

The Intellectual Capital Role in Market Growth of Companies in Developed and Emerging Markets

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Abstract—The modern economy became increasingly dependent on intellectual capital, whose role is steadily growing in comparison with other types of capital. On the one hand it happens due to the objective trend of the world economy innovative development on the eve of the sixth technological mode beginning; on the other hand, to increased competition between companies from different countries in an increasingly globalized world market. The growing importance in the overall system of companies' competitiveness factors in the new century is played by specific knowledge and information, which is commonly understood as intellectual capital. However, accounting systems used in the modern economy practically ignore the components of intellectual capital. Another problem that hinders the accounting assessment of intellectual capital is the multiplicity of approaches to its quantitative measurement. The growing interest of researchers in further development of the intellectual capital concept is explained by the fact that the developed intellectual capital of the company leads to more effective management, to more stable relations with contractors, and in general – to a competitive advantage, which immanently affects the financial, economic and market results of the company.

The article presents the results of the intellectual capital impact study on the companies performance in developed and emerging markets. They confirm the existence of common regularities, expressed in the presence of the innovative development advantages of any country companies in any market, and also determine the effectiveness of organizational, social and cultural transformation of developing countries in the context of modern globalism.

Keywords—*intellectual capital of companies; VAIC; developed and emerging markets.*

I. INTRODUCTION

Currently, companies operating in both developed global and developing regional markets are forced to operate in an environment where the key assets are specific knowledge and information, which in the world is commonly understood as intellectual capital. However, the currently existing accounting systems practically ignore this. It leads to the company's reporting of primarily financial and tangible assets. At the same time, investors appreciate the high value of such key assets as knowledge and information, which in many cases leads to a significant excess of the company market value over

its book value. The concept of the company's intellectual capital, which includes all the knowledge, experience and professional skills of employees, as well as specific mechanisms and processes within the company, allowing this stock of knowledge and skills to create value, has emerged and is actively developing within the framework of this problem.

There is a large number of results obtained from the analysis of companies that operate in developed markets. There is also in-depth research for emerging market companies. However, studies containing a comparative analysis of these results are not yet sufficient. However, it is clear that, in order to be successful in global markets, developing countries' firms must increase their competitiveness, not least of which is their intellectual capital. Thus, the results obtained for companies from countries with developed economies, political systems and institutions should be tested on companies in developing countries, they should be compared in order to determine the level and future directions of development

The impact of intellectual capital on the company's performance is a well-researched topic in developed markets—an example is the study of Bollen et al. ((Bolen et al., 2005), Zeghal and Maaloul (Zeghal, Maaloul 2010), Clarke et al. (Clarke, 2011). Analysis of this problem in emerging markets also gathers pace – Chen et al. (Chen, 2005), Tan et al. (Tan et al., 2007), Nimtrakoon (Nimtrakoon, 2015), etc.

Conducting researches in developed and emerging markets is associated with the specifics of the intellectual capital – here the differences between countries are determined not only by the degree of financial markets, economic and legal institutions development, etc. In the available studies it is noted that the primary link of intellectual capital is human capital, and therefore, the concept of intellectual capital is based on the company's employees, their experience and knowledge. These "indicators" can vary quite significantly in developed and developing markets due to institutional differences in the market environment, cultural characteristics, differences in education systems, management approaches, as well as differences in the perception of the work culture. In addition, in the structure of intellectual capital, almost all the authors distinguish such a component as the relationship with customers, contractors – it also strongly depends on the

overall level of trust in the country, both between business representatives and trust between the consumer and the manufacturer, the culture of interaction and doing business in general.

In the field of companies' intellectual capital research in developed countries there are two broad areas – the development of methods for assessing and accounting for intellectual capital and analysis of the company intellectual capital impact on the results of its activities. The existence of the first direction causes the lack of a single method of evaluation and accounting of intellectual capital. The interest of researchers in the second direction is explained by the fact that the developed intellectual capital of the company in general leads to a competitive advantage. It can potentially affect the results of the company's activities.

In emerging markets, this field of research is only gaining popularity, which is of great interest, especially for the purpose of comparative analysis of the impact of intellectual capital on the market performance of companies in developed and developing markets, the identification of common and distinctive characteristics, as well as the development of measures for the business of developing countries in the course of their socio-economic and cultural transformation in the context of modern globalism.

