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EFFECTS OF INTELLECTUAL CAPITAL INFORMATION DISCLOSURE ON MARKET CAPITALIZATION: EVIDENCE FROM PAKISTAN

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ABSTRACT

This study has been conducted to determine the effects of intellectual capital information disclosed in annual reports on market capitalization of the KSE-listed companies. The current study is the first of its kind in the context of Pakistan. We hereby tested the effects of IC information disclosure against the Market Capitalization of selected firms along with other explanatory variables with well-established and long standing economic theory. Utilizing panel data for three years for a sample of 30 listed companies on KSE-100 Index under the panel regression model along with Fixed Effects and Random Effects over the period of 2010-2012. The findings from this study are very promising and conclude that in the case of Pakistan IC information disclosure does significantly and positively affect the market capitalization of the firms under consideration. Hence it is imperative for the firms to disclose maximum IC information to the general public to boost and obtain more friendly investor confidence which will be observed in the form of high prices and resultantly higher market capitalization accordingly.

Keywords: Intellectual Capital Information Disclosure, Market Capitalization, Karachi Stock Exchange.

INTRODUCTION

Intangible assets have gained much more importance in the corporate development and wealth maximization. It has become a common phenomenon in the corporate world that along with assets such as machineries and plants, the innovation, creativity, improved technology and processes, employees' knowledge and skills are also necessary elements to achieve success and competitiveness. Future conscious firms have realized that value can also be achieved through the intangibles which are not recorded in the annual reports. Such intangible value creating assets are known as IC (intellectual capital). Or in the words, of Jelčić, (2007), intangible assets or intangible business factors of the firm that have influences on the firms' performance are called the intellectual capital. On a technical note, (Sveiby, 1997) has divided the intellectual capital into the following three categories as;

Internal structure:

In this group the elements are usually brought in by the employees or created (e.g. model research and development, patents, computer and administrative structures, and

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concepts). These intangible elements of internal structure can be replaced or it can be further decided to invest in.

External structure:

A company's brand names, reputation or image, customers and suppliers, and trademarks are included in the group of external structure.

External structure (Employee competence):

Employee competence includes the individual skills, values, education, experience, training, and so forth. Employee competence needs the capability to generate both physical and non-physical assets in a broad range of circumstances.

Similarly (Bloomfield & Wilks, 2000: Mangena, Pike, and Li, 2010) argue that, a higher disclosure of IC contributes to higher trading price of the stocks by investors, allowing more liquidity for the company. Investors estimate their return on the basis of disclosed information and more disclosure brings better estimation of returns for the stocks, (Mangena et al., 2010). This reveals that the market gives importance to the information that is useful (Hassan et al. 2010: 2011) among others. Similarly firms which have higher IC disclosure in their annual financial statements have increased prices before their public offering (Lang & Lundholm, 2000). However, firms which have higher disclosure of IC faces very little decay in prices at the time of offering relative to the firm that has controlled or limited disclosure (Abdolmohammadi, 2005). Abdolmohammadi (2005) further argues that considerably expanding disclosure of IC improves the value of stocks and decreases the incorrect valuation of companies' share prices, in this way augmenting the findings of (Bloomfield and Wilks, 2000) that a higher level of disclosure of IC contributes to higher stock price.

Given such an immense implications of IC disclosure for the stockholders as well as the management and board members, this research is particularly designed to determine the role of IC information disclosure affecting the firm's market capitalization. Our aim is to know if the IC disclosure has any influence on market capitalization of Pakistani firms. There has been very limited number of research conducted to find the relationship of intellectual capital disclosure with market capitalization. However, in Pakistan no such research has been found that specifically determines the relationship between market capitalization and intellectual capital to the best of our knowledge. This study would be the first of its kind to fill this gap. However, the studies that have been conducted elsewhere have concluded a positive impact of IC disclosure on the market capitalization. Some of the notable studies in this regards among others are; (Abdolmohammadi, 2005), (Orens, Aerts, & Lybaert, 2009), (Anam, Fatima, & Majdi, 2011), (Abeysekera, 2011), and (Uyarand Kiliç, 2012).

