An Empirical Investigation of the Impact of Intellectual Capital on Firms' Market Value and Financial Performance: Evidence from Iranian Companies

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ABSTRACT: In modern economics, Intellectual capital is described as an intangible asset which can be used as a source of sustainable competitive advantage. However, intellectual capital components have to interact with each other to create value. The paper aimed at examining the impact of intellectual capital on the market value and the financial performance of the firms. The efficiency of the value added by corporate intellectual ability (Value Added Intellectual Coefficient) was incorporated to measure the intellectual capital construct. The analyses were performed using data derived from the financial statements of 28 firms listed on the Tehran Stock Exchange (TSE) during a four-year period from 2006 to 2009. Correlation and Ordinary Least Square (OLS) regressions have been carried out on panel data to check the impact of intellectual capital on firms' market value and financial performance. While the findings of the study failed to support most of the hypotheses it was shown that there was a statistically significant relationship between structure capital efficiency and financial performance (ROE, ROA). Despite the fact that intellectual capital has increasingly been recognized as an important strategic asset for sustainable corporate competitive advantages, the results of the present study raised new arguments and indicated the need for further research on the subject.

Keywords: *Intellectual capital, Market value, Book value, Financial performance, Tehran Stock Exchange*

INTRODUCTION

Intellectual Capital (IC) that can be briefly defined as the knowledge based equity of organizations has attracted a significant amount of practical interest during the last decade (Petty and Guthrie, 2000; Campisi and Costa, 2008). Although the importance of IC has constantly been increasing in these years there are still many organizations which face problems with its management mostly due to the measurement difficulties (Andrikopoulos, 2005; Nazari and Herremans, 2007; Kim et al., 2009).

The widespread acceptance of IC as a source of competitive advantage led to the development of appropriate methods of measurement as traditional financial tools were not able to capture all of its aspects (Nazari and Herremans, 2007; Campisi and Costa, 2008).

Pulic (2000a, 2000b) developed the most popular measurement method of the efficiency of value added through corporate intellectual ability (Value Added Intellectual Coefficient – VAIC). VAIC measures the efficiency of three types of inputs: physical and financial capital, human capital, and structural capital (Firer and Williams, 2003; Montequin et al. 2006; Public, 2000a, 2000b).

The main objective of the present study is to examine the relationship between intellectual capital, market value and financial performance. The methodology for the measurement of intellectual capital is applied on the basis of the studies done by Firer and Williams (2003) and

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Chen et al. (2005).

The empirical investigation was conducted using data drawn from a panel consisting of 28 Iranian companies listed in the Tehran Stock Exchange (TSE), from Vehicles and Parts Manufacturing sector (between the years 2006 to 2009). Moreover, based on the aforementioned VAIC methodology, the present study analytically examines the separate effects of capital employed efficiency, human capital efficiency, and structural capital efficiency on market value and financial performance.

The following section includes a short literature review concerning the main variables of the study. The proposed conceptual framework and the research methodology are being presented in sections three and four. The results and conclusions are discussed in the sections 5 and 6 respectively.

Literature Review

The term intellectual capital includes inventions, ideas, general knowledge, design approaches, computer programs and publications. An ex-editor of the business magazine "Fortune", Thomas Stewart describes intellectual capital as "something that cannot be touched, although it slowly makes you rich". Jacob Ben- Simchon, (2005) uses the term 'intellectual capital' to enclose all of the non-tangible or non-physical assets and resources of an organization, as well as its practices, patents and the implicit knowledge of its members and their network of partners and contracts. Stewart (1997) defines it as 'packaged useful knowledge', Sullivan (2000) as 'knowledge that can be converted into profit', Roos et al (1997) as the 'sum of knowledge' of its members and practical translation of this knowledge into brands, trademarks and processes.

