

Intellectual Capital and Firm Performance: evidence from Jordan

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Abstract:

Firms rely on two main resources to increase profits, create value and generate competitive advantage, these two resources are physical asset and, which show financial indicator. This study aims to examine the relationship between intellectual capital and performance indicators. To estimate the firm performance, the balance scorecard method was used. The data collected through questionnaires. SPSS program was used for analyses study data. This study found a significant positive relationship between intangible asset intellectual capital and financial performance, firm's customers, business processes and growth and learning.

Key words: intellectual capital; firm performance; intangible asset; balance scorecard; performance indicators; Jordan.

1. Introduction

During time, the economy in all countries is shifted towards industrialization depend on the data. Information and economy play a vital role, which lead to develop, manage and knowledge to increase profits. Usually, the additional value introduced by information source entitled intellectual capital (Guthrie et. al, 2012). Modern firms are shifting towards knowledge-based

economy, intangible assets and modern are the most important factors that create the firms competitive advantage. The intangible assets play a vital role in the firm's success, which generate a new field of management study. Intellectual capital is one of the most vital assets that have been studied in intangible assets field. Effective control and manage for the intellectual capital lead to increase productivity and firms' performance. Investing in intellectual capital will lead to create value and generate competitive advantage (Costa, 2012). Thus, determine, identification, measurement and management of intellectual capital have vital significance. Intellectual capital includes non-communication and non-monetary resources that are monitored by the firms that lead to increase the firm value (Ross et. al, 2005).

Intellectual capital grows fast in the field of science and knowledge. John kenneth 1969 was the first person that introduced the intellectual capital term. Also Peter Drucker used the term "knowledge worker" instead of intellectual capital. There are many different definitions of intellectual capital. Intellectual capital is a process and assets which are usually not reflected in the financial statements. Intellectual capital measurement has two vital respects. First, the firm has ideal objective by allocating resources to reduce costs and increase firm's efficiency. Second, the firm's objective is to access to information about existing and potential firms resources to expect the future growth and long-run planning. Abeysekera, (2011) show that intellectual capital is an effective tool to expect the firm's performance.

Modern economy used intellectual capital to increase the firm's value, furthermore, the firm's success relies on the ability to control and manage the firm's assets. Thus, to compare different firm's performance, intellectual capital measurement is assumed as a vital tool. Moreover, intellectual capital is used to test innovation, efficiency, creativity, and create value. Intellectual capital advantages provide investors and potential

resources with expertise, knowledge and operational strategy in order to develop firm's performance (Abdullah and Sofian, 2012). In current accounting systems can measure the actual value of intangible assets. This study is relies on the knowledge involved in financial statements. The main objective of this study is to examine the methods that increase the financial performance depending on the intellectual capital, to test the relationship between intellectual capital and firms' performance in Jordanian listed firms, the researcher used the value added intellectual capital coefficient factor.

2. Literature Review and Hypothesis Development

Intellectual capital is "holistic or meta-level capability of an enterprise to co-ordinate, orchestrate and deploy its knowledge resources to create value in pursuit of its future vision" (Rastogi, 2003). According to this definition the intellectual capital shows the strategic management community's and current study viewpoint that intangible asset affects firm performance (Carmel, 2003; Heeks and Nicholson, 2002; Seleim et al., 2007). The intangible resources consist three groups, the first group includes the potential future success like (competencies, skills, expertise, professional experience, motivation, commitment and relationships), while the second group is encompasses or organizational business routines like: (methods, protected knowledge, processes, concepts, rules, information techniques and infrastructure), the last group is embedded in the environment like: (customers, culture, research institutes, suppliers, stakeholders and society) (Auer, 2004). Some researchers classify these three groups to human capital, structural capital and relational capital (Ashour, 2000; Bontis, 1998; Bontis, 1999; and Sveiby, 1997). Guthrie and Petty (2000) provide other classification as human capital, internal structure, and external structure.

Wagiciengo and Belal (2012) examine the intellectual capital disclosures for South African firms. The main objectives of their study is testing the nature and extent of intellectual capital disclosures in the top 20 firms during the period (2002-2006). The study frond that intellectual capital disclosures in South African have rapidly increased during the study period. Through the different categories of intellectual capital the study found that human capital is the most popular category.