The main objective of this study is determining the importance of the voluntary information disclosure in annual reports by the firms in Pakistan. Furthermore determining if intangible assets disclosure in annual reports has any impact on the valuation of the company? This will shed light to facilitate the management, investors, and regulatory authorities to formulate a policy framework to implement for the voluntary disclosure of the intellectual capital.

LITERATURE REVIEW

The intellectual capital is one of the sources for the value creation of a corporation in the financial markets, while traditional accounting has failed to disclose these most important resources of the business (Jihene, 2013). For the reason being that voluntary disclosure has an important role in reducing information asymmetry between shareholders, managers, and foreign and local investors (Uyar & Kiliç, 2012). Similarly (Vergauwen & Alem, 2005) states it is the right of the shareholder to know about the information that has any effect on the organization's performance and activities, most importantly, because they do not possess the authority to obtain the information through private meetings (Holland, 2001).

However on a technical note, (Vu, Tower, & Scully, 2011) points out that there are different levels of voluntary disclosure of IC, and observes that developed market economies have higher level of voluntary disclosure than emerging markets.

However, regarding the scope of this study, there have been very few studies conducted to discover the effect of intellectual capital information disclosure on market capitalization. Among these some of the notable studies include among others; (Abdolmohammadi, 2005), (Orens et al., 2009), (Anam et al., 2011), (Abeysekera, 2011), and (Uyarand Kiliç, 2012). All these studies have shown a positive relationship of IC disclosure with market capitalization. As (Anam et al. 2011) points out that IC associated activities are important elements of a firm's value, and (these values) contribute to the market capitalization of the firm. They further suggest that for the improvement in the market capitalization, a firm is expected to disclose these values supplement their market capitalization and enhance shareholders' value.

Abdolmohammadi (2005) on the other hand adopted a relatively holistic approach and conducted a study to find the impact IC disclosure on market capitalization of US firms by selecting a sample of 58 firms from Fortune 500 over the period of 1993-1997. The findings show potential benefits for a company than the costs by more disclosure of intellectual capital in the annual reports. Similarly, Orens et al.(2009) in their study to examine the internal-IC's disclosure impact on firms' value. By taking samples of four continental European countries' (Germany, France, The Netherlands, and Belgium) for 267 firms and designing a 42 items IC disclosure index (across three classes of IC: customer value, human capital, and internal capital). They found a positive significant relationship in their findings.

Similarly, other studies conducted on intellectual capital disclosure, such as (Bozzolan et al., 2003), (Oliveira, Rodrigues, & Craig, 2006), and also (Yau, Chun, & Balaraman, 2009) have found that intellectual capital disclosure has a significant association with firm size and industry type. However, in contrast, insignificant relationship have been found with firm size, but significant relationship with industry type, in (Williams, 2001) and (Bukh, Nielsen, Gormsen, & Mouritsen, 2005). Similarly, significant relationship has also been found with leverage in (White, Lee, & Tower, 2007). Yet in some studies like (Oliveira et al., 2006) and (Whiting & Woodcock, 2011) have found insignificant relationship with leverage. Additionally, (Oliveira et al., 2006), (Yau et al., 2009) and (Whiting & Woodcock, 2011) have found insignificant relationship of profitability with the IC disclosure. Similarly, (Wang, 2008) conducted a study to find out the relationship between market value of US Standard & Poor's 500 and IC. The researcher took the sample of publicly traded electronic firms for the years 1996 to 2005 and found, by using multiple regression model, positive relationship between market value and IC.

