Impact of Intellectual Resources on the Value Growth of Companies

Marina Oskolkova and Iuliia Naidenova
Higher School of Economics University, Perm, Russia
oskolkovama@gmail.com
naidenovayn@gmail.com

Abstract: In the era of knowledge economy intangible assets importance as the source of competitive advantages is growing rapidly. Intellectual capital (IC) is regarded as the part of companies' resources so the return on it should be also measured in monetary form. However existing studies show poor development of methods for measuring value created or added by company's intellectual capital. This could be explained by its vague nature that imposes numerous limitations on value-based management. The main aim of this paper is to research the intellectual capital transformation into the company value based on a public information.

Keywords: intellectual capital, value creation, value added, return on intellectual capital

1. Value created by the intellectual capital

The nature of intellectual resources explains difficulties in its identification, valuation and management. Traditional book methods reflect only the part of value created by tangible assets and some kinds of intangibles such as R&D investments, goodwill, patents costs. But most part of value that created by human knowledge, skills, stable relationships with clients and suppliers are hidden. Since researchers regard intellectual capital (IC) as a part of company resources (Stewart, 1997; Zeghal, 2000), the return on it should be measured in the same units as financial and physical assets return.

The theory of intellectual capital increasingly regards value added and its modifications as one of the main indicator of intellectual capital effectiveness. The survey carried out by the UK Department of Trade and Industry (DTI) shows that successful UK companies recognize that investing in IC is essential to their ability to create high value-added. (Zeghal, Maaloul, 2010) Some researchers consider capital employed as no longer significant for company strategy implementation unlike intellectual capital which allows firms to create value added. (Riahi-Belcaoui, 2003; Youndt, 2004) The relationship between intellectual capital and created value added is cosidered by Kimura at al. (Kimura at al, 2010) on the sample of Brazil public companies, Ozturk and Demirgunes (Ozturk, Demirgunes, 2007) analyzed the companies quoted on ISE (Istanbul Stock Exchange) data, etc. Though many researchers view value added as the key indicator of intellectual capital effectiveness the process of its transformation is still a point of contention. (Diez J.M. et al, 2010) For example Diez et al. revealed statistically significant relationship between intellectual capital and value added. But there is no tool that allows differentiating value created by invested capital and value created by intellectual resources.

In the context of intellectual capital transformation into performance indicators it can be interpreted as the aggregate of key non-monetary and intangible resources that have strong long-run influence on company functioning (Bayburina, Golovko, 2008). Created value can be measured in monetary units but depends on intangibles such as reputation, relationships with clients, employee's competence and others. Similar definition was proposed by Edvinsson and Malone. According to them all knowledge that can be converted into the value can be regarded as intellectual capital (Edvinsson, Malone, 1997). Zeghal and Maaloul extended their definition and determined intellectual capital as a sum of knowledge that can be used in process of value added creation (Zeghal, Maaloul, 2010). Hand and Lev name all non-physical resources able to create value and created as a result of innovation, unique company location or human capital usage as intellectual (Hand, Lev, 2003). Mavridis interprets it as intangibles reflected potentially created value (Mavridis, 2005).

During the last two decades there was created a plenty of theories and concepts to measure intangible assets or intellectual capital and its components. Karl-Eric Sveiby's site contains the most comprehensive review of measurement methods. Today he describes 42 methods grouped into 4 categories: direct intellectual capital evaluation methods (DIC), market capitalization methods (MCM), return on assets methods (ROA) and scorecard methods (SC). While DIC and SC methods identify intellectual capital components and then combine them into some index, MCM and ROA methods vice

versa decompose some integral parameter. Some of them are based on interviews and questionnaires, others use available financial information (Pulic, 2000; Stewart, 2002; Chen, Cheng, Hwang, 2005; Tan et al., 2007; Zeghal, Maaloul, 2010; Bayburina, Golovko, 2008). Since current paper aimed to use only available financial information, we regard only those methods that could be calculated on such base. The most frequently used ones are Q-Tobin coefficient (Tobin, 1969), EVA (Stern, 2003), VAIC (Pulic, 1997), FGV (Roos et al, 2008), MVA (Stern, 2003).

