PRACE NAUKOWE UNIWERSYTETU EKONOMICZNEGO WE WROCŁAWIU
RESEARCH PAPERS OF WROCŁAW UNIVERSITY OF ECONOMICS 2019, vol. 63, nr 8

ISSN 1899-3192
e-ISSN 2392-0041

Małgorzata Adamska
Opole University of Technology
e-mail: m.adamska@po.edu.pl
ORCID: 0000-0001-5227-3519

APPLICATION OF SELECTED METHODS OF INTELLECTUAL CAPITAL VALUATION BASED ON GRUPA KAPITAŁOWA ŻYWIEC SA

ZASTOSOWANIE WYBRANYCH METOD WYCENY KAPITAŁU INTELEKTUALNEGO NA PRZYKŁADZIE GRUPY KAPITAŁOWEJ ŻYWIEC SA

DOI: 10.15611/pn.2019.8.13
JEL Classification: M20, O34

Summary: The article presenting literature overview focuses on the legal framework of the analysis, reporting and valuation of intangible assets identified in contemporary companies within their intellectual capital. The research part of the article is focused on the practical applications of selected methods of intellectual capital valuation based on Grupa Kapitałowa Żywiec SA corporate group, which has been keeping publicly available non-financial reports since 2017. The purpose of this article is to show that the process of intellectual capital valuation requires the long-term integration of selected valuation methods as well as the consideration of the context of the analysed numbers. The methods selected for the purposes of this presentation are: price/book value index, Tobin's q ratio, calculated intangible value index and value added intellectual coefficient. The intellectual capital valuation carried out for the purposes of this article has confirmed that applying only one valuation method does not give a fair view of intangible assets, and the lack of considering context in the valuation makes the obtained data lose its decision-making value.

Keywords: intellectual capital, MV/BV, Tobin's q ratio, CIV, VAIC.

Streszczenie: Artykuł w części poświęconej przeglądowi literatury prezentuje prawne uwarunkowania analizy, sprawozdawczości i wyceny wartości niematerialnych identyfikowanych we współczesnych przedsiębiorstwach w ramach posiadanego kapitału intelektualnego. W części badawczej zaprezentowano praktyczne zastosowanie wybranych metod wyceny kapitału intelektualnego na przykładzie Grupy Kapitałowej Żywiec SA, która od roku 2017 prowadzi publiczną sprawozdawczość w zakresie informacji niefinansowych. Celem artykułu jest wykazanie, iż w procesie dokonywania wyceny kapitału intelektualnego konieczne są długofalowa integracja wybranych metod wyceny oraz uwzględnienie kontekstu badanych wielkości. Wybrane do prezentacji metody to: wskaźnik wartości rynkowej do wartości

księgowej, współczynnik *q*-Tobina, wskaźnik skalkulowanej wartości niematerialnej oraz wskaźnik intelektualnej wartości dodanej. Przeprowadzona wycena kapitału intelektualnego potwierdziła, iż stosowanie wyłącznie jednej metody wyceny nie daje rzetelnego obrazu wartości niematerialnych, a brak uwzględnienia kontekstu w wycenie sprawia, iż otrzymane informacje tracą wartość decyzyjną.

Słowa kluczowe: kapitał intelektualny, MV/BV, współczynnik *q*-Tobina, CIV, VAIC.

1. Introduction

In 2008, the EFFAS Commission on Intellectual Capital developed Principles for Effective Communication of Intellectual Capital, which still constitute the basic reporting standards. In order to carry out analyses, reporting and valuation of the intellectual capital standard, it is necessary to take multifaceted actions. Not only do companies need to learn to analyse and communicate their intangible assets in a more systematic way, but also financial analysts and investors have to be able to interpret this additional information and effectively integrate it into existing valuation procedures (EFFAS CIC, 2008, p. 2).