One of the most popular models for classifying intellectual capital(IC) is developed by Saint- Onge, H. (1996) in the early 1990s. It divides intellectual capital into three parts: Human capital, Structural capital; and Customer capital. A slight variant of this model developed by Dr. Nick Bontis re-states customer capital as relational capital to include relationships with suppliers. Human capital is regarded as the largest and the most important intangible asset in an organization. Ultimately it provides the goods or services that customers require or the solutions to their problems. It includes the collective knowledge, competency, experience, skills and talents of people within an organization. It also includes the organizational creative capacity and the ability to be innovative.

Although investment in human capital is growing, there is still no standard measure of its effectiveness in companies' balance sheets. Structural capital is the supportive infrastructure for human capital—it is the capital which remains in the factory or office when the employees leave at the end of the day. It includes organizational ability, processes, data and patents. Unlike human capital, it is a property that can be traded, reproduced and shared by the organization. Relational capital is a company's relationship with its customers and with its network of suppliers, strategic partners and shareholders. The value of these assets is determined by the company's reputation or image (MERITUM guidelines). These elements of IC are summed up in the definition of CIMA (2001) "IC is the possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give competitive advantage to organizations".

According to Edvinsson and Malone (1997) IC can be also defined as the gap that is observed between a firm's book and market value. Also, Kok (2007) argued that a method for determining the intellectual (intangible) assets of a company is to compare market to book value.

These arguments are based on the nature of IC. The intellectual assets of a company are intangible in nature and, thus, do not have a certain shape or an appropriate financial value. They are characterized as "hidden assets" because it is difficult to identify their contribution to a firm and quantify them in a financial statement (Fincham and Roslender, 2003). Therefore, the observed gap between market and book value that has been highlighted in the bibliography (Lev and Zarowin, 1999; Lev, 2001; Chaminade and Roberts, 2003; Fincham and Roslender, 2003; Lev and Radhakrishnan, 2003; Andrikopoulos, 2005; Tseng and Goo, 2005; Zerenler and Gozlu, 2008) can be attributed to the intellectual capital assets that are not recognized in balance sheets (Brennan and Connell, 2000; Chaharbaghi and

Cripps, 2006). The full understanding of the role of IC in filling the gap between book and market value is regarded as an area of further research (Chen et al., 2005).

Although there is a variety of IC definitions, mostly due to the fact that both knowledge-based and economic-based approaches exist (Burr, and Girardi, 2002; Walsh et al., 2008), scholars and practitioners unanimously identify three basic components of IC; human capital, structural capital and customer (relational) capital (Bontis, 1998; Mavridis and Kyrmizoglou, 2005; Tayles et al., 2007; Wall, 2007; Holton and Yamkovenko, 2008; Walsh et al., 2008; Ruta, 2009; Yang and Lin, 2009; Zerenler and Gozlu, 2008).

The manifestation of the above categorization into the IC literature has led to the development of a method of indirect IC measurement. More specifically, Bornemann et al. (1999) argued that IC can be measured by the accumulate value of three categories of indicators; human capital (knowledge, skills), structural capital (databases and Organizational structure) and customer capital (supplier and customer relations). The usefulness and importance of IC indicators have also been highlighted by Brennan and Connell (2000). Sullivan (2000) stated that the various difficulties inherent to the direct measurement of IC would be resolved by using individual indicators. The same approach has been utilized by other researchers (Chaminade and Roberts, 2003; Andrikopoulos, 2005; Tseng and Goo, 2005; Montequin et al., 2006; Andriessen, 2007; Wall, 2007).

Pulic (2000a, b) developed a convenient method to measure IC in any given firm. He argued that the market value of organizations is created by the capital employed and IC, the latter consisting of human and structural capital. Pulic (2000a, b) proposed method aims to provide information on the value creation efficiency of both tangible (capital employed) and intangible (human and structural capital) assets of an organization. This method is named VAIC (Value Added Intellectual Coefficient) as it indirectly measures IC via the measurement of Capital Employed Efficiency (VACA), Human Capital Efficiency (VAHU), and Structural Capital Efficiency (STVA).The higher the VAIC, the better the utilization of the value

creation potential of a firm. The VAIC approach is being adopted in the present study on the basis of the methodological framework of Firer and Williams (2003), and Chen et al. (2005). Riahi-Belkaoui (2003), investigated the effect of intellectual capital on multinational firms in the US. The sample of this research included 84 firms. The results revealed that there is a significant positive relationship between intellectual capital and firm performance.