Tobin's q coefficient was developed in 1969 by American economist James Tobin for investment expediency forecasting. If Tobin's q is greater than 1, then companies should spend more on capital. Later research of Tobin and Brainard based on the data from 1960 to 1974 proved the ability of the coefficient to explain company' investment policy. (Tobin, Brainard, 1976) But following studies didn't verify Tobin's results. (Blanchard, Rhee, Summers; Henwood, 1997) Nowadays coefficient isn't used for its intended purpose because of numerous criticism. But modern researches dedicated to intangible assets and knowledge economy view Tobin's q as an approximate measure of intellectual capital. The higher the coefficient the more intangibles company has and consequently the bigger part of created value can be explained by intellectual capital influence. Usually Tobin's q is calculated as the ratio of market value of invested capital to the replacement costs. (Tobin, 1969; Lindenberg, Ross, 1981) But some papers regard balance value of assets as approximately equal to the cost of replacement. (Youndt et al., 2004; Veltri, 2009) This assumption was used in current paper.

In 1982 consulting company Stern Stewart&Co registred EVA concept (Economic Value Added). The model uses economic profit definition formulated by Alfred Marshall in 1890 and considers both direct and indirect costs of capital. Some researchers regard EVA (economic value added) as an approximate measure of intellectual capital. They use the preposition that normal economic profit is generated by physical and financial assets while excess profit – by intangibles. (Lev, 1999) But nowadays EVA is criticized for its inability to measure creation or destruction of value (Fernandez, 2001; Velez-Pareja, Tham, 2001) and to estimate intangibles contribution to the value creation (Bontis, Dragonetti, Jacobsen, Roos, 1999). Many studies revealed only weak correlation between economic value added and company capitalization because EVA neglects development perspectives and future earnings. (Biddle, Bowen, Wallace, 1999; Tsuji, 2006; Huang, Wang, 2008) Most part of researches dedicated to the analyses of EVA' ability to explain exceed market rate of return concluded the dominance of traditional measures of company performance. (Biddle, Bowen, Wallace, 1999; Visaltanachoti, Luo, Yi, 2008)

Future growth value (FGV) was designed by Stern Stewart & Co as the development of EVA concept. It uses Miller and Modigliani assumption about the possibility of company value separation on the present value of assets that company owns and present value of company ability to earn excess return. (Burgman, Roos, 2005) Future growth value is measured as the difference between company market value and current operations value (COV). COV equals present value of current EVA in perpetuity plus capital in place. FGV represents investors' assessment of new strategies and opportunities potential to create value. Some studies use FGV as an approximate indicator of intellectual capital that is able to reflect its market estimation. Presumably, it reaches the highest value in innovative industries. (Roos et al., 2008)

Value added intellectual coefficient (VAIC) was developed by Ante Pulic in order to measure value added by invested capital and intellectual capital components: human and structural. The coefficient is frequently used in researches because of simple methodology and necessity of only available financial information. The majority of papers dedicated to the relationship between intellectual capital components and value added creation, company capitalization and performance use VAIC concept. But simultaneously the coefficient is criticized for the questionable assumptions. (Zeghal, Maaloul, 2010; Andriessen, 2004) Also some studies demonstrated poor associated between VAIC and its components and company performance in some industries and emerging markets. (Firer, Williams, 2003; Chan, 2009; Puntilla, 2009)

Spread between market and book company value (market value added, MVA) is growing fast in the new economy. The biggest spread is observed in knowledge-intensive industries. There are several explanation theories but the most popular one considers the intellectual capital and its components influence on the market value. (Lev, Zarowin, 1999) Difference between market and book value can be used as an approximate indicator of intellectual capital, but cannot measure the quantity of intellectual capital. (Rodov, Leliaert, 2002) Book value can be interpreted as costs on material assets

purchase whereas market value represents investors assessment of future earnings and growth potential. In order to calculate value created by intellectual capital more correctly financial statements should be adjusted on inflation, replacement cost of equipment, etc. (Rodov, Leliaert, 2002)
Described methods can be divided by the type of methods into 2 categories:

- Methods based on company market value (Q-Tobin, FGV, MVA). The main assumption used is that key point of view in measuring of intellectual capital is investors'. Therefore such methods use market value and its modifications as the estimation of created value.
- Methods based on value added (EVA, VAIC). They are based on assumption that precisely intellectual capital which allows firms to create value added (Riahi-Belcaoui, 2003; Youndt, 2004). But these methods has identic problem: none of them is able to distinguish value added by invested capital from value added by intellectual resources.