Below are ten selected rules based on studies on this topic (EFFAS CIC, 2008, pp. 4-6; Mierzejewska, 2009, pp. 67-68):

1. Transparent consideration of value creation in the future – an ideal index should be flexible and malleable so that it can be incorporated into quantitative valuation models.
2. Transparent methodology – companies should be able to explain how they have created the indices suggested in the evaluation.
3. Standardisation – normalised intangible indices may be compared among companies.
4. Coherence in time – the selected set of indices has to be as coherent over time as possible.
5. Compromise between confidentiality and disclosure of information – disclosing this type of information should always be preceded by thoughtful, internal decision-making processes within the scope of intellectual capital management.
6. Interests common to both companies and investors – progress in communicating intellectual capital can be achieved only through compromise between the interests of a company which provides information of increasing quality and quantity.
7. Preventing excessive collection of information – knowledge needs to be qualitative and useful to analyses and valuations.
8. Reliability and responsibility – information on intellectual capital should be a true and honest presentation of the internal measuring system or a result of transparent evaluation.
9. Risk assessment – identification of possible future events and the resulting probability of risks to a company's operational efficiency and results.

10. Manner (place and time) of communicating intellectual capital – information about a company's intellectual capital should be disclosed through efficient and effective communication channels, and the frequency of such disclosure should be appropriately planned.

The rules for communicating the knowledge about intellectual capital presented above constitute a tool that supports the measurement, disclosure and valuation of a company's intellectual capital, which makes the measuring and management of intangible assets effective, while increasing the efficiency of the allocation of internal resources. This is not an easy task due to the fact that intangible assets do not fulfil the conditions assigned to tangible assets, due to the fact that (Caputa, 2008, pp. 17-18):

- in the majority of cases they have a subjective value that is different for different people, even in the perspective of the whole company, due to the diversity of organisational levels,
- they are difficult to distinguish, because these resources are valuable only in relation to other sources. As a consequence, they cannot be subject to transaction on their own. Their value is intrinsically linked to the value of the company (e.g. customer loyalty, brand image),
- they often exert indirect influence on the financial result of a unit, through a complex chain of identified cause-and-effect relationships.

In the face of ever-changing conditions under which companies operate, resulting from global changes and spaces for business operation, the traditional accounting system defined as a comprehensive system of identification, measurement, processing and communicating information about the financial condition and results of a company, is less and less capable of providing useful and sufficient information for a broadly understood group of internal and external stakeholders (Chojnacka and Wiśniewska, 2015, p. 36).

"A contemporary accountant does not carry out a valuation of the knowledge resources controlled by a company, does not include them in the accounts or financial reports, thus making it impossible to conduct an economic and financial analysis of these resources and to interpret them for the purposes of the decision-making process. (...) classic financial accountancy and other related scientific fields, i.e. financial analysis, corporate finance, management accounting, controlling etc. are characterised by a certain capitocentrism"[1] (Niemczyk, 2014, p. 50).

Relying on intangible assets which has been observed in economic practice, resulted in changes to a broadly understood company management process, for example intangible assets reporting. The obvious necessity to measure intellectual capital is mainly a result of the increasing quality of companies' internal management system, but also improved external reporting and the needs resulting from articles of association as well as transaction needs (Urbanek, 2008, p. 83).

[1] All quotations of Polish sources have been translated for the purposes of this article and do not constitute official translations.

2. Selected methods of intellectual capital valuation for Grupa Kapitałowa Żywiec SA

Introduced to Polish law by a directive of the European Parliament, guidelines on disclosure of non-financial information and diversity information by certain large undertakings and groups have promoted actions aimed at taking up the challenge of compiling first reports on non-financial data, which included elements identified in the structure of intellectual capital.

The provisions of the directive pointed to the fact that *"*certain large undertakings should prepare a non-financial statement containing information relating to at least environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters" (EUR-LEX, 2014, p. 2). One of such companies was Grupa Kapitałowa Żywiec SA, which has been publishing "Sprawozdanie na temat informacji niefinansowych Grupy Żywiec SA oraz Grupy Kapitałowej Żywiec SA" on its website since 2017 (GKŻ, 2019).