Mohammed, Youngsun and Junghoon (2012) investigate factors instrumental to the success of software industries of the 3I Nations (India, Ireland and Israel), they examine the relationship between the elements, and explores performance of West African software companies. The study is based on multiple theoretical concepts prospects for developing a model to evaluate the relationship between intellectual capital software business and performance. The developed model was validated experimentally in a field survey of 83 software companies in West Africa using the method of least partial squares. The survey Results show a significant relationship between the elements of intellectual capital and competitive capacity of businesses and between competitive ability and performance of the company. Mixed results have been found on the moderating effects of the commitment of management and transformational leadership. The findings provide important implications for researchers, policy makers, software developers and other market players, while contributing to the knowledge of strategic management and strategic importance intellectual capital.

Ramezan (2011) examine the association among organizational organic structure and intellectual capital improvement. He found that the organic structure and intellectual capital have a strong association, but this relationship has not been tested methodologically. The finding supports the view that organic structure has a positive effect on intellectual capital. Moreover, the organic structure can develop

intellectual capital in the organization. The study supports managers to design flexible and dynamic organizational structures to improve the intellectual capital in the organization and increase the ability to compete.

According to the previous discussion, we suggest the following hypothesis:

H1: there is a positive relationship between intellectual capital and firm's performance.

H1A: there is a positive relationship between intellectual capital and financial performance.

H1B: there is a positive relationship between intellectual capital and firm's customers.

H1C: there is a positive relationship between intellectual capital and business processes.

H1D: there is a positive relationship between intellectual capital and growth and learning.

3. Intellectual Capital

Business complexity and economic circumstances have concentrated the competitive challenges that firms faced. Furthermore, economic system and stability rely on the physical assets and intangible assets. Thus, when knowledge assumed as a strategic resource in the firms, intellectual capital play a vital role in developing the firm's competitive advantage. Until now, intangible assets still are not studying deeply. Thus, studies in intellectual capital as part of an intangible asset is rapidly increased. Moreover, intellectual capital is a dynamic system of intangible assets existing in firms, thus, effective management is assured for the firms, side by side with physical capital as a competitive advantage that generate value for the firm (Veltri, et. al, 2011).

Intellectual capital consists three general parts: capital structure, capital customer and capital people oriented. Hence, intellectual capital can be found in all three parts, including

human, structural and customer capital investment is also named communication. The major importance of human capital is the skill set that the employee increased through education and experience in career path and give value to the firms. Organizational members include in two groups, managers and employees. The different roles have different effect on the firm. Conversely, structural fund's purpose is to offer the circumstances of developing firm's performance based on competition and knowledge. Moreover, capital structure consists organizational culture, structure, training and operational flow. Finally, the capital structure is interested in the relationship between the firm and its customer. Communications' capital assumed as the mechanism for converting structural capital into value. Communicational capital consists customers, customer loyalty and distribution channels (Shih et. al, 2011).

4. Balance Score Card

The balanced scorecard is assumed as an appraisal method to measure performance, which measure the firm's efficiency to improve its strategies. A balance score card easy to offer complex business information to managers at a suitable time and improve the decision-making. Nevertheless, balance score card original not include any objective methodology, and when the researchers assumed the balance score card as a framework within several measures, the ability of managers to understand a huge information becomes restricted.

The Balanced Scorecard focuses on a critical case of modern business, to measure corporate performance effectively and evaluate the successful implementation of the firm's strategy. in spite of increasing in adoption of balance score card by many firms during the past period, specific case studies interests not-profit firms like: (public sector, educational

institutions, healthcare organizations) (Grigoroudis et al., 2012).

Kaplan and Norton in 1992, assumed as the first generated the balanced scorecard method including: learning and growth perspective, internal process perspective, customer perspective, and financial perspective (Kaplan & Norton, 2006). The balance score card includes four management processes that used together or separately, which help to connect long-run strategic goals with short-run actions. Many firms have adopted balance score card, which meets most of management requirements, and clarify long-run strategic goals and the mechanisms to attain feedback regarding those objectives (Huang et al, 2011).