While documenting the Australian experience (Guthrie & Petty, 2000) took a sample of 20 top Australian firms in terms of market capitalization and performed content analysis method to measure the extent of disclosure of IC in annual reports. They considered three classes of IC which were internal capital, external capital, and human capital. A 24 items index was formed and came up with the findings that: first, the components of intellectual capital were not consistently disclosed. Second, workplace and organizational structure; intellectual property rights, and technology; and human resources were the main focus of IC reporting. Third, no mutually applied structure had been found for disclosing of intellectual capital in Australian firms and accounting profession. On a separate note, Industry type has a very important role in determining the disclosure of intellectual capital, and firm size also has the contribution as a determinant of IC disclosure (Brüggen, Vergauwen, & Dao, 2009). In their study, they used a sample for three years from 2002 to 2004 for 125 Australian companies. A 38 items IC disclosure index was used for content analysis. They also found that structure capital comprises a 92 percent disclosure.

Similarly a number of researches were conducted to document the evidence of various other countries like, (Brennan, 2001) who later used the same 24 informational items of the three categories of IC as were used by (Guthrie & Petty, 2000). The study was conducted taking samples of 11 Irish knowledge-based firms from the annual reports of the year 1997 and 1998. She found that the IC disclosure level of these 11 firms is very low and if it is reported somehow then it's in qualitative terms. These firms are not making progress in increasing the disclosure of IC. Whereas, (Williams, 2001) had found a consistently more disclosure of IC for UK listed firms. On the other hand (Bontis, 2002) conducted a study taking 10,000 annual reports of Canadian firms. He found that Canadian firms IC disclosure level is lower than UK counterparts. Yet again on another European front, (Bozzolan et al., 2003) conducted a study by taking sample of 30 firms' annual reports in Italian Stock Exchange for the year 2001 by adopting the same method as (Guthrie & Petty, 2000) and found that 30 percent of internal structure, 49 percent of external structure, and 21 percent of human capital items has been disclosed. With the most disclosure of external structure it was found that industry and size are the most relevant factor in determining the disclosing behavior of the Italian firms.

From the African soil, (April, Bosma, & Deglon, 2003) took a sample of top 20 companies in mining industry of South Africa to examine the IC measurement, reporting and management of the industry by content analysis and interviews. Again the 24 items index was used as the indicator of IC disclosure across the three categories of intellectual capital. The outcomes were that the companies tend to be on the lower disclosure level of IC than other industries' firms.

Similarly the Asian experience in this regard is noth only scarcely investigated but aslo produced mixed results. For instance, (Abeysekera & Guthrie, 2005) investigated the disclosure of IC in Sri Lanka by taking a sample of top 30 companies, in terms of market capitalization for the years of 1998 and 1999. A 45 items IC disclosure framework was used and found that the highest level of disclosed category in Sri Lankan firm is the external capital, which is not the same as other countries. Abeysekera (2008) later on conducted a comparative study between Sri Lank and Singapore to find the disclosure trends between these two countries and found that the IC disclosure trends are not the same in these two countries. The study further suggested for a specific method to bring

consistency in reporting for the IC disclosure patterns.

Another emerging economy's experience whas documented by (Kamath, 2008) who conducted a study to observe the degree of IC disclosure, and the relationship of IC disclosure and firm size, in the emerging communication, information, and technology sector of India. Kamath (2008) applied content analysis of annual reports of 30 companies listed in Bombay Stock Exchange, for one financial year. The study found no correlation among the disclosure and the firm size. Overall findings suggested that the information technology industries have the highest level of disclosure followed by telecommunication industry. However the least disclosure was shown by the entertainment industry. Similarly (Yau et al., 2009) conducted a study to observe the nature and degree of IC disclosure of Malaysian firms. Using the content analysis method for 60 firms (top 30 and bottom 30 in terms of market capitalization).The researcher found that the IC disclosure is not extensive among Malaysian firms. They also found that the behavior for the IC disclosure may be influenced by the both economic and non-economic rationale.

