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Relations between Human Capital Investments and Business Excellence in Croatian Companies

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Abstract**—**Living today in turbulent business environment forces companies to distinguish from each other, securing sustainable competitive growth and competitive advantage. The best possible solution is to invest (effort and financial resources) within companies' different practices of human resource management (HRM), more specifically in employees' knowledge, skills and abilities. Applying this approach companies will create enviable level of human capital securing its economic growth. Employees become human capital for their employers at the moment when they contribute with their own knowledge and abilities in creating material and non-material value of the company. The main aim of this research is to explore the relations between human capital investments and business excellence of Croatian companies. Furthermore, the differences in the level of human capital investments with regard to several companies' characteristics (e.g. size of the company, ownership and type of the industry) are investigated.

Keywords **—**Business excellence, Croatian industries, human capital investments.

I. Introduction

CRUTIAL business element long time ago in the agrarian epoch was land, in the industrial epoch it was financial and manual labour, while the present key factor in knowledge economy is intellectual capital [1]. There are different definitions of intellectual capital and different attributes that are ascribed to this term. However, it represents the foundation of modern economy whose core is human capital.

Living today in turbulent business environment, companies are striving to attain the greatest share of the market and to gain its sustainable competitive growth. This is the fact that forces companies to take the best advantage of its employees, investing significantly in development of their individual knowledge, skills, abilities and extraordinary working experience in order to gain respectable capital, human capital, in comparison to their main competitors. Employees become human capital for their employers the moment when they contribute with their own knowledge and abilities in creating material and non-material value of the company. Taking into consideration the influence of human capital on company's performance and economic growth, many experts, especially in the last two decades have done researches of these specified relations, confirming the positive relationship between human capital and organisational success at all, but also researching different relationships between human capital benefits and particular industries, company size or even company ownership.

The main aim of our research is to explore the relations between human capital investments and business excellence of Croatian companies whose securities are listed on the stock market. Furthermore, the differences in the level of human capital investments with regard to several companies' characteristics (e.g. size of the company, ownership and type of the industry) are investigated. The final sample consists of 128 Croatian medium and large size companies. Research results indicate statistically significant correlations between the level of human capital investments measured by annual salary per employee in company and its overall business excellence.

II. Definition of Human Capital

Companies all over the world are striving in order to attain the greatest share of the local or even global market and to reach its sustainable competitive growth. Besides all technology, organisation structure or financial assets they poses, human resources are the organisations' crucial elements in achieving required strategic goals and its competitive advantage. Despite the fact that, any two companies may have the same structure of human resources (educational level, age and sex structure, working experience); every company has its unique set of human resources. Those are valuable, exceptional and very difficult to imitate according to their specificities as knowledge, special experience, skills, abilities or emotional intelligence [2]. In such terms those represent crucial element of organisation's intellectual capital, more specifically human capital.

There are different definitions of intellectual capital and different attributes that are ascribed to this term. However, it represents the foundation of modern economy whose core is human capital. The most popular thoughts are recognising that the organisations' growth and development are mostly achieved through its intellectual capital [3]. Scandinavian researchers and Scandinavian companies were architects introducing and researching the term and value (disclosure) of intellectual capital within their companies. Consequently, intellectual capital can be defined as the possession of knowledge, applied experience, organisational technology, customer relationship and professional skills that provides company with a competitive edge in the market [4]. According

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to [5], various authors use similar terms and phrases such as: invisible asset, value driver, element of business strategy, asset with no physical existence, knowledge-based equity and many others. Also, [6] defines intellectual capital as the difference between the company's market value and its book value. Knowledge based resources that contribute to the sustained competitive advantage of the firm form the intellectual capital.

Furthermore, there are different classifications of intellectual capital in the literature as well. Numerous groups, accounting professionals and researchers have attempted to categorize intangibles [5]. According to the literature [7]-[10], the most usual categorisation includes human capital, organisational capital and relational (customer) capital. Consistent with other relevant authors, those classes can be defined as follows:

Human capital includes employees with a set of individual and collective knowledge (tacit or explicit), skills, abilities, attitudes, possibilities, behaviour and emotions. Employees become human capital for their employers the moment when they contribute with their own knowledge and abilities in creating material and non-material value of the company. More precisely it includes the know-how, capabilities, skills and expertise of the individual human members of an organization. Unlike structural capital it cannot be owned by a company. In accounting, human capital includes expenditures for employees such as salaries, education, additional courses or training.