In South Africa, Firer and Williams (2003), investigated the relationship between intellectual capital and performance of 75 companies accepted in Johannesburg Stock Exchange through using the measures of profitability, productivity, and market value. They concluded that there is no significant relationship between Value Added Intellectual Coefficient (VAIC) and firm performance. According to the results of this study, it appears that in comparison with European countries, companies in South Africa are less dependent on intellectual capital and in such countries physical resources are considered as the chief resources for creating value.

Chen et al. (2005), conducted an empirical investigation on the relationship between IC, market value and financial performance. They used a large sample of Taiwanese listed companies and utilized Pulic's (2000a, b) Value Added Intellectual Coefficient (VAIC). Their study underlined the importance of IC in the enhancement of firm profitability and revenue growth. The empirical results proved that (a) investors valuate higher companies with better IC efficiency (b) companies with better IC efficiency obtain a higher degree of profitability and revenue growth in the current and following years. Chen et al. (2005) concluded that IC is indeed a significant strategic asset, since it is positively related to the firm's market value and financial performance.

Norma Juma (2006) tries to find the relationship between intellectual Capital and New Venture Performance in high tech ventures of U.S.A. The findings of this study suggest that human capital is the most critical component of IC when predicting operating performance of high-tech ventures, while intellectual property is the crucial component when predicting market-based performance.

Barathi Kamath (2007), analyzing the human capital and the physical capital of 98 scheduled

commercial banks of India, has studied their impact on the value based performance during a period of five years from 2000 to 2004. His study confirms that the observed differences in the performance level of the various segments of Indian banks are mainly due to the underlying difference in HC.

Lodhi (2009) examines the relationship between intellectual capital and return on investment (ROI) using the VAIC developed by Ante Pulic (1998). The study results indicate that IC efficiency can be used as a benchmark and strategic indicator to direct financial and intellectual resources towards the enhancement of the firm's ultimate corporate value.

Bharathi Kamath (2010) measures the performance of banks in Pakistan on a new dimension of intellectual capital. The study estimates the value added intellectual capital (VAIC) of the banks in Pakistan in a 2- year period. The study concludes that the private sector banks were doing much better than other banks in Pakistan on intellectual capital efficiency levels. The good performance is attributed to efficient usage and management of human resources.

Maditinos et al. (2011), in the study on Athens Stock Exchange (ASE) in Greek concluded that financial performance of the companies would be significantly associated with the human capital efficiency.

The Conceptual Framework

Figure 1 presents the theoretical framework for developing research hypotheses of this Study. This study introduces a conceptual framework that expands on previews methodologies (Bontis 1998; Bontis et al., 2000; Pulic 2000a, 2000b; Firer and Williams, 2003; Mavridis, 2004; Chen et al., 2005) and investigates the relationship between IC, market value and financial performance. The hypotheses of the study are as follows.

Intellectual Capital and Market Value

According to the traditional accounting practices the book value of an organization is solely calculated from its financial statements. The simplistic method of such a calculation includes subtracting liabilities from the firm's total assets. As a result, conservative accounting practices fail to account for one the most important intangible assets of every organization: intellectual capital (Sveiby, 2000, 2001). The result of such a shortcoming is a growing divergence between the market and book value of organizations. In other words, the market estimates the value of companies with high intangible assets (IC) to be significantly higher than the calculated book value (Firer and Williams, 2003; Riahi-Belkaoui, 2003; Chen et al., 2005;).Therefore, it is hypothesized that the greater the IC, the higher the ratio of market-to-book value:

Hypothesis 1: There is a significant positive relationship between IC and ratios of market to-book value.