II. LITERATURE REVIEW

The origin and evolution of intellectual capital as an economic category are well reflected in contemporary literature (Sullivan, 2000; Marr, 2005; Polo, 2007). Intellectual capital, like all problems of knowledge management (intangible or implicit assets), has deep historical roots, dating back to the early twentieth century (Lambe, 2011). Already in the 20-ies of the XX century in the overall structure of the company's assets, some of the above researchers identified intangible assets, referring to them such assets as knowledge and business reputation, and in a number of modern studies highlighted the special importance of intangible assets in the possession of employees (Gurieva, Kobersy, Shkurkin, etc.2017; Kurbanov, Gurieva, Novoselov, etc. 2016).

As early as the mid-20th century, Polanyi proposed a new form of knowledge, which he called implicit knowledge, arguing that people know more than they can express orally (Polanyi, 1958). Its concept, in fact, served as a theoretical basis for the separation of theory and practice of learning, which was applied by researchers of management and education under the label of empirical and organizational learning. And Penrose suggested a relationship between the knowledge of the company employees and its ability to use internal resources to the full extent. (Penrose, 1959).

Around that time Machlup introduced the concept of the knowledge industry, and has undertaken one of the most successful attempts of knowledge evaluation as an economic asset: it measured the economic impact of knowledge, using the principles of accounting, and introduced the terms "knowledge stocks", "knowledge flows" and "the knowledge worker " (Machlup, 1969). These ideas inspired many prominent management theorists, including Drucker, who

subsequently influenced the development of modern organization theory. Drucker envisioned the inevitability of the transition to a knowledge economy and popularized the concept of the knowledge worker (Drucker, 1969). In the same year, Tobin introduced the Tobin's q coefficient, which as a result defined intellectual capital as the difference between the market value and the book value of the firm (Tobin, 1969).

In the late 1980s, the leaders of the Swedish financial firm Skandia began to search for a more holistic and balanced view of their intellectual capital. In 1991, Skandia has created the world's first official department of the intellectual capital. In 1994, the first internal document summarizing Skandia IC was developed on the basis of Skandia Navigator, and in 1995 this document was officially published under the title "Visualization of intellectual capital" (Edvinsson, 1997).

As a result of the above-mentioned series of studies and corporate innovations in 1996 specialized scientific and practical journal "Human Resource Costing & Accounting" began to publish; it reflected the most interesting studies of accounting and evaluation of human resources, as well as the impact of the growth of their value on the companies income in different industries and sectors of the economy.

Hundreds of companies around the world subsequently used the methods published in the journal to assess their intellectual capital. In the same period, Nonaka and Takeuchi published their book on knowledge-creating companies and introduced the concept of corporate knowledge sharing.

Sveiby formed the basis the for intangible assets measuring methods, highlighting the role of "invisible assets" of the organization such as customer base and technical know-how (Sveiby, 1997). Pike and Christmas (Pike, Boldt-Christmas, 2006) defined and popularized the term "Customer capital", and the Rus differentiated management of intellectual capital and knowledge. Lev and Zarowin empirically demonstrated a decrease in the usefulness of traditional financial information and linked the value of intangible assets, financial indicators, and Stewart drew attention to the major participants of the business on the value of intangible assets.

Since the early 2000s, the valuation approach based on the development of accounting methods for the value of different types of intellectual capital of the company has been continued in a number of studies by European and Asian authors.

Today, there are many definitions and terms that can be attributed either to intellectual capital or to intangible assets. And in economic practice, intellectual capital is often defined as the difference between the market and book value of the company. Thus, according to the international financial reporting standards (IFRS), which are reported by Russian public companies, the difference between market and book value is represented by the so-called "goodwill", which, in fact, reflects the intangible assets of the company.

The purpose of the work is to substantiate the growing influence of intellectual capital on the financial, economic and market performance of companies in developed and developing markets, which reflects the general patterns of innovative development of the world economy and identifies

the factors of organizational, social and cultural transformation of developing countries in the context of modern globalization.

III. RESEARCH METHODOLOGY

The choice of methods for assessing the intellectual capital of the company is complicated by the fact that they are offered not only by representatives of the academic community, but also by practitioners, which is a bright indicator of the intellectual capital real importance for business. Our review of the measuring intellectual capital methods, developed to date, allows us to identify 4 groups of methods used to assess intellectual capital: Market Capitalisation Methods, Return on Assets Methods, Direct Intellectual Capital Methods, Score Card Methods.