By comparing the content of the reports for 2017 (which also contained data from 2016) and 2018, one can see marked differences in the approach to the preparation, presentation and scope of the publicly disclosed information. This is testimony to the growing awareness of the importance of certain non-financial information for the company's image. The data concerning such aspects as financial results, number of employees as well as financial and quantitative data from consolidated annual reports allowed analysts to create the following intellectual capital valuation indices (Kasiewicz, Rogowski, and Kicińska, 2006, pp. 196-218; Nita, 2013, pp. 643-650; Sopińska, 2008, pp. 125-172; Zygmański, 2016, pp. 228-233):

1. MV/BV – market to book value ratio.
2. Tobin's q ratio.
3. CIV – calculated intangible value index.
4. VAIC™ – value added intellectual coefficient.

2.1. Market to book value ratio

The MV/BV ratio, proposed by Stewart, belongs to a group of methods based on market capitalisation. It constitutes the easiest indicator of intellectual capital because it relies on a comparison between the market value and book value of a company. It is assumed that market value constitutes the sum of book value and intellectual capital value (Kasiewicz et al., 2006, p. 99; Zygmański, 2016, p. 229), which also corresponds to the Skandia Navigator™ model (Adamska, 2010).

The MV/BV ratio is calculated as follows:

$$\text{MV/BV} = \text{market value } (\textit{number of shares} \times \textit{price of shares}) \,/\, \text{book value } (\textit{assets} - \textit{borrowed capital}).$$

The MVA (Market Value Added) ratio has also been calculated. MVA represents value added to a given share in excess of its book value. MVA denotes the value added by shareholders to the capital they invested in an equity (Quintiliani, 2017, p. 122).

$$MVA = MV - BV.$$

Table 1 presents calculations for Grupa Kapitałowa Żywiec SA.

Table 1. MV/BV and MVA for Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

Żywiec SA	2016	2017	2018
Number of shares	10,271,337	10,271,337	10,271,337
Price of shares (in PLN)*	443	472	462
Market value	4,550,202.29	4,848,071.06	4,745,357.69
Book value	915,114.00	886,354.00	897,809.00
MV/BV	4.97	5.47	5.28
MVA	3,635,088.29	3,961,717.06	3 847,548.69

* Price of shares determined for 2018 as of 28th December 2018, price for 2017 – as of 29th December 2017 and price for 2016 – as of 30th December 2016 based on www14.

Source: based on (BR, 2019a; GKŻ, 2019).

If the MV/BV ratio exceeds one, it means that a company has intellectual capital resources. In the case of Grupa Kapitałowa Żywiec SA, this ratio is at a very good level, and its fluctuations need to be monitored and related to other indices (e.g. the number of employees, investment values etc.). If the ratio is below 1, this can mean a lack of intellectual capital or turbulence in regard to the valuation of market value carried out by shareholders or rating agencies.

This index is often criticised for being too superficial in its approach to valuation and for the great impact of speculation on actual share valuation, which – and it is worth emphasising – is done on an ongoing basis, when the remaining balance sheet values are determined ex post. It also does not provide a specific value, although – in a sense – after being supplemented with MVA, it enables us to determine that value, but it only indicates that intangible assets characterised by intellectual capital have been disclosed in a company's resources.

Table 2 presents the relation of MVA to human capital.

Table 2. MVA per one employee of Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

Żywiec SA	2016	2017	2018
MVA	3,635,088.29	3,961,717.06	3,847,548.69
Number of employees (as per 31st December)	1,991	1,952	1,949
MVA/per 1 employee	1,825.76	2,029.57	1,974.11

Source: based on (BR, 2019a; GKŻ, 2019).

The MVA value in relation to the number of employees indicates the same variable tendency as in the case of MV/BV. However, if one compares this data with another index applied in SCIN and in IAM, i.e. profit per one employee, it turns out that 2018 was the best year with regard to profitability per human capital (Table 3).

Table 3. Profit index per one employee of Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

Żywiec SA	2016	2017	2018
Net profit	272,573.00	258,550.00	324,096.00
Number of employees (as per 31st December)	1,991	1,952	1,949
Profit per 1 employee	136.90	132.45	166.29

Source: based on (BR, 2019a; GKŻ, 2019).