Another one classification uses time differences:

- Methods oriented on short-run period (MVA, EVA, VAIC). They use actual information and reflect already created value.
- Methods oriented on long-run period (Q-Tobin, FGV). Methods reflect investors' expectation about company growth and potential.

Table 1 consists chosen methods grouped according classifications described above. The third line contains main empirical researches that use those group of indicators as the value added by intellectual capital.

Table 1: Chosen indicators of value added by intellectual capital

	Methods based on market value	**Methods based on value added**
Short-term methods	Market value added (MVA)	Economic value added (EVA) Value added intellectual coefficient (VAIC)
Long-term methods	Q-Tobin coefficient Future growth value (FGV)	
Main empirical researches	Lastres , Moreno, 2001; Youndt et al., 2004; Tseng, Goo, 2005; Bayburina, Golovko, 2008	Pulic, 2000; Mavridis, 2004; Chen, Cheng, Hwang, 2005; Swartz, Firer, 2005; Chan, 2009; Clarke, Seng, Whiting, 2010; Diez et al., 2010

The most often used indicator is VAIC. However, only a few papers found stable relationship between VAIC and intellectual capital. Its popularity can be explained by the simplicity of calculation. Future growth value, on the contrary, is much less popular. On the whole, literature review shows the lack of generally accepted measurement methods of value added by company intellectual capital and its components. Existent methods differ by their assumptions and measured type of value. Review allowed to choose 5 most popular kinds of value added that can be calculated on the base of available financial information. Further analysis will study intellectual capital transformation into the chosen set of indicators.

2. =Hypotheses development

The analysis of existent theoretical and empirical studies allows to determine the target area of current research. The main purpose of this paper is to determine the ability of value indicators calculated on the base of available financial information to reflect intellectual capital transformation.
According to the purpose the research aimed to test the following hypotheses:

- Approximate indicators of intellectual capital and its components are able to transform into company' value in both short-run and long-run periods. Some measures of value added by intellectual capital are short-term while others are focused on long-run period. The hypothesis is used to verify whether intellectual capital lead to creation or destruction of firm value in both time periods.
- Non-financial indicators can better reflect intellectual capital than financial. Since intellectual capital has intangible nature and cannot be measured quantitatively its financial measure could

be incorrect. Therefore non-financial indicators could better reflect the ability of intellectual capital to create value.

- Approximate indicators of intellectual capital and its components are able to transform into value measured by both accounting and market indicators. Since intellectual capital is heterogeneous there is supposedly no single indicator of created value.

3. The selection of approximate indicators

All existent definitions and decompositions of intellectual capital underline its heterogeneous and lack of generally accepted measurement method. Financial statements don't contain all intangibles that create company value (Lev, Zarowin,1999). Also intellectual capital includes both financial and non-financial measures. This makes creation of integral indicator impossible. So its quantity can be measured only by approximate indicators.

The choice of indicators was based on the review of empirical studies dedicated to intellectual capital and value creation (Zickgraf, Merton et al., 2007; Starowiz, Marr, 2005; Mouritsen, Bukh, 2000). On the first stage all found proxies were divided into types of intellectual capital (current paper adopts the idea about decomposition IC into the structural, human and relational). Next we excluded those proxies that described the results of intellectual capital implementation. The traditional model of a firm supposes transformation of input resources into the outcome. So inputs used in current paper should characterize only quantity or quality of intellectual capital. On the third stage we exclude proxies that couldn't be found in available sources. Since our research doesn't imply intellectual capital factor analysis we exclude or aggregate extremely decomposed proxies. Table 2 consists final set of proxies divided to financial and non-financial.

Table 2: Chosen indicators of value added by intellectual capital

	Structural capital (SC)	Human capital (HC)	Relational capital (RC)
Financial	Intangible assets	Costs of employees	
Non-financial	Number of license, patents, trademarks	Board of directors qualification The share of equity owners among directors Foreign capital employed	Brand recognition Site citation Office location in the capital Office location in millionaire city Subsidiaries Site quality

Chosen approximate indicators are briefly described below.