The above hypothesis uses VAIC as an aggregate measure for corporate intellectual ability (IC). As it was stated earlier VAIC includes three component measures; namely, capital employed efficiency (VACA), human capital efficiency (VAHU) and structural capital efficiency (STVA). Since different significance may be put on each of the three components of VAIC, it would be interesting to examine the separate effect of each on market-to-book value ratio. Such an investigation would increase the explanatory power of the conceptual framework and give raise to interesting observations. Thus, it is hypothesized:

Hypothesis 1a: There is a significant positive relationship between capital employed efficiency and ratios of market-to-book value.

Hypothesis 1b: There is a significant positive relationship between human capital efficiency and ratios of market-to-book value.

Hypothesis 1c: There is a significant positive relationship between structural capital efficiency and ratios of market-to-book value.
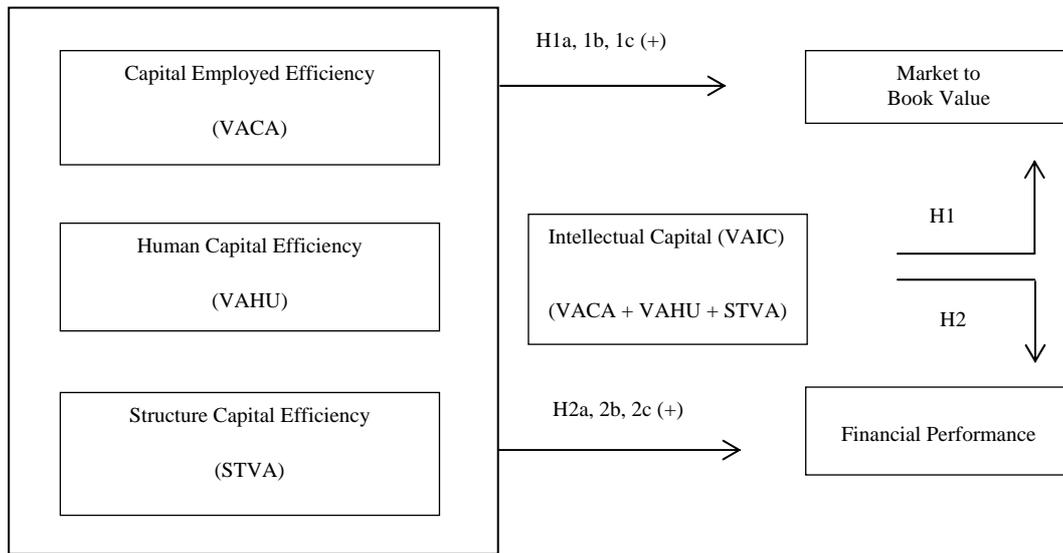
Figure 1: The Conceptual Framework of the study

Intellectual and Financial Performance

The impact of IC on financial performance has not been investigated thoroughly on an empirical level; therefore, the researchers have not agreed upon solid and unanimous conclusions in this respect. On a theoretical level, distinguished authors argue that IC is the value driver of all companies (Stewart, 1997), that knowledge management is a core organizational issue (Nonaka and Takeuchi, 1995) and that organizational knowledge is at the crux of every sustainable competitive advantage (Bontis, 1999). On the other hand, empirical evidence are inconclusive and far from achieving a solid scientific consensus.

The study of Riahi-Belkaoui (2003) found a positive relationship between IC and financial performance, while Bontis et al. (2000) concluded that, regardless of industry, the development of structural capital has a positive impact on business performance. On the other hand Firer and Williams (2003) examined the relationship between IC and traditional measures of firm performance (ROA, ROE) and failed to find any relationship, while Chen et al. (2005), using

the same methodology, concluded that IC has an significant impact on profitability. The present paper makes an attempt to enrich the IC literature, thus, hypothesizing:

Hypothesis 2: There is a significant positive relationship between IC and financial performance.

Hypothesis 2a: There is a significant positive relationship between capital employed efficiency and financial performance.

Hypothesis 2b: There is a significant positive relationship between human capital efficiency and financial performance.

Hypothesis 2c: There is a significant positive relationship between structural capital efficiency and financial performance.