Provided the employment is stable, this interpretation of the index provides specific information about the financial condition of Grupa Kapitałowa Żywiec SA, and when supplemented with an ownership equity increase of 107% (from PLN 149,498 thousand to PLN 309,735 thousand), it indicates an excellent situation within the context of financial and non-financial data.

2.2. Tobin's q ratio

With its 50-year history, Tobin's q ratio still constitutes a popular tool for "making investment decisions independently of microeconomic factors" (Kasiewicz et al., 2006, p. 201). Tobin proposed a coefficient belonging to a group of methods based on market capitalisation, which compares the market value of an asset with its replacement value. If q is lower than 1, it is not likely that the company will buy more of this type of assets. If the asset was worth more than the replacement cost, the company would invest in a similar asset. This is a cost-based approach (Ortiz, 2011, p. 39).

Constituting the ratio of the market value of a company to the replacement value of its assets, Tobin's q ratio is expressed as follows:

Tobin's q = Gross market value / Cost of tangible asset replacement.

Gross market value is calculated as follows:

Gross market value = market value of ordinary shares +
+ book value of preference shares + market value of long-term liabilities +
+ book value of inventory + book value of short-term liabilities +
− book value of current assets.

The value of Tobin's q ratio is determined as positive or negative depending on whether its value is higher or lower than 1. In the case of companies with high capital

intensity, the value of that ratio may be lower or close to 1 without expressing the actual value of intellectual capital. It is therefore worth comparing with competitive entities and entities from similar lines of business. Table 4 presents the values of Tobin's q ratio for Grupa Kapitałowa Żywiec SA.

Table 4. Tobin's q ratio for Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

Żywiec SA	2016	2017	2018
Market value of a share	4,550,202.29	4,848,071.06	4,745,357.69
Long-term liabilities	604,890.00	557,678.00	25,568.00
Inventory	95,900.00	94,933.00	100,289.00
Short-term liabilities	1,085,378.00	1,136,689.00	1,521,448.00
Current assets	782,472.00	799,219.00	786,305.00
Total market value of a given company	5,553,898.29	5,838,152.06	5,606,357.69
Assets	1,879,315.00	1,843,865.00	1,856,751.00
Tobin's q ratio	2.96	3.17	3.02

Source: based on (BRa, 2019a; GKŻ, 2019).

The level of Tobin's q ratio for Grupa Kapitałowa Żywiec SA has a positive value and fluctuates around 3, indicating a very good level of intellectual capital, which in a broader perspective means that the company has intangible assets that encourage increasing its value and capability of using its competitive potential. Similarly to MV/BV, Tobin's q ratio is an excellent auxiliary index that monitors the state of intellectual capital and supports the analysis of a company's current situation.

The ratio also has its weak points, which correspond with those of MV/BV indicated above. In the case of Tobin's q ratio, the most serious drawback with regard to the accuracy and reliability of the obtained results concerns the determination of the replacement value of assets, because such a task is more difficult to complete than indicating a book value. Even in the most thorough analyses, the correctness of determining the replacement value of a given asset is a function of the availability of data concerning the asset market, which makes it at least partly subjectively conditioned (Nita, 2013, pp. 645-646).

In the case of a long-term downward trend for MV/BV and Tobin's q ratios, there is a decrease in the value of a company's intangible assets. This is an important call for taking corrective actions aimed at preventing ineffective intellectual capital management.

2.3. Calculated intangible value index

The calculated intangible value index belongs to methods based on the return on assets. Initially, the method was developed "for tax reasons when determining the market value of a company's intangible assets" (Kasiewicz et al. 2006, p. 204). Again, it was proposed by Stewart as a method of valuing intellectual capital, and involves seven steps within the intangible assets valuation process (Nita, 2013, p. 646; Sopińska, 2008, pp. 133-134; Strojny, 2003, p. 107):