- **4.** *Intangible assets*. The indicator was determined as balance value of intangibles according to financial statements.
- *Costs of employees*. The sum of all payments made to company employees during the year was used as indirect indicator of human capital quality.
- *Number of license, patents, trademarks that company owns*. The indicator was determined using the company data and international patent database QPAT.
- *Board of directors' qualification*. The Board was regarded as qualified when more than third of directors have PhD degree or large working experience. There were used the indicator values from 0 to 2.
- *The share of equity owners among directors*. The indicator was calculated as the ratio of directors own company shares to the total number of the Board.
- *Foreign capital*. The indicator was estimated as binary variable with the value "1" if a company has foreign investors and "0" otherwise.
- *Brand recognition*. Company brand was determined as well-known if the company is contained in international rating Global 1000. The rating is based on financial, ecological, social factors. The indicator was estimated as binary variable.
- *Site citations*. The frequency of company site citations was determined with the help of Google Page rank. This tool registers the number of requests, direct and indirect links. The indicator took the value from 0 to 10.

- *Office location in the capital*. The indicator is directly connected with the quantity of company relational capital because capital of country (region, districts, etc.) is characterized by high concentration of partner companies, suppliers and clients. The indicator was determined as binary variable.
- *Office location in millionaire city*. It is expected that the larger number of potential stakeholders generate the higher degree of relational capital. The indicator was estimated as binary variable.
- *Subsidiaries*. The indicator was determined as the number of subsidiaries.
- *Site quality*. It is expected that more user-friendly and comprehensive site predetermines high level of relational capital. The indicator calculation used 4 criterions: investor relations page, possibility of language choice, usage of animated images, site pages quantity. Each criterion was determined as binary variable. The total indicator "site quality" was determined as the sum of all criterions and took the value between 0 and 4.

4. The sample creation

The developed hypotheses were analyzed on the panel data sample. The sample consists of companies data based on Amadeus database (Bureau Van Dijk), companies sites and Internet resources. The sample has been formed in two stages. On the first stage were selected companies that meet the following requirements:

- Company shares are traded on stock exchange. Such limitations are determined by the necessity of equity market value use in current paper.
- Financial, operational and others indicators are available from 2005 to 2009.
- Company operates in Great Britain. The country choice is determined by the fact that British financial market is developed and contains a lot of traded companies. Also Great Britain belongs to the first quantile of Knowledge index (9th position from 145 possible) that reflects company ability to generate, adopt and diffuse knowledge. High position allows to expect the presence of intellectual capital transformation into the company value. Also it simplifies the recognition of the transformation despite of using only available financial information.
- Company operates in the following industries: retail, wholesale trade, machinery, chemicals manufacture (including gas and oil), transport and telecommunication. The chosen industries contain big enough number of companies to collect sample suitable for intersectoral analyses.
- Company has more than 500 employees but less than 20 000. Such criterion assures the exception of too small and too large companies that have specific intellectual capital transformation. Also it contributes to the sample homogeneity.

The collected on the first stage sample consists of 172 British companies. On the second stage selected companies with found approximate and calculated value added indicators. Final sample that met all requirements consists of 103 companies. Note that the main reason of dismissals was the lack of information needed to calculate all chosen value indicators. The biggest number of missing data was during the EVA calculation.

Table 3: Chosen indicators of value added by intellectual capital

	EVA	FGV	MVA	VAIC	Tobin's q
Mean	3 913,8	732 638,0	-77 839,6	5,7	1,1
Median	4 636,2	424 426,2	-24 510,3	5,1	0,9
Maximum	149 691,9	13 544 045,0	8 156 096,0	34,2	11,0
Minimum	-219 991,4	-244 899,1	-3 449 627,0	1,8	0,0
Standard deviation	47 621,5	1 173 292,0	894 159,8	3,0	1,2
Coefficient of variation	12,2	1,6	11,5	0,5	1,1

Table 2 contains the sample descriptive statistics of value created by intellectual capital indicators. The sample heterogeneity could be explained by different quantity of intellectual capital. High level of EVA and MVA coefficients of variation could be explained by financial crisis. The sample contains crisis years data that are characterized by financial results reduction and stock market drop. In order to eliminate industry influence corresponding control dummy variables were used. Year influence were eliminated using LS method for panel data with fixed effects.

In order to analyze multicollinearity in regressions the correlation matrix was built. There wasn't found any statistically significant correlation between chosen proxies. That is why all indicators were used simultaneously in the same model.

5. Empirical results

The choice of model specification is another problem needed to be discussed. Supposedly intellectual capital non-linearly connected with company value. But nonlinear models require larger sample size. As far as sample used in current research consists of only 103 companies, some parameters connected with nonlinearity could be weakly identified. Another argument in favor of linear model usage is its robustness to specification errors, biases, structural changes and drift of the model parameters (Itskhoki, 2006).