Structural capital represents the most complex element of intellectual capital. It contains organisational and technological elements that develop integration and coordination within a company, includes infrastructure support for human capital, such as the systems, networks, policies, culture, innovation, processes, distribution channels, and other "organisational capabilities" developed to meet market requirements as well as intellectual property. All of the above-mentioned elements represent different types of non-material factors that are left in the company when employees leave the company and can be specified in the categories such as: organisational structural capital, corporative culture, leadership, innovative structural capital and procedural structural capital.

Relational capital includes value of the relationship that the company maintains with external agents such as customers, suppliers or allies, with its basic business process as well as the relationships it maintains with other social agents. It can be added that relational capital also includes any other relations that people outside the organisation have with it, their loyalty, the market share, the level of backorders and so on.

Human capital is dynamic and developmental issue that observes human resources and their needs through constant movements, simultaneously taking into consideration its present and future [3].

Summarising, human capital assumes a very important role in the process of economic growth. Taking into consideration the influence of human capital on company's performance and economic growth, many experts, especially in the last decades have done researches investigating the specified relations.

III. Relations between Human Capital and Organisational Success

Progressive research regarding relation between human resource management (HRM) and company's performance has arisen as a very intriguing topic in the last two decades [1]. Study results have also been stimulating, referring to the existence of a positive correlation between the specified variables. One of the originators in the specified subject was [11] who demonstrated influence of human resource activities set (called high performance work system) on companies performance, more precisely on fluctuation, profitability and company's market value. This research was followed by many other well-known authors who researched different facets of human resource activities on company's performance, for instance on productivity and quality [12], productivity [13], profitability, productivity and quality [14].

Different authors within their researches were more oriented to researching just relation of human resources and their knowledge, skills and abilities, more precisely of human capital investments and organisational performances or success. Traditional ratios or indexes of organisational success are not sufficient anymore, because those do not reflect new or additional organisational value. Additional organisational value can only be taken into consideration when organisation creates greater value than it invests (through finance or intellectual resources). Consequently, nowadays organisational value and success created by human capital at the same time creates organisational success [3]. Also, [15] approves that in today's environment, which requires flexibility, innovation and speed-to-market, effectively developing and managing employees' knowledge, experience, skills and expertise (human capital) – has become a key success factor for sustained organisational performance. Bill Gates has been known to comment that the most important assets in his company walk out the door every night. In other words, he recognized that the collective knowledge, skills and abilities of his employees represent a distinctive competency that has created value of his company apart from its competitors [15].

Reference [16] researched relations between human capital losses (number of the full-time employees who had quit in past years divided by the total number of full-time employees) and human resource management investments (investments in training, pay level, benefit level, job security, procedural justice and selective staffing) as well as human capital losses and organisational financial performances (sales per employee). Their research has revealed that human capital losses (voluntary turnover rates) have an attenuated negative relationship with organisational performance when HRM investments are high. When HRM investments are low, however, human capital losses and organisational performances are not significantly related. They also provided evidence that when organisations invest heavily in HRM, the indirect and total effects of the human capital losses on financial performances through work-force productivity are significantly stronger than the effects among organisations with the lower HRM investments. Also [17] confirms that firms which employ more-educated workers are more productive. The results on education clearly suggest that high-productivity workplaces are also high-skill workplaces. This result is consistent with human capital model where more skilled workers make the firm more productive.

Certain researches done by Croatian authors also support the fact that if a company develops its human capital, then it provides better financial results than others. They support the fact that an economy entity has to identify the need for learning and training as well as to insure greater mutual work between managers and employees, especially in terms of mentoring and teaching [18]. Economic transaction theory supports the fact that companies are more willing to hire new external employees who already possess the skills and abilities instead of providing training for internal ones. On the other hand, human capital theory put great stress on the need for training and teaching internal employees required for developing skills and abilities required by the company. Those will be possible if company's management invests in the most talented employees [18].