One of the most popular methods for assessing intellectual capital in the ROA group of methods is the Value Added Intellectual Coefficient (VAIC) proposed by Pulic (Pulic, 2000). The VAIC model was initially intended to be used in the future as a direct explanation of the company's performance and financial results. VAIC is an indicator of how much value added produced by a company is based on intellectual capital (Stahle, Aho, 2011). The VAIC calculation process is as follows:

$$VAIC = ICE + CEE = HCE + SCE + CEE, \quad (1)$$

$$HCE = \frac{VA}{HC}, SCE = \frac{SC}{VA}, CEE = \frac{VA}{CE},$$

where ICE – intellectual capital efficiency, in some literature also referred to as VAIN;

CEE – capital employed efficiency, in some literature also referred to as VACA;

HCE –human capital efficiency, in some literature also referred to as VAHU;

SCE – structural capital efficiency, also referred to in some literature as STVA;

HC –human capital;

SC – structural capital;

CE –capital employed;

VA – value added value added.

Thus, the VAIC is a relative measure of intellectual capital that allows comparing different companies with each other, but does not provide any absolute value of intellectual capital. As a "proxy" for human capital, it is proposed to use the total cost of wages. Structural capital is defined as the difference between value added and human capital. In the formula of VAIC it is necessary to take into account the efficiency of the invested capital (CEE, VAKA), since intellectual capital can not generate value without material investments. Value added is measured by the revenues and expenses that the company generates:

VA = operating profit + salary and social security costs + asset write-offs + asset depreciation.

The advantages of using VAIC as an assessing method of intellectual capital include the relative simplicity and "availability" of this method, since all the indicators used are indicators of formal financial statements. In this regard, the application of the method provides an opportunity to compare the VAIC of different companies with each other, which is necessary in order to identify the relationship between intellectual capital and the result of the company's activities. In contrast to the methods discussed earlier, the data for determining the VAIC for companies operating in emerging markets are available in a much larger volume, since this method does not involve the assessment of additional disclosed non-financial information, the analysis of which may require significant involvement of resources and time. Moreover, this method allows you to include in the analysis firms that are not public and for which information about market assessments is not available.

However, all of the above advantages of VAIC by themselves already imply some disadvantages and difficulties. First, VAIC does not provide any valuation of intellectual capital, this indicator is useful only in comparison with the same indicator for other companies. Secondly, Stahle notes that although it would seem that the components of intellectual capital (human capital and structural capital) are included in the VAIC, the calculation of the VAIC itself is based only on financial indicators and, in fact, does not include directly what is really connected with the intellectual capital of the company. Since the components of intellectual capital are measured in this case in financial terms and, moreover, a linear relationship is assumed, which is not confirmed analytically, the relationship between intellectual capital and the VAIC itself may be lost. Also, structural capital is defined simply as the difference between value added and human capital – this method of calculating structural capital does not imply any determinants of structural capital, on the basis of which calculations are carried out, and therefore the calculated structural capital is a very rough "proxy" for real structural capital. All these imperfections of the VAIC indicator show the insufficiency of the analytical and theoretical base under it in terms of intellectual capital.

IV. RESULTS

Let's start with an overview of the results obtained for companies operating in developed markets. Zeghal and Maaloul applied the VAIC method described above to identify the relationship between the company's intellectual capital and the company's financial and economic performance (Zeghal, Maaloul, 2010). The authors' results are based on a sample of 300 companies from England, representing 39 different industries, which were divided into three groups – high-tech companies, traditional and service sector companies. They found that a higher coefficient of VAIC is associated with a more successful economic result (proxy for which –operating profit margin), the financial result (proxy for which – ROA), regardless of the sector in which the company operates. However, the relationship between the VAIC and the gap between the company's book value and market value proved to be significant only for high-tech companies. Thus, the results described above are an indicator that intellectual capital can significantly contribute to reducing the company's costs, but

investors perceive intellectual capital as a source of value creation only within high-tech companies. Clarke and Whiting were the first to conduct a study on the relationship between intellectual capital, for which the VAIC model was also used as a proxy, and the company's performance on the example of the Australian market (Clarke, Seng, Whiting, 2011). At the same time, they came to positive conclusions about this relationship. However, Clarke notes that although investors still tend to make confident "bets" on financial and tangible assets, it is not necessary to completely ignore the impact of intellectual capital on the company's activities (the importance of which they confirmed), and employees are the most valuable assets of the company in the struggle for a competitive advantage in the market.

Bollen et al. used in their study the data of a 41 German pharmaceutical companies (Bollen, Vergauwen, and Schnieders, 2005). One of the results of this work is that human capital increases the impact of structural capital and capital relations on the results of the company, and vice versa. This confirms the strong relationship between the components of intellectual capital and the fact that they work most effectively only in combination with each other, as we discussed above. However, the authors note that the "mediator" between intellectual capital and the results of the firm's activities is intellectual property, because they managed to find a clear relationship between intellectual property and the financial results of the firm, but the impact of human, structural capital relations on the results of the company's activities is likely to occur through intellectual property.