As a result of reasons listed above, for the hypotheses testing the following model was used:

$$Y = c_0 + \sum_{i=1}^{n}(c_i \times x_i) + \varepsilon$$

where

Y– value created by intellectual capital;
x – approximate measure of intellectual capital;
n – number of approximate indicators.

To verify the hypotheses the panel data sample was tested with the help of ordinary least squares method (OLS) with period fixed effects.

Table 4 contains hypotheses testing results. Approximate indicators with results significant on 10% level are marked by star (sample size allows to analyze such level of significance); significant on 5% level are marked by double star; significant on 1% level are marked by triple star. Standard errors are given in brackets under the value of coefficients.

Table 3: Results of testing the hypotheses about intellectual capital transformation into the company value

	Market value methods			**Value added methods**	
	Tobin'q	MVA	FGV	EVA	VAIC
Board of directors qualification	2,25 (1,81)	702,18 (158,0636)	-1 327,80 (5232,197)	118,23 (287,4581)	-0,46 (2,575147)
Brand recognition	-0,45 (2,91)	1931,66*** (253,73)	4593,54 (7797,13)	125,43 (492,15)	-0,6 (3,94)
Site citations	0,42 (0,73)	373,39*** (63,99)	-512,83 (2073,52)	6,82 (110,43)	0,4 (0,89)
Foreign capital	2,39 (2,79)	43,18 (243,56)	-19360,48** (7994,76)	675,05* (360,98)	-4,9* (2,72)
Office location in the capital	-0,58 (1,96)	342,1** (171,32)	-4897,8 (5356,67)	342,06 (300,7)	-3,52 (2,51)
Office location in millionaire city	4,39* (2,44)	-354,23* (212,49)	662,32 (7000,68)	47,22 (376,98)	1,02 (3,12)
Intangible assets	0,07 (0,72)	-50,36 (62,85)	1962,58 (2004,51)	-128,91 (111,3)	-0,35 (1,06)
Shareholders among directors	-6,02 (3,95)	-74,35 (344,63)	-2361,72 (10896,72)	-481,17 (583,93)	-4,37 (4,43)
Number of license, patents, trademarks	0,01 (0,01)	-0,71 (0,62)	-9,22 (26,69)	-0,03 (1,64)	-0,01 (0,01)
Site quality	-1,63 (1,1)	-67,53 (95,93)	-779,32 (3041,39)	-20,06 (153,75)	-0,36 (1,27)
Costs of employees	-2,54 (2,12)	-494,83*** (184,84)	-391,36 (5988,85)	-55,87 (334,28)	-1,15 (2,97)
Subsidiaries	-0,01 (0,01)	-0,67 (0,85)	14,51 (26,41)	-1,18 (1,66)	0 (0,02)
R^2 adjusted	3%	25%	14%	3%	4%

The tests result the following:

- There is no clear linear relationship between value created by intellectual capital and its approximate indicators is absent. Future research should try to use non-linear models.
- Different proxies have different influence on value indicators. Only foreign capital influences two indicators at the same time: FGV and VAIC; others are connected significantly with only one proxy. Probably, reviewed five indicators cannot reflect value added by intellectual capital. Another probable reason is improper use of company intellectual capital that destroys value and makes the payback of its costs impossible. Another reason is the necessity of longer period to represent the influence of their implementation in company financial statements. Future analysis requires modification of existent value indicators or choice of other.
- Market value based methods (MVA and FGV) have better explanatory power. So, book information constrains intellectual capital transformation analysis.
- We could not conclude that intellectual capital lead to creation or destruction of firm value only in short-term or long-term period.
- The analysis revealed that there is no priority of financial or non-financial indicators for the company activity analyses.