RESEARCH METHOD
Sample and Data Selection

The sample of the present study consists of 28 Iranian companies listed in Tehran Stock Exchange (TSE).These companies belong to Vehicles and Parts Manufacturing economic sector. Companies were selected on the basis of availability of information necessary for conducting the study and the readiness of Annual Reports of the financial year 2006-2009. Hence the applied sampling procedure could be defined as convenience sampling. The share price or market value information for the companies has been obtained from the website

of Tehran Stock Exchange. As part of preliminary investigation and literature on application of intellectual capital, some relevant research articles were utilized for exploratory research purpose.

Variable Definition
Independent Variables

The present study includes four independent variables (Pulic 2000a, 2000b):

✓ Capital Employed Efficiency (VACA), indicator of value added efficiency of capital employed.

✓ Human Capital Efficiency (VAHU), indicator of value added efficiency of human capital. Human capital efficiency (VAHU) may be obtained by treating the total expenditure on employees as an investment that captures the total human effort in a firm in value creation. This is the key assumption of the VAIC methodology. Therefore, HCE may be expressed as the amount of value added generated per money unit invested in employees.

✓ Structural Capital Efficiency (STVA), indicator of value added efficiency of structural capital.

✓ Value Added Intellectual Coefficient (VAIC), the composite sum of the three separate indicators.

The VAIC model applied in the study used data from the financial statements to calculate the efficiency of capital employed, structural capital and human capital by using five different steps, as follows:

$$VA_{it} = OUTPUT_{it} - INPUT_{it}$$

$Output_{it}$ is the total income generated by the firm from all products and services sold during the period t, and $Input_{it}$ represents all the expenses incurred by the firm during the period t except cost of labour, tax, interest, dividends and depreciation. This calculation of the value added by a firm during a particular period has been derived from the Theory of Stakeholder View which holds that any party that either influences or is influenced by a firm's activities have a stake (or interest) in the firm including parties

such as vendors, employees, customers, directors, the government as well as community members as a whole (Donaldson and Preston, 1995). This is why Riahi-Belkaoui (2003) views value added by a firm as a wider performance measurement than simple accounting profit that only calculates the return attributable to the shareholders of a firm.

The firsts step towards the calculation of the above variables is to calculate Value Added (VA). VA is calculated according to the methodology proposed by Riahi-Belkaoui (2003).

He further suggests the following formula for calculating the value added of a firm for a particular time period t to be the net earnings retained for a period, as follows:

$$R_{it} = S_{it} - B_{it} - DP_{it} - W_{it} - I_{it} - D_{it} - T_{it}$$

Where R = retained earnings for the period, S = net sales revenue obtained for the period, B = cost of goods sold plus all operational and other expenses in the period apart from labour, taxation, interest, dividend and depreciation, DP = depreciation charged during the period, W = wages and salaries paid to the employees for the period, I = interest expenses paid during the period, D = dividends paid to the shareholders for the period, T = taxes for the period.

The elements in equation (2) can be rearranges as follows;

$$S_{it} - B_{it} = DP_{it} + W_{it} + I_{it} + D_{it} + T_{it} + R_{it}$$

In equation (3), the left hand side shows the difference between net revenues and all expenses excepting wages, interest, dividend, tax and depreciation. Hence, one may say that the expression(S –B) is the total value generated by the firm during the particular time period. The right hand side shows how the firm has distributed its generated revenue among the stakeholders. It includes wages and salaries paid to the employees, interest paid to debt-holders, taxes paid to the government, dividend and retained earnings paid to the shareholders and the provision for depreciation allocated to shareholders. Hence according to the Theory of Stakeholder View (Donaldson and Preston,

1995) the right hand side of equation (3) is the total value added to the firm during the given period and hence can be written as follows:

$$VA_{it} = DP_{it} + W_{it} + I_{it} + D_{it} + T_{it} + R_{it}$$

The following steps involve the calculation of Value Added Intellectual Coefficient (VAICTM) and the efficiency coefficients of the three components – capital employed, human capital and structural capital following Pulic (1998), and Firer and Williams (2003).

