INTANGIBLE CAPITAL: THE RELATIONSHIP BETWEEN PROFITABILITY AND DISCLOSURE. AN EMPIRICAL ANALYSIS ON THE ROMANIAN COMPANIES

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Abstract:
The purpose of this exploratory and empirical study is to examine the impact of intangible capital disclosure on firms' profitability and financial performance. The empirical data were drawn from a panel consisting of 63 Romanian companies listed in the Bucharest Stock Exchange, from seven different economic sectors. Results failed to support most of the hypotheses; only concluding that there is a statistically significant relationship between intangible capital disclosure and turnover. The limitations of the study mainly refer to the small dimension of the sample. Also, the study does not present a dynamic analysis of the considered indicators. This paper presents the first study of the intangible capital disclosure relationship with firm profitability in Romania.

Keywords: *intangible capital, turnover, return on assets, return on equity, Romania*

JEL classification: M41, M14.

Introduction

Numerous articles and studies, most of them applied on large companies, investigate the various aspects of the issue of intangible assets and intangible capital, and the general hypothesis is accepted that intangible assets are particularly important in most organizations, bringing an essential contribution to the success of a business. The relation between intangible capital, respectively its components: human capital, structural capital, and relational capital and the performance of the company has raised the interest of a large number of researchers, both in the field of accounting and of strategic management. Most empirical approaches managed to identify positive associations between intangible capital and the performance of the company, usually measured by the return on assets.

Studies of Association between the Profitability and Performance of a Company and the Disclosure of the Information concerning Intangible Capital

In the opinion of Edvinsson and Malone (1997, *apud.* Maditinos *et al*., 2011), intangible capital can be defined as the difference between the market value and the accounting value of a company, while Kok (2007) states that one of the way of determining intangible capital is, on the contrary, comparing the two values of the company. The arguments that support these opinions rely on the "hidden" nature of intangible capital and intangible assets, considering the difficulty to identify their role in computing the results obtained by the company and to quantify them in the financial statements.

Peña (2002) claims that the organizations that made efforts to manage and develop intangible capital obtained higher performance than companies that took no such actions, and Sonnier *et al.* (2007) proved empirically that there is a connection between disclosing information on intangible capital and the profitability of a company. In a study performed on manufacture companies in Thailand, Phusavat *et al.* (2011) show that there is a direct significant association between intangible capital and the performance of the company, as immaterial capital influences the return on assets, the return on equity, the productivity of the employees, and the raise in incomes.

Wang (2008) examined the association between intangible capital (and its components) and the market values of the companies in the electronic industry. All the constitutive elements of intangible capital, which are: human capital, capital referring to customers, innovation capital, and capital referring to processes, proved to be positively related to the market value of the company. The connection between intangible capital and the market value of the company was also stressed by Vafaei *et al.* (2011), in a study of companies in 4 countries and various activity fields.

However, Maditinos *et al*. (2011) did not manage to confirm the connection between intangible capital and the market value of the company, on the one hand, and its performance, on the other, which is explained by the peculiarities of the Greek business environment: low foreign investments, relatively small size of the Greek companies, the lack of modern management practices, and Greece being ranked on one of the last positions in the European Union in what concerns innovation, competitiveness, and entrepreneurship (variables that indirectly measure the intellectual component of an economy).

Research Methodology

The target population that we wish to know is made up of companies quoted in the Bucharest Stock Exchange, BSE section. On 11.15.2012, the BSE section included 106 companies, of which 25 were not quoted, and 13 companies were banks and financial investment companies. Also, we found no available data for 5 companies (Comcm SA Constanţa, Petrolexportimport S.A, Rompetrol Well Services S.A, Siretul Paşcani S.A and Zimtub[102]), so that the final sample includes 63 Romanian companies that perform their activity in 7 activity fields: 44 companies in the processing industry, 5 are construction companies, 3 are transport and storage companies, 2 companies operate in producing and supplying electric and thermal power, 3 activate in trade, 2 in the extractive industry, and 4 in the "hotels and restaurants" field.