Some papers provided additional empirical evidences on human capital investments in different sectors, usually distinguishing between traditional and high technology firms. One of these researches was done by [10]. In the stated paper, manufacturing companies were defined as traditional ones opposed to high technology companies. Research data confirmed that in the researched fiscal years, high technology firms had significantly higher level of intellectual capital than traditional companies. All categories of intellectual capital, including customer capital, organisational capital as well as human capital were statistically significant within high technology companies. Authors [9] showed in their research that human capital appears as the most influential component within high technology companies. They explained human capital as a sum of employees' experience, creativity and teamwork what provided them a leading position. Among the usual three elements of intellectual capital, the items related to human capital showed higher means than others elements (close to 6 on a scale with 7 as maximum value). They explained this with the fact that companies operating in the chosen industry were highly focused on having strong human capital. Almost every company values its human capital as strongly. Employees with high experience in the industry, the ability to develop new ideas and knowledge, as well as experience within the company and involvement in teamwork appear to be key assets for competing in the industries analysed [9].

Additional research [19] was conducted, investigating the role of specific human capital on the performances of UK new technology based firms. The effect of human capital on the performance of new technology based firms is investigated based on a survey of more than 400 firms operating in high-tech manufacturing and the service sectors. The results show that specific human capital characteristics were found to contribute relatively more to the performance of a high-tech firm. Entrepreneurs with experience in different industrial sectors seem to be less likely to affect the performance of a firm than those with same sector experience. The latter are more likely to have a better knowledge of technological and marketing opportunities that can be exploited in the specific market. The main conclusions of [20] suggest that human capital is important regardless of industry type.

However, human capital has a greater influence on how business should be structured in non-service industries compared to service industries. The same research confirmed the importance of other two significant elements of intellectual capital; structural capital and customer capital with business performance. The results presented in [21] shed new light on the differences between service-oriented and product-oriented companies in terms of possession, management, creation and protection of intellectual capital. Research based no more than 400 respondents from Finnish companies demonstrate that service-oriented companies possess more human capital and renewal capital and focus more on intellectual capital creation than product-oriented companies.

Moreover, many researchers confirmed positive relationship between intellectual capital, and more specifically between human capital (investments) and organisational success. Great share of those were focused on specificities of particular industry. Consequently, some researchers were oriented on specificities of companies' size and relation to its human capital. Study researching companies from Australia and Hong Kong [22] was based on exploratory study of voluntary intellectual capital disclosure, founding to be low and in qualitative rather that quantitative for both locations, but positively related to company size. Contemporary study [23] investigated effect of human capital, temporary employment and organisational size on firm performance. This study resumes previously studies which suggested that the positive impact of human capital on firm performance is more pronounced in large rather than small companies. It can be argued that cost of investment in human capital for small companies outweighs the benefits that they gain from providing high human capital, since small companies do not obtain as many benefits from economies of scale as large companies do. The authors confirmed the positive effect of human capital on return on sales (as indicator of firm performance) is greater in large firms with low temporary employment than in small firms with high temporary employment.

Certain efforts were also undertaken investigating relationship between human capital and companies' ownership. This field still leaves lots of opportunities for further researches. One of the newly researches based on ownership structure affecting company value was conducted in Taiwanese market [24]. Effective management of knowledge-based intellectual capital has become a key factor to corporate success. This paper re-examined the link among ownership, proxies for intellectual capital and corporate value. The empirical results suggest that a relationship between ownership and corporate value mainly depends on industry characteristics and the nature of proxies for intellectual capital. Further, the impact of ownership on corporate value in more traditional industries is even stronger.

IV. Research Design

Based on theoretical background discussed above, the aim of our research is to explore the relations between human capital investments and business excellence of Croatian companies whose securities are listed on the stock market. Furthermore, the differences in the level of human capital investments with regard to several companies' characteristics (e.g. size of the company, ownership and type of the industry) are investigated. The data were analysed using the PASW v. 18.0. software.

A. Sample Selection

This research includes all Croatian companies listed on the Zagreb Stock Exchange in 2012. Banks, investment funds and other financial institutions are excluded from the sample because of asset structure differences (n=25). In addition, 7 companies that are in bankruptcy or liquidation process and 22 companies with missing or incomplete financial statements data are also excluded. Thus, final sample consists of 128 Croatian medium and large companies. The data set necessary for the research has been extracted from annual financial reports database of Croatian Financial Services Supervisory Agency available at [25].