Secondly, capital employed (CE), human capital (HU) and structural Capital (SC) are being calculated:
CE = Total assets – intangible assets
HU = Total investment on employees (salary, wages, etc)
SC = VA – HU
Finally, VAIC and its three components are being calculated:
VACA = VA / CE
VAHU = VA / HU
STVA = SC / VA
VAIC = VACA + VAHU + STVA

Pulic (2000) argues that there is a proportionate inverse relationship between HU and SC, in the value creation process attributable to the entire IC base. Therefore, the measure of STVA is slightly different from other ratios.

The use of the above measurement methodology is argued to provide certain advantages (Bontis, 1999; Chen et al. 2005; Firer and Williams, 2003; Pulic and Bornemann, 1999; Roos et al., 1997; Sullivan, 2000):

✓ It is easy to calculate, analyzing and understanding this coefficient is easy for managers and personnel of a business entity who are familiar with traditional accounting information.
✓ It is consistent with the viewpoint of shareholders, as well as the resource-oriented perspective which uses added value approach.

✓ It provides standardized measures, thus, allowing comparison between industries and countries.
✓ Data are provided by financial statements that are more reliable than questionnaires, since they are usually audited by professional public accountants.

✓ It is an appropriate measure – This coefficient contains useful information for shareholders; everybody, including shareholders, can use this coefficient to evaluate firm performance.

Dependent Variables
In the present research we calculate two dependent variables:

1. Market-to-Book value ratios.
2. Financial performance.
The Market-to-Book value ratio is simply calculated by dividing the market value (MV) with the book value (BV) of common stocks:

MV = Number of shares × Stock price at the end of the year.
BV = Stockholders' equity – Paid in capital of preferred stocks.

The financial performance is measured with the use of 3 indicators:

A) Return On Equity (ROE)
ROE = Net Income / Shareholder's Equity
ROE measures organizations profitability by revealing how much profit a company generates with the money shareholders have invested.
B) Return On Assets (ROA)
ROA = Net Income / Total Assets

ROA is an indicator of how profitable a company is in relation to its total assets. It gives an idea as to how efficient the management uses assets to generate earnings. In fact, using this ratio, we can evaluate firm performance and it reflects the degree of efficiency in employing assets to obtain profit (Firer and Williams, 2003; Chen et al. 2005).

C) Growth revenues (GR)
GR = [(Current year's revenues / Last year's revenues) – 1] × 100%

GR is the most traditional measure that indicates the growth of an organization.

Regression Models

In order to examine the hypotheses of the study,
various regression models have been evaluated.

Models 1 and 2 examine the relationship between (a) VAIC and market to- book value ratio, and (b) VACA, VAHU and STVA and market-to-book value ratio:

Hypothesis 1: $M/B = a_0 + a_1 VAIC + e$ (1)
Hypotheses 1a, 1b and 1c: $M/B = a_0 + a_1 VACA + a_2 VAHU + a_3 STVA + e$ (2)
Regression models 3a to 4c examine the relationship between (a) VAIC and financial performance (ROE, ROA, GR), and (b) VACA, VAHU and STVA and financial performance (ROE, ROA, GR):

Hypothesis 2: $ROE = a_0 + a_1 VAIC + e$ (3a)
Hypothesis 2: $ROA = b_0 + b_1 VAIC + e$ (3b)
Hypothesis 2: $GR = c_0 + c_1 VAIC + e$ (3c)
Hypothesis 2a, 2b and 2c: $ROE = a_0 + a_1 VACA + a_2 VAHU + a_3 STVA + e$ (4a)
Hypothesis 2a, 2b and 2c: $ROA = b_0 + b_1 VACA + b_2 VAHU + b_3 STVA + e$ (4b)
Hypothesis 2a, 2b and 2c: $GR = c_0 + c_1 VACA + c_2 VAHU + c_3 STVA + e$ (4c)

RESULTS AND DISCUSSION
Descriptive Statistics and Correlation Analysis

Table 1 presents the descriptive statistics for all study variables. The Market-to-Book value ratio (1.5759) indicates that 36.54% of the firms' market value is not reflected on financial statements:

Hidden Value = $[(1.5759 - 1.000] / 1.5759) *100] = 36.54\%$

This finding supports the empirical research preview that has underlined the existence of an increasing gap between market and book value of organizations, (Lev and Radhakrishnan, 2003; Lev and Zarowin, 1999; Lev, 2001) More specifically, Lev (2001) conducted a longitudinal research in the US market (1977-2001) and concluded that about 80% of corporate market value is omitted from financial statements, while this percentage seems to be on an upward trend. Also (Maditinos and Tsairidis, 2011) conducted a research in the Athens Stock Exchange (ASE), from four economic sectors (2006-2008) and concluded that about 40.96% of the firms' market value is not reflected on financial statements.

The correlation analysis in table 2 provides an initial preview of the results, concluding that market-to-book value is significantly related to only one of the three components of VAIC; Structural Capital Efficiency. All other correlation indexes (M/B correlated with VAIC, VACA STVA) were not found to be statistically significant.

Hypotheses Verification

Table 3 presents the results considering Hypothesis 1 (Model 1) and table 4 the results considering Hypotheses 1a, 1b and 1c (Model 2). As seen in table 3, the explanatory power of Model 1 is minimal and, moreover, all statistical indexes fail to comply with the usual standards. Therefore, the empirical results fail to support Hypothesis1. Moreover, results depicted on table 4 give only support to Hypothesis 1c, since the significance indexes for the other two independent variables are also inadequate ($p > 0.05$).

Therefore, the empirical investigation failed to support the hypothesis that investors place higher value on firms with greater intellectual capital (VAIC). Nevertheless, it seems that investors take the structural capital of a company into consideration when they estimate its real value. Moreover, results indicate that investors place different value on each of the three components of VAIC, since structure capital efficiency is treated differently that the other two components (capital employed efficiency and human capital efficiency).

Table 5 presents the results considering Hypothesis 2 (Model 3) and Table 6 the results considering Hypotheses 2a, 2b and 2c (Model 4). Results in table 5 demonstrate that there is no significant relationship between IC (measured with VAIC) and the three financial performance measures (ROE, ROA, GR), since all coefficients or model solutions are statistically insignificant. Therefore, Hypothesis 2 is not supported by the empirical data. Moreover, results depicted in Table 6 indicate that the statistically significant relationship is the

between structure capital efficiency (VAHU) and Return on Equity (ROE).Also there is significant relationship between human capital efficiency and structure capital efficiency with Return on Asset. Other investigated models are statistically insignificant. Therefore, Hypotheses 2b and 2c are not supported by the empirical data, while Hypothesis 2a is partially supported.

Table 1: Descriptive statistics for all study variables

Variable	Mean	Standard Deviation	Minimum	Maximum
M/B	1.5759	1.1861	3.4573	5.8017
VAIC	1.0915	1.4078	1.4175	1.2145
VACA	0.1847	0.01327	-3.958	1.0013
VAHU	9.9071	1.4023	-7.975	1.2030
STVA	0.7844	0.4509	1.9994	3.3459
ROE	0.1907	0.04989	-1.0435	3.1963
ROA	0.0817	0.00910	-7.353	6.1347
GR	1.7459	2.4212	-5.3634	1.2908

Table 2: Correlation analysis for selected study variables

Variable	M/B	VAIC	VACA	VAHU	STVA
M/B	1				
VAIC	-0.092	1			
VACA	-0.183	-0.014	1		
VAHU	-0.097	0.999*	-0.021	1	
STVA	0.192*	0.212*	-0.056	0.181	1

*Correlation significant at the 0.05 level (two-tailed)

Table 3: Regression results – Model 1: M/B and VAIC

Independent Variable	Coefficient	Std. Error	t-statistic	Significance
Constant	1.241	0.351	3.539	0.001
VACA	-0.765	0.848	-0.903	0.369
VAHU	-0.013	0.008	-1.624	0.107
STVA	0.728	0.315	2.313	0.023
Adjusted R^2	0.052			
Durbin Watson	1.744			
F-value	3.040			