1. Calculating the average gross profit for the past three or five years of business activity.
2. Estimating the average value of tangible assets for the same period based on the balance sheet.
3. Calculating the average return on assets (ROA) as a quotient of the values obtained in the previous steps (dividing the average profit from the past three or five years by the average value of tangible assets).
4. Determining the average return on assets (ROA) for the industry in which the company is active for the same period (past three or five years).
5. Calculating excess return by multiplying the industry average ROA by the average tangible assets of the company and subtracting it from the gross profit (multiplying the average ROA index for the whole industry by the average tangible assets of the company and then subtracting the obtained value from the average pre-tax profit).
6. Calculating the average corporate tax rate from the past three or five years and then multiplying the obtained value by the excess return calculated in step five, subtracting the result from the excess amount; the obtained amount constitutes a premium attributable to intangible assets, known as intellectual premium (subtracting the product of the average income tax rate in the analysed period and the excess return from the excess return).
7. Estimating the present value of the premium; in order to do that we need to divide the premium calculated in step six by an appropriate discount rate, such as the cost of capital for the company; the calculated amount corresponds to the value of intangible assets that are not included in the company's balance sheet (reduction of the excess return after taxation to the present value with the use of an appropriate rate of capital cost).

Table 5 presents the CIV calculation for Grupa Kapitałowa Żywiec SA.

Table 5. The CIV calculation for Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

No	Żywiec SA	Manner of data collection	Average for the years 2016-2018
1	Gross profit	data from group accounts	3,560,122.00
2	Tangible assets	data from group accounts	3,211,935.00
3	Company ROA	Gross profit / tangible assets × 100%	11.10%
4	Industry ROA	market data	4.18%
5	Excess return	gross profit − (industry ROA Tangible assets)	3,425,863.12
6	Tax rate	market data	19.0%
	Intellectual premium	excess return × (1 − tax rate)	2,774,949.12
7	Discount rate	market data	4.65%
	Present value of intellectual premium	intellectual premium / discount rate	59,676,325.26

Source: based on (BR, 2019a, BR, 2019b; FC, 2019; GKŻ, 2019).

The calculated intangible assets have a positive value if the ROA rate for the company is higher than the average level for the industry, as was the case of Grupa Kapitałowa Żywiec SA The discount rate should reflect the level of risk characteristic of the whole industry in which the company operates. For the purposes of calculating intangible assets, the discount rate used was 4.65%, and was based on information provided by FinancialCraft in January 2019, namely "At the end of 2018, the premium for capital market risk, applied in the valuation of economic entities as the main element of the discount rate, was 4.65%, which is the lowest level since the beginning of its measurement conducted by FinancialCraft" (FC, 2019). The industry ROA was established based on profitability ratios for the food industry (BR, 2019).

The value of intangible assets of Grupa Kapitałowa Żywiec SA estimated with the use of the CIV method is PLN 59,676,325.26 (in thousand). The MV/BV in 2018 was PLN 4,745,357.69 (in thousand), which means that the present value of intellectual premium exceeds the market value by PLN 54,930,967.57 (in thousand). In practice this means that the company is doing excellently when it comes to using its intangible assets, and has a significant – yet so far underestimated by the market – intellectual capital. It should be remembered remember, however, that CIV is based on estimated values (discount rate, ROA), which regrettably favours the over or underestimation of real values.

2.4. Value added intellectual coefficient

The author of the value added intellectual coefficient method (VAIC™) is Ante Pulic (2000, pp. 702-714), who saw the need to present a company's capabilities in regard to creating added value based on structural elements of intellectual capital. "The basic premise of the model boils down to a statement that intellectual added value of a company constitutes a sum of coefficients describing the efficiency of three components of its market value, i.e. financial, human and structural capital" (Nita, 2013, pp. 647-648).

The value added intellectual coefficient is expressed as follows:

$$VAIC^{TM} = CEE + HCE + SCE,$$

where: $VAIC^{TM}$ – value added intellectual coefficient; CEE – capital employed efficiency; HCE – human capital efficiency; SCE – structural capital efficiency.

In order to calculate $VAIC^{TM}$ properly, one needs to proceed step by step, similarly to the CIV calculation. Based on the characteristics of the coefficient presented in the literature review, these steps are as follows:

1. Obtaining income data (IN) and expense data (OUT), excluding the costs of human capital, capital employed (CE), human capital (HC).

2. Calculating value added (difference between income and expense VA = IN − OUT).

3. Calculating the company's capital employed efficiency (quotient of value added divided by capital employed CEE = VA/CE).