A trend of not disclosing IC in the annual reports in spite of the upward trend of stock exchange during a recession period is observed in the findings of (Nurunnabi, Hossain, & Hossain, 2011). Using the content analysis for 90 listed firms in Bangladesh to examine the practices of IC disclosures of non-financial firms for 2008-2009. A weighted disclosure index and ordinary least square methods were used to analyze the association among firms' attributes and IC disclosure level. The study also reveals that the size and industry have an important role in disclosing the IC information of the firms in Bangladesh. However, in Bangladesh the firms tend to have a low level disclosure of IC.

Similarly, (Singh & Kansal, 2011) conducted a study to find the inter-firm IC disclosure and its variation in pharmaceutical industry of India. By taking a sample of top 20 companies from the Ludhiana Stock Exchange for the year 2009, they used a Modified Intangible Asset Monitor, which was used by (Guthrie & Petty, 2000), (Brennan, 2001), and (Bozzolan et al., 2003) to obtain the variables of IC disclosure. The findings suggested that the IC disclosure level was minor, narrative, and it has a significantly varying trend between the firms. It further said that insignificant, weak, and negative correlation had been found between intellectual capital valuation and disclosure.

Within the extent of Pakistani literature, very limited studies have been conducted on the issue of intellectual capital (only in the performance perspective), such as (Lodhi, Rahman, & Makki, 2008), (Shaari, Khalique, & Isa, 2011), and (Rehman et al., 2011). However, these studies have not extended to find the IC disclosures impact on market capitalization of a firm and the current study can be considered as the first to find the impact of the IC information disclosure on market capitalization.

Research Hypothesis:

It was hypothesized in this study that intellectual capital information disclosure is having a positive effect on the market capitalization of the firms.

RESEARCH METHODS

Data and specifications:

In this study we utilize annual panel data gathered from the annual reports of non-

financial firms listed on the KSE-100 Index and from the annual statements of the companies under consideration. The sampling or the firms selected in this study are based on the high market capitalization. In this way a total of 30 top firms or 30 firms with highest market capitalization were selected from the KSE-100 index over the period of 2010-2012. This was used first to avoid the effects the year 2008 when Karachi Stock Market witnessed a major financial crisis and remained closed for sometimes as a result of the global financial crisis. The second reason was to take into account the most recent trend about the phenomenon under study.

Market Capitalization: in this study is taken in the standard form as the price of the share traded in the market multiplied by the number of total shares of a company being traded in the market.

IC Information: The level of intellectual capital information disclosure of the firms, measured by a 24-items index which is a revised form of Karl Erik Sveiby's intangible asset monitor, used by (Petty & Guthrie, 2000), (Brennan, 2001), and (Bozzolan, Favotto, & Ricceri (2003). Dichotomous approach was used for data compilation of IC disclosure in annual reports and constructed an index of IC based on values ranging from 1 to 24 with 1 indicating the least IC disclosure and 24 the most. Presence of an index-item in the annual report of a company in a particular year would be scored '1' and so on.

The dependent variable (market capitalization) was calculated from two different sources. First, the data for the number of outstanding shares were collected from annual statements. Secondly, the share prices for the end of accounting year for each company were collected from the data portal of Karachi Stock Exchange. Next, the number of outstanding shares and shares price were multiplied to obtain the market capitalization. The data for other explanatory variables has been extracted from the annual statements of the companies under study and from the State Bank of Pakistan (SBP)'s report on "Financial Statement Analysis of Non-Financial Sector" and defined as;

Book Value: Total assets minus Total liabilities.

Net Profit: Net profit at the end of year.

Firm Size: Total assets of the company.

Leverage: Ratio of total liabilities to shareholders' equity.

Research Model Developed:

The final variables in this study are supplemented into the following model;

$$MK_{it} = \beta_1 IC_{it} + \beta_2 LEV_{it} + \beta_3 BV_{it} + \beta_4 NP_{it} + \beta_5 SIZ_{it} + \varepsilon_{it} \quad \ldots(1)$$

Where:

MK=	Represents Market capitalization
IC =	Intellectual capital information disclosure
BV=	Book value
NP=	Net profit
SIZ=	Firm size
LEV=	Leverage
εit=	the stochastic disturbance or error term.