* Significant at the 0.05 level

Table 4: Regression results – Model 2: M/B and VAICs components

Independent Variable	Coefficient	Std. Error	t-statistic	Significance
Constant	1.681	0.142	11.854	0.000
VAIC	-0.010	0.008	-1.203	0.232
Adjusted R^2	0.004			
Durbin Watson	1.742			
F-value	1.446			

* Significant at the 0.05 level

Table 5: Regression results – Model 3: Financial Performance and VAIC

	Dependent Variables								
	ROE			ROA			GR		
Independent Variable	Coefficient	t-statistic	Sig	Coefficient	t-statistic	Sig	Coefficient	t-statistic	Sig
Constant	0.293	5.494	0.000	0.097	8.553	0.000	15.327	5.296	0.000
VAIC	0.000	0.114	0.909	0.000	0.719	0.474	0.195	1.199	0.233
R Square	0.000			0.005			0.013		
Durbin Watson	1.589			1.481			1.967		
F-value	0.013			0.517			1.437		

* Significant at the 0.05 level

Table 6: Regression results – Model 4: Financial Performance and VAICs components

Independent Variable	Dependent Variables								
	ROE			ROA			GR		
	Coefficient	t-statistic	Sig	Coefficient	t-statistic	Sig	Coefficient	t-statistic	Sig
Constant	-0.445	-4.896	0.000	-0.061	-1.924	0.004	11.656	1.584	0.116
VACA	0.033	0.153	0.879	0.497	9.856	0.000	20.577	1.157	0.250
VAHU	-0.004	-1.730	0.087	0.000	0.411	0.682	0.200	1.205	0.231
STVA	0.929	11.401	0.000*	0.084	4.486	0.000*	0.028	0.004	0.997
R Square	0.557			0.489			0.026		
Durbin Watson	1.582			1.241			1.981		
F-value	45.343			34.449			0.493		

* Significant at the 0.05 level

CONCLUSION

The increasing gap between firms Market and Book value has drawn wide research attention to exploring the invisible value omitted from financial statement. Some factors that impact on firm value but do not release in financial statement are Brand value, Intellectual value.

Disagreements exist on what should be the most useful technique of reporting financial performance, and how intellectual capital components can be adequately integrated in financial statements. Hence it may take some time to reach a consensus on what constitutes the best method for managing and reporting intangible value drivers such as intellectual capital components. But experimentation with intellectual capital components in invaluable if everybody has to agree on the best practice and arrive at a point of convergence between the disparate approaches.

The present study attempted to investigate the relationship between intellectual capital (IC), market value and financial performance of the listed Iranian companies belonging to Vehicles and Parts Manufacturing sector of the country. The methodology adopted is the one of "Value Added Itellectual Coefficient" (VAIC) that has been previously utilized by similar studies (Chen et al., 2005; Firer and Williams, 2003; Williams, 2001).

Despite the fact that IC is increasingly recognized as an important strategic asset for sustainable competitive advantage, the results of the present study fail to support such a claim. Empirical results failed to support most of the proposed hypotheses, only verifying the relationship between structure capital efficiency (VAHU), also ROE and ROA, two of the three indicators of financial performance.

Moreover, Mavridis and Kyrmizoglou, (2005) in the Greek banking sector using data from the period 1996-1996, show that there is a positive correlation between value added and physical capital, but especially between value added and human or intellectual capital. Although, authors make a note implying that results may be over over-positive, due to the fact that the Greek banking sector was on a significant upward trend for the period under investigation (Mavridis and Kyrmizoglou, 2005). Using the same reasoning it could be said that the results of the present study were negatively influenced by the bad economical climate of the period 2006 to 2009, thus failing to underline the importance of IC.

Finally it must be underlined that the empirical results indicate the existence of a significant relationship between on of the three components of IC (structure capital efficiency) and two of the three indicators of financial performance (ROE and ROA). Thus, it is

concluded that in the Iran business context, the development of structure resources seems to be one of the most significant factors of economic success.

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