In the data collection stage, we resorted to *mediated data collection techniques* from the annual financial statements and from various other reports published by these companies, and in the data processing and analysis stage, we used: *the communication content analysis,* which consists of the objective, systematic, qualitative, and quantitative description of the contents of a communication (Zaiţ and Spalanzani, 2006, p.179), *document study*, and *quantitative analysis*. Concretely, the content analysis method relies on detecting the presence or absence of information that covers various topics. For processing and interpreting the data, we used the SPSS software (*Statistical Package for the Social Sciences*), version 15.0.

Considering the peculiarities of the Romanian accounting context, the debates in specialized literature, and the results of the descriptive research performed previously on Romanian companies, we aimed to test the following research hypotheses:

[102] According to the AGEA decision of 10.19.2011, SC ZIMTUB SA shareholders approved the withdrawal from transactions on the regulated market of the floating assets issued by SC ZIMTUB SA Zimnicea and their radiation from the CNVM records.

H1: *There is a direct connection between the mean degree of disclosure of the information on intangible capital (MdCi) and the turnover of the company (TR);*
H2: *There is a direct connection between the mean degree of disclosure of the information on intangible capital (MdCi) and the return on equity (ROE);*
H3: *There is a direct connection between the mean degree of disclosure of the information on intangible capital (MdCi) and the return on assets (ROA).*

The mean degree of disclosure of the information on intangible capital (MdCi) is, actually, the arithmetical mean of the values obtained for human, relational, and structural capital. The algorithm for computing an approximate value of human capital, relational capital, and respectively structural capital is simple: if the company presents complete information on a criterion it is graded with 1, if it does not present information it receives 0 points, and if it presents certain information partially, it is graded accordingly: 0.25, 0.5, or 0.75. At the end, each intangible capital component will be equal to the arithmetical mean of the points obtained for each criterion taken into consideration. The criteria analyzed for computing the values of the intangible capital components are:

Table 1: *Criteria of intangible capital*

Criteria for Human Capital	Criteria for Relational Capital	Criteria for Structural Capital
Number and age of the employees	National and international certifications obtained in product quality	Innovation, research and development activities
Motivations / benefits granted to the employees[103]	Concern with the environment	Systems (information, management, accounting, etc.)
Time dedicated to training the employees	The customer satisfaction index	Number of patents
	Social programs, donations	

Results of the Research

A first analysis shows that for the studied companies, the mean degree of disclosure of the information on intangible capital takes on values between 0.08 and 0.73, 87.3% of the companies included in the sample being characterized by a degree of dissemination of the information on intangible capital under the value of 0.5.

The dependent variable "mean degree of disclosure of the information on intangible capital" is normally distributed, but the "turnover" variable does not have a normal distribution, and therefore we created a logarithm for it, obtaining the "lnCa" variable.

Asympt. Sig.=0.401, respectively 0.358, which is the risk to unjustly reject the null hypothesis according to which the variables are normally distributed, is 40.1%, respectively 35.8%. The risk obtained is much higher than the allowed risk of 5%. As a result, the lnCA and MdCi variables are normally distributed.

Table 2: *One-Sample Kolmogorov-Smirnov Test for the lnCA and MdCi variables*

		lnCA	MdCi
N		63	63
Normal Parameters(a,b)	Mean	18.5059	.3178
	Std. Deviation	1.70475	.15666
Most Extreme Differences	Absolute	.113	.117
	Positive	.113	.117

[103] Motivations granted to the employees: meal tickets, holiday bonuses, financial aids for death, birth, marriage, gifts for festive days, treatment tickets, etc.

	Negative	-.048	-.065
Kolmogorov-Smirnov Z		.894	.926
Asymp. Sig. (2-tailed)		.401	.358

a The test distribution is Normal, b Calculated from data.

In what follows, we computed the Pearson correlation coefficient. The bivariate correlation concerns the connection between two variables, of which one is the effect and the other one is the cause.

Table 3: *Correlation between lnCa and MdCi*

		MdCi
lnCA	Pearson Correlation	.615(**)
	Sig. (2-tailed)	.000
	N	63

** The correlation is significant at the level 0.01 (2-tailed).

Between the logarithm in natural basis of the "turnover" variable and the mean degree of dissemination of the information on intangible capital there are strong direct connections. As a result, hypothesis H1 is confirmed: the volume of published information concerning intangible capital is influenced by the turnover.

