital value. In all the companies, it exceeds 0.98. The return on equity is correlated strongest with intellectual capital in Asseco (0.988) and Talex (0.975). In PGS, the relation is slightly weaker and amounts to 0.861. It should be emphasized that in all the analyzed period, the return on equity ratio was highest in PGS (approx. 87%). Moreover, all the analyzed companies finance their activities mostly from their equity capital, which constituted in 2016 respectively: 90% of total liabilities in Asseco, 67% of total liabilities in PGS and 50% of total liabilities in Talex.

In order to compare the results calculated by the KCE™ method, the Market-to-Book Value method has been chosen. The method is used "to determine the difference between the book value of an enterprise and its actual value". The relation of the market value of an enterprise to book value above 1 indicates the existence of intellectual capital.

Table 3 presents the Market-to-Book value (MV/BV) of the companies included in the research study. It shows that in the whole analyzed period, the market value of PGS was significantly higher than its book value, which emphasizes the important role of intellectual capital in its market results. Asseco also possesses "hidden assets" increasing its market value, while Talex was evaluated by the market below its book value in 2015 and 2016, which does not confirm the existence of intellectual capital in this company.

The results obtained by means of the KCE method show growing intellectual capital in the analyzed companies in the whole researched period.

The correlation of the MV/BV ratio with intellectual capital calculated by the KCE method is negative in all the companies. It is most intensive in PGS (-0.97) and in Asseco (-0.81), while in Talex, it is weaker (Table 4). This correlation shows that in some entities, with the increase

Table 3: Market-to-Book value of the analyzed enterprises in the years 2012-2016

MV/BV	2012	2013	2014	2015	2016
Asseco	2,77	1,87	1,59	1,54	1,26
PGS	20,03	18,61	15,47	9,27	7,63
Talex	1,45	1,60	1,05	0,53	0,18

Source: Retrieved from www.emis.com

Table 4: The correlation between the Market-to-Book value and the intellectual capital, earnings per share, ROE (Pearson's correlation index)

Company	The relation of Market-to-Book value and		
	intellectual capital	earnings per share	return on equity
Asseco	-0,81205	-0,71351	-0,71126
PGS	-0,97525	-0,96878	-0,93252
Talex	-0,44105	-0,29226	-0,24915

Source: Own elaboration based on calculation. MV/BV, earnings per share and ROE retrieved from www.emis.com

of intellectual capital calculated by KCE™ method, the MV/BV relation is decreasing (they are becoming similar). The market evaluates the company slightly above its book value. The results obtained with the MV/BV method are inversely correlated with earnings per share and return on equity in PGS. In the other companies, the correlation is low or it does not occur.

Conclusion

The KCE™ method measures (estimates) intellectual capital comprehensively, thus without conducting the division of the value calculated according to the classification of components of intellectual capital. This method is very useful when one wants to compare companies from the same sector. Moreover, thanks to the obtained results, it is possible to observe changes occurring in the intellectual capital of a given company. The advantage of this method is that it comprises a higher level of correlation of market ratios (price to book values and earnings per share) and of return on equity (ROE) with enterprise intellectual capital.

In turn, the disadvantage of the method is that the enterprise profit is divided into three groups: physical capital, financial capital and intellectual capital – according to different accountancy models, profit is an indivisible component. Furthermore, another weak point of this method which is mentioned is inaccuracy is formulating conclusions – an enterprise which invests substantial financial means in intellectual capital would achieve a lower profit level than the one not investing in the capital in question. Then, the value of intellectual capital calculated by means of the KCE™ method would be significantly lower than in the former enterprise than in the latter one. In spite of the objections raised, the KCE™ method based on sales profit from the current period reported in the profit and loss account may constitute a supplement to the annual or integrated enterprise report on intellectual capital.

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