6. Conclusion

The main purpose of current research is to determine if the transformation of intellectual capital into the value could be identified on the base of available financial information. If it is possible, investors that have only external information receive the instrument of measurement the intellectual capital efficiency. The conducted research revealed that chosen approximate indicators weakly transform into the company value. For instance, the best financial indicator of created value (market value added) has R^2 adjusted of only 25%. Possible reason is the assumption of linear relationship between value created by intellectual capital and its proxies. First hypothesis was verified because intellectual capital and its components are able to transform into company' value in both short-run and long-run periods. The second tested hypothesis aimed to recognize the priority of approximate indicator type. Empirical analyses of British companies showed that there is no rule of proxy type choice. The testing of the third hypothesis showed that market value based methods have better explanatory power for the analyzed sample. The received results don't reject the existence of intellectual capital transformation into the company value but evidence the absence of single value indicator. It shows the necessity of developing the value indicators scorecard. It could help investors in choosing appropriate estimator for intellectual capital according to their purpose, analyzed market, etc. Also future research could extend sample and use non-linear model to describe connection between IC components and value indicators.

Acknowledgements

This study comprises research findings from the "Intellectual Capital Evaluation" Project carried out within The Higher School of Economics' 2011 Academic Fund Program.

References

Andriessen, D. (2004) "IC Valuation and Measurement. Classifying the state of the art", Journal of Intellectual Capital. Vol 5, No. 2. P. 23 – 42.

Bayburina, E.R., Golovko, T.V. (2008) "An empirical study of the intellectual value of Russian companies and the factors of growth", Corporate Finance. No. 2 (6). P.5-19.

Biddle, G. C., Bowen, R. M., Wallace, J. S. (1999) "Evidence on EVA", Journal of Applied Corporate Finance, No.12. P. 69-79.

Blanchard, O., Rhee, C., Summers, L. (1993) "The Stock Market, Profit, and Investment", Quarterly Journal of Economics. Vol. 108 (1). P. 115–136.

Bontis, N., Dragonetti, N. C., Jacobsen, K., Roos G. (1999) "The Knowledge Toolbox: A Review of the Tools Available to Measure and manage Intangible Resources", European Management Journal.

Burgman, R., Roos G. (2004) "Measuring, Managing and Delivering Value Performance in the Public Sector", International Journal of Learning and Intellectual Capital. Vol. 1, No. 2. P. 132-149.

Chan, K.H. (2009) "Impact of intellectual capital on organizational performance", The Learning Organization. Vol.16, № 1. P. 4-21.

Chen, M., Cheng, S., Hwang, Y. (2005) "An Empirical Investigation of the Relationship Between Intellectual Capital and Firms' Market Value and Financial Performance", Journal of Intellectual Capital. Vol. 6, No. 2. P.

Clarke, M., Seng, D., Whiting, R. H. (2010) "Intellectual capital and firm performance in Australia", Working Paper Series: No. 12. Dunedin, New Zealand: Department of Accountancy & Business Law, University of Otago.

Diez, J. M., Ochoa, M. L., Prieto M.B., Santidrian A. (2010) "Intellectual capital and value creation in Spanish firms", Journal of Intellectual Capital. Vol. 11, No. 3. P. 348-367.