Descriptive analysis of the sample structure regarding company's characteristic can be summarized as follows. With regard to the *size*, 52% of surveyed companies are medium sized, whereas the other 48% are classified as large enterprises. Due to the *ownership*, a significantly higher proportion of companies, even 86% of them are privately held companies, i.e. companies with more than 50% private ownership. It should be noted that reported percentage could be even higher, considering that private ownership is the base of an efficient market economy. However, as the process of privatization in Croatia was relatively slowed compared with other transition countries and because privatization is still ongoing, this ratio of private and public ownership is according to the expectations. Finally, regarding to the *types of industry*, or company's main activity, the largest number of businesses are operating in the processing/manufacturing industry (34%), followed by tourism and hospitality companies with a share of 26%, and wholesale and retail trade sector with 12%. There are 8% of companies from transport industry in the sample and 7% of them are doing business in agriculture, forestry and fishing sector. The lowest share relates to IT and telecommunications, only 3%, while business consulting and intellectual services as well as construction sector have equal share of 5%.

B. Variables Description

Human capital investment measure is defined as annual salary divided by the number of employees. Each employee possessing specified knowledge, skills, abilities or working experience should be equally important for its employer, creating its own part of human capital at all. The individual annual salary is taken into consideration as individual human capital investment contributing to overall organisational success.

Company's *business excellence* is measured by BEX index, constructed by [26]. BEX index is based upon [27] Z-score, taking into consideration characteristics of financial reporting in Croatia and specificities of Croatian capital market. BEX index combines four different financial ratios to determine the likelihood of business excellence amongst companies. Generally speaking, the greater the index means the better the overall business excellence of the company. Correspondingly, it is the most appropriate measure of companies' business excellence in accordance with present conditions. BEX index is calculated as:

$$BEX = 0.388 \cdot ex_1 + 0.579 \cdot ex_2 + 0.153 \cdot ex_3 + 0.316 \cdot ex_4 \quad (1)$$

where: ex_1 = EBIT / total assets; ex_2 = net profit / (subscribed capital * price of capital); ex_3 = (current assets - current liabilities) / total assets; ex_4 = 5 x (profit + depreciation + amortization) / total debt.

As it can be seen from the presented formula, BEX evaluates four crucial areas of company's performance. Ex_1 is profitability measure, ex_2 stands for value added measure, ex_3 indicates company's liquidity and ex_4 is the measure of company's financial strength.

In addition, a set of organizational variables is defined, including company's size, ownership and industry sector, in order to explain variations in the level of human capital investments.

Firm size classification into medium-sized or large companies is based on Article 3 of [28] which prescribes the average number of employees during the business year with the boundary level of 250 as one of the classification criterion. Theoretical explanation for expecting a positive relation between company size and level of investment in human resources is that large companies invest more in its human capital because they have developed Human Resource Departments that provide all human resource activities. Besides that, those companies pay greater attention to retaining valuable employees that they had already invested in. On the other hand, substantial proportion of medium-sized Croatian companies have organized Human Resource Departments on the level of Personnel Departments responsible only for hiring and firing people, process of recruitment and selection, compensations and all administrative work regarding employees. Those companies are still not aware of the importance of distinguishing terms of employees and human capital as well of making an effort and investing in the creation of its own human capital.

Ownership as a determinant of differentiating investing in human resources in terms of private or public ownership can be explained in the way that privately-owned companies are more willing to invest in employees' knowledge than state-owned companies. Namely, in the majority of Croatian state-owned companies the employees are used to the type of work that can be described as non-active work. Their employment and work positions are quite safe, as long as they do their necessary tasks. The same situation characterizes employers who provide minimum investments in their employees, not considering them as human capital. That kind of business process is legacy of former system of socialism. On the other hand, privately-owned companies are more aware of the importance and value of their employees. Every day they are becoming more and more conscious that present human investments are investments for their own future benefit and growth. Therefore, it is likely to expect the higher value of human capital investments in privately held companies.

Finally, variable *industry sector* aims to find if the level of human capital investments varies with regard to the main activity of the enterprise. All companies from the sample are assigned to industrial sector according to the intermediate aggregation according to [29]. Further, industrial sectors are classified in two groups - human capital intensive industries and labour intensive industries. Labour intensive industries are agriculture, forestry and fishing, manufactory and construction. Human resources in these sectors are easy replaceable because of their low qualifications and specialization. The rest of sectors are classified as human capital intensive industries, in which intensification of rapidly growing requirements for the company growth puts greater demand on employees who are characterized by their knowledge, skills and abilities as great potential for their individual as well as companies' growth.