5. Methodology

5.1. Sample and Data Collection

The study examines the relationship between intellectual capital and firm performance of all firms listed on an Amman stock exchange except the financial sector during the period 2009-2013. The data used were collected from the questionnaires and secondary sources. Different key informants were used for collecting survey information for the intellectual and firm's performance. Moreover, intellectual capital and balance score data were developed rely on questionnaire with the staff and operational manager. A questionnaire was based on Likert, this study used the questionnaire to collect quantitative and qualitative data required for the study.

5.2. Conceptual model

This study aims to examine the relationship between intellectual capital and firms' performance, figure 1 show the conceptual framework, which include the independent variable (intellectual capital) include: human capital, structural capital and relational capital, and dependent variable (firm's

performance) like: financial performance, Firm's customer, business processes and learning and grow.

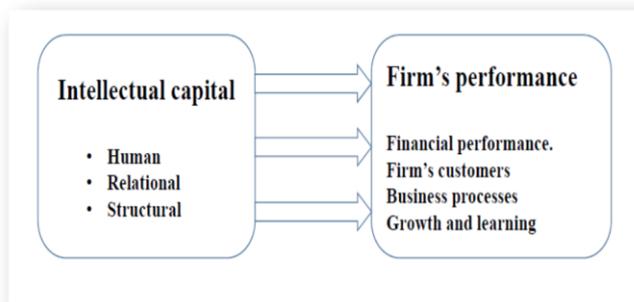


Figure 1: show the conceptual framework

6. Empirical Result and Discussion

Table 1 shows the fit indices for the model used in this study, GFI index the comparative amount of covariance and variance of the combined through model evaluation. The standard GFI scope is between 0-1. GFI should be $\geq 90\%$. The indicator value for all hypothesis was higher than 90%, it gives high evidence that the study model fit index is high. This study use CsFI indicator which compares the fit of the target model to the fit of and independent model, fit refers to the difference between the observed and predict covariance matrices. This indicator should also be $\geq 90\%$. We note that the indicator value for all hypothesis was higher than 90%, this research also used RMSEA indicator, which explain the root mean square calculation. The standard RMSEA should be less than 5%, we note all hypothesis less than 5%. The model becomes more efficient when CR is > 2 .

The main hypothesis suggest that there is a positive relationship between intellectual capital and firm's performance. Table 1 shows that CR was equal to 7.312 and P value equal to zero. The result that the main hypothesis that the impact of intellectual capital on performance models of

verification error is 0.007 and appear that intellectual capital has a positive impact on performance. Also, we note that all hypotheses are accepted.

Table 1 show the hypothesis analysis

Hypothesis	Standards estimate	SE	Indices			CR
			GFI	CFI	RMSEA	
H1	1.523	0.211	0.957	0.998	0.007***	7.312
H2	1.204	0.167	0.931	0.989	0.009***	6.981
H3	0.978	0.136	0.998	0.981	0.078***	7.099
H4	1.083	1.248	0.958	0.995	0.025***	7.976
H5	1.471	0.208	0.952	0.959	0.019***	6.897

Table 2 shows that hypothesis H1A, H1B, H1C and H1D also have different effect of each dimension. We note that business processes have the highest correlation between all dimensions, followed by growth and learning, firm’s customers and finally, financial performance has the lowest impact. Table 2 appear that the model used is accepted and approved. Also shows that is a positive relationship for all sub-hypothesis, also weighted regression shows that the model is a positive and significant correlation at high level.

Table 2 shows indices regression

Variable	Financial performance	Firm’s customers	Business processes	Growth and learning
Regression	0.78	0.82	0.94	0.86

7. Conclusions

Intangible asset contain items intellectual as one of the most important factors that affect all the worldwide economy. The firm’s which rely on intellectual capital have a competitive advantage. This study found that firm’s performance increase as when the intellectual capital in the firms increased. To examine the firms’ performance of the balance scorecard method relies on the results of all research variables of intellectual capital, financial performance, firm’s customers,

business processes and growth and learning are a positive and significant association. Furthermore, intellectual capital in the firm relies on all intellectual variables together, and one intellectual variable doesn't create intellectual capital in the firm. Thus, to develop the financial performance the firms should pay enough attention. This study focus on the significant role of intellectual capital on firm's performance, thus, it's vital for firms to pay more attention for its internal capabilities and resources.

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