Wang studied the impact of intellectual capital in general and its components in particular solely on the market value of U.S. electronics companies (Wang, 2008). This allowed us to draw conclusions about how much investors appreciate the intensive intellectual capital companies. He says that there is now a significant shift in value from tangible assets to intellectual capital, which provides the company with a competitive advantage and long-term stability, which is reflected in the estimates of the company by investors. Companies in the electronics sector are more intensive in building up and using intellectual capital and therefore only 47% of the company's value is due to their financial assets. On this basis, Wang concludes that in the US electronics sector there is a highly active process of using intellectual capital in order to create a higher market capitalization.

Next, we present the results of studies on similar estimates in emerging markets. The group of developing countries is very heterogeneous, countries differ widely in economic, social and cultural contexts, and it is therefore important to test hypotheses about the relationship between intellectual capital and firm performance for each country, as it is often impossible to extrapolate the results obtained from one developing economy to another.

Chen uses a sample of public Taiwan companies in his study (Chen, Cheng, Hwang, 2005). The authors investigate the impact of intellectual capital on two indicators – the market-to-book value ratio and company's financial results (ROA, ROE and revenue growth rate are used as indicators of financial result). The independent variables are the VAIC and

its components, as well as research and development costs and marketing costs. They come to the conclusion that intellectual capital can be called an important strategic asset of the company, as it helps the company to maintain its competitive advantage in the market, while leading to higher business profitability (conclusion based on the analysis of the intellectual capital impact on the financial result of the company) and to a higher assessment of investors (conclusion based on the analysis of the intellectual capital impact on the ratio of market value and book value of capital). Thus, investment in intellectual capital should be given no less importance than capital investment. The results are confirmed by the Shiu study, which is also based on public companies in Taiwan (Shiu, 2006). It reveals a significant positive relationship between the company's VAIC and its evaluation by investors (market-to-book ratio) and ROA.

Nimtrakoon researches high-tech companies from ASEAN countries, using the modified VAIC indicator as an indicator of intellectual capital (Nimtrakoon, 2015). According to this study, there are no significant differences between the five ASEAN countries. For the entire sample, the hypothesis that the higher intellectual capital of the company is associated with a higher market value of the company and a more attractive financial result of the company is confirmed. At the same time, the most important component of intellectual capital is human capital.

Another study conducted in emerging markets that is worth paying attention to is the analysis conducted by Ilyin (Ilyin, 2014). The sample consists of BRICS countries, but it is worth noting that about 90% of this sample consists of Chinese companies. It does not allow to move away from a certain "Asian focus" in the whole range of relationship studies between intellectual capital and the result of companies' activities in emerging markets. Different variations of the model are estimated separately for three subsamples (intellectual capital intensive companies, intellectual capital non-intensive companies, the whole sample). The results of this study clearly confirm the positive relationship between intellectual capital and the financial results of the company. There was also a significant positive relationship between the company's operating margin and the company's intellectual capital, if it is determined using the VAIC method. As for the differences between the results obtained on the basis of different subsamples, the author's conclusions suggest that companies that more intensively develop and use intellectual capital have a greater effect on the financial results. However, there is no evidence that companies with higher intellectual capital are more highly valued by the market. A possible reason for this may be that, in emerging capital markets, the value of securities can vary greatly depending on economic, social, political and other factors that do not depend on the company itself.

V. CONCLUSION

As we can see from the survey of studies in the field of the relationship between intellectual capital and companies' results in its various aspects, most studies emphasize the importance of intellectual capital for the company benefits and its evaluation by investors. As we can see, the VAIC method

is the most used in this field of research. However, the results obtained using alternative methods only emphasize the importance of intellectual capital for the company, in particular, the process of creating value within it. More obviously, this relationship can be traced in high-tech companies (pharmaceutical, information technology, high-tech manufacturing, telecommunications, etc.). The importance of the company's intellectual capital positive impact on the results of its activities is observed both in developed and emerging economies.

Based on the review of scientific sources, it can be concluded that issues we discuss cover a fairly wide range of developed countries. This indicates the importance and relevance of research on the relationship between intellectual capital and financial results of firms in emerging markets with other cultural, national and market aspects.

The research of intellectual capital role in companies is still developing and attracts the interest of scientists from around the world. Moreover, if at the beginning of 2000's the main trend was the study of suitable methods for the assessment of intellectual capital for the purpose of its disclosure by companies, now the focus of research has shifted to the construction of the relationship between intellectual capital and the benefits that the company can receive from it.

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