4. Calculating the company's human capital efficiency (quotient of value added divided by human capital HCE = VA/HC).

5. Calculating structural capital (value added − human capital SC = VA − HC).

6. Calculating the company's structural capital efficiency (quotient of structural capital divided by value added SCE = SC/VA).

7. Calculating the value added intellectual coefficient (sum of capital employed efficiency, human capital efficiency and structural capital efficiency, VAIC™ = CEE + HCE + SCE).

Table 6 presents the VAIC™ calculation for Grupa Kapitałowa Żywiec SA along with a description of specific VAIC components and the manner of data collection.

Table 6. The VAIC calculation for Grupa Kapitałowa Żywiec SA between 2016 and 2018 (in PLN thousand)

Żywiec SA		Manner of data collection	2016	2017	2018
IN	income	data from group accounts	2,392,605.00	3,165,262.00	3,323,753.00
OUT	expenditure (excluding costs of human capital)	data from group accounts	868,070.00	1,755,549.00	1,845,491.00
VA	value added	income − expenditure (excluding costs of human capital)	1,524,535.00	1,409,713.00	1,478,262.00
CE	capital employed	data from group accounts	189,047.00	149,498.00	309,735.00
CEE	capital employed efficiency	value added/capital employed	8.06	9.43	4.77
HC	human capital	data from group accounts	291,014.00	294,165.00	267,209.00
HCE	human capital efficiency	value added/human capital	5.24	4.79	5.53
SC	structural capital	value added − human capital	1,233,521.00	1,115,548.00	1,211,053.00
SCE	structural capital efficiency	structural capital/ value added	1.24	1.26	1.22
VAIC™	value added intellectual coefficient	CEE + HCE + SCE	14.54	15.49	11.53

Source: based on (BRa, 2019; GKŻ, 2019).

The value added intellectual coefficient method is an example of combining the existing solutions proposed within the concept of intellectual capital management with a reliable economic approach, which, in its index form, provides a summary of incurred expenses and obtained results. The advantage of this index is that it

considers both tangible and intangible assets for the purpose of determining the efficiency of creating added value and that its approach is based on data that is available in all companies, regardless of their legal form. Observation of a VAIC™ trend allows to monitor the efficiency of using intellectual capital resources in a company, and its upward trend indicates an increase in the effectiveness of using all resources. The method is focused on obtaining knowledge about whether and to what extent a company uses its own resources when creating value, and how this usage is divided into specific categories of capital, however it does not provide information about the valuation of intellectual capital itself.

In the case of Grupa Kapitałowa Żywiec SA, the VAIC™ trend in 2016-2017 was very good, and in 2018 it was over 25% YoY, which was caused by a change in the employed capital. The indices for human and structural capital are stable. In correlation with CIV, it may be surmised that the company, while having a very high intellectual premium, is effective at managing tangible and intangible assets in the course of creating intellectual added value.

3. Conclusion

Knowledge of intellectual capital and its diversity constitutes a key condition for the efficiency of the decision-making processes as well as the creation of action strategies to be adopted by the management through the development of intangible assets. Over the past few years, the ability to carry out intangible asset valuation has become one of the key pillars of total corporate value management processes.

The example of valuing intellectual capital of Grupa Kapitałowa Żywiec SA presented herein indicates firstly that the process is long-term, as a comprehensive presentation of intellectual capital and its thorough analysis are possible only when based on data from subsequent years that enables monitoring and determining trends or spatial and temporal comparison.

Secondly, the valuation needs to be carried out with the application of various methods, as these enable structural comparison and referring to different criteria. Only by comparing the results is one able to take a synthetic approach towards the obtained values that constitute an evaluation of the owned intellectual capital resources.

Further development of intellectual capital valuation methods should be focused on reflecting the context in order to accurately project the conditions in which companies function.

Bibliography

Adamska, M. (2010). Metoda wyceny kapitału intelektualnego nowoczesnych organizacji – Skandia Intellectual Capital Navigator. In R. Knosala (Ed.), *Komputerowo zintegrowane zarządzanie* (pp. 7-14). Opole: Oficyna Wydawnicza Polskiego Towarzystwa Zarządzania Produkcją.