In the opinion of many economists, the return on equity (ROE) is the most important indicator for measuring the performance of a company. A high return on equity means that a small material investment of the shareholders was transformed into a large profit. We computed the return on equity for the 45 companies that recorded profits for the analyzed year. According to the statistical tests, both the ROE variable and the dependent variable MdCi are normally distributed (asymp.sig>0.05):

Table 4: *Results of the Kolmogorov- Smirnov test for the ROE and MdCi variables*

		ROE	MdCi
N		45	45
Normal Parameters(a,b)	Mean	.0699	.3276
	Std. Deviation	.07347	.15667
Most Extreme Differences	Absolute	.172	.116
	Positive	.162	.116
	Negative	-.172	-.057
Kolmogorov-Smirnov Z		1.153	.778
Asymp. Sig. (2-tailed)		.140	.580

a Test distribution is Normal., b Calculated from data.

The Pearson test shows the existence of direct correlations, of average intensity, between the return on equity and the mean degree of disclosure of the information on intangible capital.

Table 5: *Correlation between ROE and MdCi*

		MdCi
ROE	Pearson Correlation	.405(**)
	Sig. (2-tailed)	.006
	N	45

** The correlation is significant at the level 0.01 (2-tailed).

In conclusion, hypothesis H2 is validated.

The *return on assets* (ROA) is one of the main indicators of the profitability of a company, and it measures the efficiency of asset usage, from the perspective of the profit obtained. In order to test this hypothesis, we excluded from the analysis the companies that recorded losses, and we computed the ROA variable as a ratio between the net result (profit) and total assets. The ROA variable is also normally distributed (asymp.sig.=0.061>0.05), which allows us to perform the Pearson correlation test:

Table 6: *Correlation between ROA and MdCi*

		MdCi
ROA	Pearson Correlation	.363(*)
	Sig. (2-tailed)	.014
	N	45

* The correlation is significant at the level 0.05 (2-tailed).

Between the mean degree of dissemination of the information on intangible capital and the return on assets there are direct connections of average intensity. Hypothesis H3 is validated, although the risk to reject the statistical hypothesis that the ROA variable is normally distributed (6.1%) is very close to the allowed risk of 5%.

In our approach, we also aimed to identify a regression model concerning the behavior of the mean degree of dissemination of the information on intangible capital. The compliance with the principles of simplicity and appropriateness made us consider that the best regression model is the linear one, according to which:

MdCi= -0.728+0.057*lnCA, where turnover is strictly positive, and R*square*=0.378.

The R *square* determination ratio shows that 37.8% of the variation of the mean degree of dissemination of the information on intangible capital is explained by the independent variable turnover, the difference being explained by other variables.

If the turnover of a company is null, it is no longer required to compute the value of the MdCi variable because the company no longer performs any activity. Also, MdCi is through its nature a variable that can only take positive values, which requires for the turnover to be minimum 353,000 lei. Therefore, for a turnover value of 353,000, the mean degree of dissemination of the information will have the value: MdCi = -0.728 + 0.057 * 12.77422 = 0.000131.

Conclusions

Starting from the results of previous studies and taking into account the specificity of the Romanian accounting context, we aimed to test 3 research hypotheses concerning the factors that influence the volume of information published by the Romanian companies quoted in the Bucharest Stock Exchange, concerning intangible capital. Thus, using the content analysis, we determined the dependent variable "mean degree of dissemination of the information on intangible capital" computed as the arithmetical mean of 10 criteria.

Statistical tests showed, with certain restrictions concerning the normal distribution of the variables, that for the analyzed sample (63 companies to test the connection between the turnover and the mean degree of dissemination of the information on intangible capital, respectively 45 companies that recorded profits, to test the correlation between them and the return on assets, respectively on the return on equity), all three research hypotheses are confirmed: between the volume of information published by the Romanian companies quoted in the Bucharest Stock Exchange and their turnover, respectively the return on assets and the return on equity, there are direct connections, of strong, respectively average intensity.

In spite of the small size of the analyzed sample, we identified a possible regression model concerning the behavior of the mean degree of dissemination of the information on intangible capital according to the value of the turnover of the company. Future research directions can be concerned with extending the analysis to a larger sample and with identifying other factors that influence the volume of information on intangible capital published by the Romanian companies.

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