V. Research Results and Discussion

In order to test set hypothesis about the relations between human capital investments and business excellence of Croatian companies whose securities are listed on the stock market, correlation coefficients are calculated. Obtained results ($r = 0.262$; p-value $= 0.003$) indicate statistically significant correlations between the level of human capital investments measured by annual salary per employee in company and its overall business excellence. This confirms that higher investments in human capital in the form of extra salaries and bonuses will increase company's excellence measured by BEX index. This kind of results was expected, starting from the literature background and different researches and authors, who provided positive correlation between different facets of human capital investments and companies' performances. Investing in their own human capital, companies ensure their stay in the company.

Additionally, independent two-sample t-test is applied to research the differences in the level of human capital investments with regard to company's specific variables.

Table I presents the results of the test of difference in human resources investments between human capital intensive and labour intensive industry, company's size and ownership.

TABLE I
INDEPENDENT TWO-SAMPLE T-TEST RESULTS

Level of human capital investments (in HRK)	Industry		Size		Ownership	
	Human capital intensive	Labour intensive	Medium	Large	Private - more than 50%	State - more than 50%
Minimum	162	43,144	618	162	162	72,942
Maximum	16,959,033	630,151	16,959,033	279,167	16,959,033	11,572,102
Average	586,249	116,837	613,898	110,120	304,432	769,840
t-test	-1.908		1.643		-0.712	
p-value	0.060[a]		0.100[a]		0.485	

[a] Significant at the 0.10 level (2-tailed)

As it can be seen from the presented results, there is statistically significant difference in level of human capital investments with regard to the industry and company's size, while the level of investment do not statistically significant differ in privately owned and state owned companies.

Results of test of difference in annual salary per employee between human capital and labour intensive industry are consistent with our expectations and previous findings. Namely, human capital intensive companies have higher investments in human resources (annual 586,249 HRK, approx. 77,138 EUR per employee in average) than labour intensive companies (annual 116,837 HRK, approx. 15,373 EUR per employee in average), because highly intellectual capital intensive companies are willing to pay extra salaries for the knowledge of their employees. As previously stated, human capital intensive industries, in accordance to business surrounding requirements as well as rapidly growing technological changes are demanding employees with respectable knowledge, specified skills and abilities and extraordinary working experience. In order to attract and retain these categories of employees employers are willing (and need to) offer their employees adequate salaries and extra bonuses. Creating respectable level of human capital, these companies will be able to reach sustainable competitive growth and advantage in comparison to the main competitors.

The same finding goes to statistically significant difference in annual salary per employee between medium (annual 613,898 HRK, approx. 80,776 EUR per employee in average) and large companies (annual 110,120 HRK, approx. 14,489 EUR per employee in average). This can be explained with the fact that large companies have higher range of different positions, highly specialized in their area. Thus, their salaries range from low to extremely high for extraordinary specialized knowledge, skills and abilities, which results with lower average annual salary per employee than medium size companies. At contrary, latter employ fewer employees with broader level of skills and abilities and as such there is no significant difference within their salaries, so average annual salary per employee is higher than in large companies.

VI. Conclusion

Human resources, especially those with respectable knowledge, specified skills and abilities and extraordinary working experience, which are defined as company's human capital, are crucial factor of each company. Attracting and retaining it's the most important capital, companies are continuously reaching its sustainable growth and competitive advantage.

The main aim of this research was to explore the relations between human capital investments and business excellence of Croatian companies measured by BEX index, taking into consideration characteristics of financial reporting in Croatia and specificities of Croatian capital market. Additionally, the differences in the level of human capital investments with regard to several companies' characteristics, also in accordance to the literature review and similar researches in different parts of the world (e.g. size of the company, ownership and type of the industry) were also researched.

Our findings confirmed the importance of human capital investments in the Croatian market, proving the fact that companies which provide their employees with extra salaries and bonuses will increase company's excellence. This is additional prove for Croatian employers about the importance of human capital investments, securing the retention and further growth and development of their employees in order to reach and keep its market position and secure its continuous growth. Certain specificities, such as greater human capital investments in human capital intensive industries (in accordance to labour intensive industries) and in medium size companies (in accordance to large companies) were shown in this research. Summarizing the findings, it is evident that companies should pay reasonable attention in managing human resources and realizing their importance and impact on company's business excellence as well as their competitive advantage.

Future researches should be oriented toward examination of human capital development and intensification during the years within different industries as well as on the existence of human capital differences and their selective influence on distinct companies' performances instead of overall business excellence.

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