Where the subscripts it represents the measure for firm i at time t. The convention purpose is to let i denote the cross section effects and t for the time identifier. The above equation (1) is a balanced panel regression approach and is estimated accordingly to obtain the common effects. In the event when there is the same amount of time series observations in each cross sectional unit, such panel system is called as Balanced Panel. Furthermore considering a simple case of panel data with possibly a disregard for space and time dimensions, in such ways the resultant model will have constant coefficients both in terms of intercepts and slopes. In other words we are simply saying that there is neither significant space (firm) nor temporal (time) effects. In such case scenarios we can pool all the data and just estimate usual OLS regression to capture the common effects among the variables in the model. The resultant estimation is usually done with the whole sample that is (nxt) and coincides with the ordinary least square estimation (Gujarati, 2004).

However a common risk associated with relying only on the OLS is that the coefficients might be correlated with the error term—there will be some form of Endogeneity, thus making the estimated coefficients a bit unbiased and we might lose the potential opportunity to get rid of the unobserved fixed and random effects. Hence in order to deal with panel and cross sectional specifications, these two issues of Heterogeneity bias and the Endogeneity needs to be considered. To care for the unmodeled heterogeneity and endogeneity within our parameters, the following Fixed Effect and Random Effect models have been expressed;

A simple Fixed Effect model can be represented as;

$$y_{it} = \alpha_i + X_{it}\beta + \varepsilon_{it} \qquad \ldots (2)$$

Similarly a Random Effect relationship can be modeled as;

$$y_{it} = \mu + \alpha_i + X_{it}\beta + \varepsilon_{it} \qquad \ldots (3)$$

The efficiency of the above models are tested under the Haussmann Test and the LM (Lagrange Multiplier) as model selection tools to test the appropriateness of our models that whether FE or RE will yield efficient and robust estimators in our case.

Empirical Results

In this study Panel Regression analysis along with Fixed and Random effects is conducted for the years 2010 to 2012and the empirical findings of the relationship between market capitalization and intellectual capital information disclosure of KSE-listed firms are reported in Table-I . Below;

Variables	Common Effect	Random Effect	Fixed Effect
Intercept	10.31880	9.247381	8.337674
	(7.435480)*	(4.944492)*	(2.480031)*
IC	0.394856	0.137959	0.130253
	(3.293347)*	(2.135734)**	(1.795815)***
LEV	-0.255644	-0.050830	-0.019893
	(-1.552005)	(-0.614147)	(-0.228143)
BV	-0.108730	0.813420	1.103677
	(-0.268579)	(2.807091)*	(3.062454)*
NP	0.646374	0.342743	0.283600
	(6.715518)*	(6.537986)*	(4.968537)*

Variables	Common Effect	Random Effect	Fixed Effect
SIZ	0.284664	0.251916	-0.410327
	(0.752433)	(-0.911518)	(-1.146392)
R^2	0.797432	0.703776	0.460065
Adj. R^2	0.782537	0.681995	0.427310
F-Statistic	53.53789*	32.31120*	127.6758*
Hausman Test	14.417337*	**LM Test**	29.441602*
	(0.0132)		(0.0000)

Table-I: Summary of regression results. Where * and ** mean significant at 1 and 5% levels. T-Statistic in parentheses.

The summary of results for our regression models are presented in Table-I which exhibits that the explanatory variables are able to determine the Market Capitalization for the firms under consideration in the case Pakistan as to be about 78 % under the common effect model, 68% under Random Effects and 42% under the Fixed Effect model as indicated by the adjusted R2, the coefficient of determination implying a healthy fit for our models. These values are quietly sufficient and healthy for a small sample like in this study.

The results presented in the table above represent that the estimated coefficient of IC that is the main variable of interest is statistically significantly different from zero with the expected sign in all of the three models, implying that IC is significantly and positively contributing towards the market capitalization of the firms under study for about 0.39% in the case of common effect model and 0.13% both in the cases of RE and FE models. The positive sign implies that with increasing disclosure of IC information, firms will experience increase in market capitalization accordingly.