BR. (2019a). *Notowania historyczne ZWC (ZYWIEC) Grupa Żywiec Spółka Akcyjna*. Retrieved 23.03.2019 from https://www.biznesradar.pl/notowania-historyczne/ZYWIEC,7

BR. (2019b). *Sektor GPW: przemysł spożywczy. Wskaźniki rentowności: ROA*. Retrieved 3.04.2019 from https://www.biznesradar.pl/spolki-wskazniki-rentownosci/sektor:spo,ROA,2,2

Caputa, W. (2008). Rachunkowość i finanse w erze informacji − nowe wyzwania. In B. Kłosowska (Ed.), *Współczesne finanse. Stan i perspektywy rozwoju finansów przedsiębiorstw i ubezpieczeń* (pp. 15-25). Toruń: Wydawnictwo Uniwersytetu Mikołaja Kopernika.

Chojnacka, E., and Wiśniewska, J. (2015). Wybrane zagadnienia pomiaru, wyceny, ewidencji i ujęcia w sprawozdawczości kapitału intelektualnego. *Zeszyty Teoretyczne Rachunkowości*, *83* (139), 35-64.

FC. (2019). *Stopa dyskontowa za 4 kwartał 2018 bije rekord dna*. Retrieved 3.04.2019 from https://financialcraft.pl/stopa-dyskontowa-za-4-kwartal-2018-bije-rekord-dna/

EFFAS CIC. (2008). *Principles for effective communication of intellectual capital*. Retrieved 17.09.2018 from https://effas.net/pdf/setter/EFFAS-CIC.pdf

EUR-LEX. (2014). Dyrektywa Parlamentu Europejskiego i Rady 2014/95/UE z dnia 22 października 2014 r. Retrieved 2.03.2019 from https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32014L0095&from=EN

GKŻ. (2019). *Sprawozdanie na temat informacji niefinansowych Grupy Żywiec SA oraz Grupy Kapitałowej Żywiec SA*. Retrieved 20.03.2019 from https://grupazywiec.pl/inwestorzy/raporty/

Kasiewicz, S., Rogowski, W., and Kicińska, M. (2006). *Kapitał intelektualny. Spojrzenie z perspektywy interesariuszy*. Kraków: Oficyna Ekonomiczna.

Mierzejewska, B. (2009). Kapitał intelektualny − jak o nim mówić interesariuszom? *E-mentor*, *2*(29)/2009, 65-70.

Niemczyk, L. (2013). *Rachunkowość finansowa aktywów kompetencyjnych i kapitału intelektualnego. Nowy dział rachunkowości*. Rzeszów: Pacioli Institute.

Nita, B. (2013). Wycena kapitału intelektualnego w raportach menedżerskich. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, (761). *Finanse, Rynki Finansowe, Ubezpieczenia*, (60), 641-651.

Ortiz, M. A. (2011). Intellectual capital (intangible assets) valuation considering the context. *Journal of Business and Economics Research (JBER)*, *4*(9), 35-41. doi:10.19030/jber.v4i9.2694.

Pulic, A. (2000). VAIC™ an accounting tool for IC management. *International Journal of Technology Management,* 20(5/6/7/8), 702-714. doi:10.1504/ijtm.2000.002891.

Quintiliani, A. (2017). The relationship between the market value added of SMEs listed on AIM Italia and internal measures of value creation. The role of corporate strategic planning. *International Journal of Financial Research*, 9(1), 121-131. doi:10.5430/ijfr.v9n1p121.

Sopińska, A. (2008). *Wiedza jako strategiczny zasób przedsiębiorstwa. Analiza i pomiar kapitału intelektualnego przedsiębiorstwa*. Warszawa: Wydawnictwo Szkoły Głównej Handlowej.

Urbanek, G. (2008). *Wycena aktywów niematerialnych przedsiębiorstwa*. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Zygmański, T. (2016). Wycena kapitału intelektualnego a prezentacja w sprawozdaniach finansowych na przykładzie wybranych spółek przemysłu metalowego w Polsce. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, (268), 226-235.