Edvinsson, L., Malone, M. (1997) "Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Brainpower", Harper Collins, New York, NY.
Fernandez, P. (2001) "EVA and Cash Value Added Do Not Measure Shareholder Value Creation" SSRN working paper n. 270799.
Firer, S., Williams S. M. (2003) "Intellectual Capital and Traditional Measures of Corporate Performance", Journal of Intellectual Capital, Vol. 4, № 3. P.348-360.
Hand, J., Lev, B. (2003) "Intangible Assets: Values, Measures, and Risks", Oxford University Press, Oxford, UK.
Huang C. Wang M.-C. (2008) "The Effects of Economic Value Added and Intellectual Capital on the Market Value of Firms: An Empirical Study", International Journal of Management, Vol. 25, No. 4. P. 722 – 731.
Itskhoki O., (2006), "Model selection and paradoxes of prediction", Quantile. Vol.1. P. 43-52.
Kimura H., Cruz Basso L.F., Nogueira S.G., Lucas de Barros Junior, (2010), "The impact of intellectual capital on value added of Brazilian companies traded at the BMF-Bovespa", Journal of International Finance & Economics.
Lastres, J.A., Moreno, R. (2001) "El capital intelectual y su orientación en la gestión estratégica: Una aplicación de la 'Q' de Tobin en el análisis de la creación de valor".
Lev, B., Zarowin P. (1999) "The Boundaries of Financial Reporting and How to Extand Them", Journal of Accounting Research. Vol. 37, № 2. P. 353 – 385.
Lindenberg, E., Ross, S. (1981) "Tobin's q Ratio and Industrial Organization", Journal of Business.
Mavridis D., Kyrmizoglou P. (2005) "Intellectual capital performance drivers in the Greek banking sector", Management Research News, Vol. 28 Iss: 5. P.43 – 62.
Mouritsen, J., Bukh, N.D. (2000) "A guideline for intellectual capital statements – a key to knowledge management", Danish Agency for Trade and Industry.
Ozturk M. B.; Demirgunes K. (2007) "Determination of Effect of Intellectual Capital on Firm Value via Value Added Intellectual Coefficient Methodology: An Empirical Study on ISE-Listed Manufacturing Firms", ISE Review, Vol.10, is. 37. P. 59-77.
Pulić A. (2011) "The Physical and Intellectual Capital of Austrian Banks", http://www.vaic-on.net/start.htm.
Pulić A. (2000) "VAIC™ – an accounting tool for IC management", International Journal of Technology Management. Vol.20, No. 5-8. P.702-714.
Puntilla, P. (2009) "Intellectual capital and business performance. Evidence from Itallian banking industry" Corporate finance, № 4 (12). P. 97-115.
Riahi-Belkaoui A. (2003) "Intellectual capital and firm performance of US multinational firms", Journal of Intellectual capital. Vol.4, No. 2.
Rodov, I., Leliaert P. (2003) "FiMIAM: financial method of intangible assets measurement", Journal of Intellectual Capital, Vol. 3 Iss: 3. P. 323 – 336.
Roos J., Pike S., Fernstrem L. (2010) "Intellectual capital. Practice of management", Higher school of management.
Starowiz, D., Marr B. (2005) "Understanding corporate value: managing and reporting intellectual capital", Chartered Institute of Management Accountants, Cranfield University.
Stern J.M., Shiely J.S., Ross I. (2003) "The EVA Challenge: Implementing Value-Added Change in an Organization", Wiley finance: John Wiley and Sons.
Stewart T.A. (1997) "Intellectual Capital: The new Wealh of organization", Nicholas Brealey, London.
Stewart T.A. (2002) "The case against knowledge management", Business 2.0. Vol.3, No.2.
Sveiby K.E. (2001) "Methods for Measuring Intangible Asset", http://www.sveiby.com/articles/IntangibleMethods.htm.
Swartz, N-P., Firer, S., (2005) "Board structure and intellectual capital performance in South Africa", Meditari Accountancy Research, Vol. 13 Iss: 2. P.145 – 166.
Tan, H.P., Plowman, D., Hancock, P. (2007) "Intellectual capital and financial returns of companies",Journal of Intellectual capital, Vol.8, No.2.
Tobin, J. (1969) "A general equilibrium approach to monetary theory", Journal of Money Credit and Banking, Vol.
Tobin J., Brainard W.C. (1976) "Asset markets and the cost of capital", Cowles Foundation for Research in Economics At Yale University.
Tseng C.-Y., Goo Y.-J.J. (2005) "Intellectual capital and corporate value in an emerging economy: empirical study of Taiwanese manufacturers", R&D Management, Vol.35, No.2, 2005. P. 187-199.
Tsuji, C. (2006) "Does EVA beat earnings and cash flow in Japan?", Applied Financial Economics, Vol. 16. P.
Velez-Pareja, I., Tham, J. (2001) "Do the Rim (Residual Income Model), EVA and DCF (Discounted Cash Flow) Really Match?", Medicion Evaluacion del Valor 002379, Politecnico Grancolombiano.
Veltry, S. (2009) "The impact of Intellectual Capital measurement on the financial markets: a meta-analysis approach", Corporate Finance, № 3 (11).
Visaltanachoti, N. (2008) "Economic Value Added (EVA) and sector", AAMJAF. Vol. 4, No. 2. P. 21–41.
Youndt M., Subramaniam M., Snell S. (2004) "Intellectual capital profiles: An examination of investments and returns", Journal of Management Studies. Vol. 41, No.2. P. 335-362.
Zeghal D. (2000) "New assets for the new economy", FMI Journal, Vol.11 No.2.
Zeghal D., Maaloul A. (2010) "Analyzing value added as an indicator of intellectual capital and its consequences on company performance", Journal of Intellectual capital. Vol.11, No.1.
Zickgraf, S., Mertins, K., Will, M., Wang, W.-H., Meyer, J. (2007) "InCaS: Intellectual Capital Statement", European ICS Guideline.