Similarly Net Profit turns out to be another major determinant of market capitalization for the non-financial Pakistani firms as shown to be significantly and positively impacting market capitalization for about 0.64%, 0.32% and 0.28% in the case of common effect, FE and RE respectively. Furthermore Book Value is found to be significantly and positive contributing to market capitalization for 0.81% and 1.1% in the case of FE and RE models, however the same is found to be insignificant in common effect model. Other explanatory variables of Size and Leverage turns out to be statistically insignificant in all the three models, hence losing any further significance in explaining market capitalization for the non-financial firms in the case of Pakistan.

Finally as per as the model selection is concerned, both the Hausman and LM tests turns out to be significant, where the LM is significant in favor of FE model while the Hausman is significant in favor of RE model. However judging from the estimated coefficients and the overall models, all the three models produce relatively consistent results. It is quite reasonable to report the results of all the three models for fair judgment and assessment of a remarkably consistent model.

Discussions and Conclusions

There have been very few studies to find the association of intellectual capital information disclosure with market capitalization. After extensive literature review regarding the research studies of intellectual capital it was observed that intellectual capital does have a positive and significant impact on market capitalization. However

most of these studies were conducted in advanced and developed countries. It further came to the knowledge during the research that no significant study was conducted in the developing countries on the problem under consideration. For instance (Abdolmohammadi, 2005), (Anam et al., 2011) and (Uyar and Kiliç, 2012) are the major studies found on this subject. All of these studies have found a positive impact of intellectual capital information disclosure on market capitalization. Likewise our findings in this study augment and are in line with the findings of these studies.

Motivated by the fact that developing countries have not yet fully adopted the importance of human resources and skills or intellectual capital as it has been done in developed countries. Now, the investors, managers, and regulators have more understanding of the fact that intellectual capital has significance for any company and that it also enhances the performance of the firm with more profitability and higher share prices. However, the investors and managers have yet not fully understood the importance or scope of intellectual capital regarding the performance of a firm. This could be one of the reasons that intellectual capital information disclosure had not gained importance in earlier years in Pakistani firms.

The current study is the first of its kind in the context of Pakistan. We hereby tested the effects of IC information disclosure against the Market Capitalization of selected firms along with some other explanatory variables with well-established and long standing economic theory. The findings from this study endorses the findings of the previous studies and concludes that in the case of Pakistan IC information disclosure does significantly and positively affect the market capitalization of the firms under consideration. Hence it is imperative for the firms to disclose maximum IC information to the general public to boost and obtain more friendly investor confidence which will be observed in the form of high prices and resultantly higher market capitalization accordingly.

Policy Implications

The finding of this study renders crucial implications for managers, investors, and regulatory bodies related with Karachi Stock Exchange-listed companies. The managers, with more disclosure of the IC information in their annual reports, would let the public know about the company more and allow them to be informed how managers manage the company. The public and investors would value more to the information disclosure and eventually this would affect the market capitalization of the company as a result of higher stock prices. The voluntary disclosure would motivate investors towards investing in the company and managers should continue doing so. The transparency would tell the investors about the management of the company and would lead to a positive influence on share price. And finally the regulatory bodies have a very important implication towards the disclosure of more IC information disclosure and directing the companies in doing so. They can play the most important role in the policy implication for intellectual capital information disclosure by formulating guidelines.

This study has its limitations as most of the studies do. This study used only 30 companies' data for only three years (e.g. 2010, 2011, and 2012). The number of companies and number of years for the study can be increased. A higher number of intellectual capital items-index could be developed to further deepen the measurement of the intellectual capital disclosure. The future researches can use time series analysis and more control variables for a more explainable market capitalization. In spite of all these limitations in the study, it is hoped there would be more studies conducted in this

field with more motivating results to implement the voluntary disclosure of intellectual capital information.

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