

THE MEDIATING EFFECT OF FINANCIAL PERFORMANCE ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL & MARKET SHARE: EVIDENCE FROM TEHRAN STOCK EXCHANGE

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Abstract

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Intellectual capital has an important role in this knowledge based economy era. The purpose of this study is to examine the mediating effect of financial performance on the relationship between intellectual capital and market share in the listed Companies in the Tehran Stock Exchange in this study to assess the intellectual capital, the rate of value-added intellectual capital that developed by Pulic (1998) is used. The sample included 99 companies listed in the Tehran Stock Exchange, for a period of five years from 2011 to 2015. The research findings show a significant positive relationship between intellectual capital and market share. Also the results show that there is no mediating effect of financial performance in the relationship between intellectual capital and market share.

Keywords: the Effect of Mediation, Intellectual Capital, Market Share, Financial Performance

1. INTRODUCTION

In the past, visible assets were considered as elements for creating value for organizations. Meanwhile, in today's modern knowledge-based economies, the main source of value creation has changed from the tangible and obvious factors of production into intangible resources (Inkinen, 2015). Consequently, in the present era, companies and organizations obtain significant amounts of their benefits from elements of intellectual capital, including the quality of relationships, structures and human capital (Segelod, 1998). As the company's performance is based on knowledge elements, it is essential for organizations to gain an adequate knowledge of the creation, management, and measurement of intellectual capital (Kianto, 2014).

As we said, intellectual capital is considered an intangible asset of an organization. It includes technology, customer information, brand and reputation, which plays an important role as an element to create competitive advantage for organizations. Nilsson et al (Mavridis, 2004) state that human capital actually represents the stock of an organization. The purpose of the stock is, in fact, to have skilled staff and an acceptable management knowledge that helps the organization to better and more efficiently performance of management. In fact, the use of prominent and creative employees is one of the tasks of the today's company to increase the value of its market share (Firer & William, 2003). On the other hand, the company's relationship with its customers is very important. The significance of this issue is such that, if these relationships are well-formed and expanded, it can be a factor in the

growth of the organization, which would create value for the organization. Creating value in an organization will also increase the market share and its stock value (Yazdanifard, 2011).

The existence of intellectual capital in companies and its impact on the creation of value and rise in market share and improving corporate financial performance have been examined. Several methods have been proposed to identify intellectual capital (Edvinsson, 1997; Kaplan & Norton, 1996; Roos et al, 1997; Steward, 1991; Sveiby, 1997). Most researches in this field have used the model of value added intellectual capital coefficient (VAIC) proposed by Pulic (1998) and Pulic (2004) to measure this variable (Chen et al., 2005; Joshi et al, 2013; Mondal & Ghosh, 2012; Yalama, 2013). Firer and Williams (2003) argue that the value added factor of intellectual capital is considered as an effective model for measuring this variable and is an appropriate model for comparison between companies.

With this argument we expect the intellectual capital as an intangible asset has effect on the performance of companies. Also according to the human resource theory, intellectual capital is a fundamental factor in improving of market shares in long term. But we believe the effect of intellectual capital on the market share is by performance. On the other hand performance of company has a mediating effect on the relationship between intellectual capital and market share. But the review of literature didn't show any similar research about this subject. Hence, the most important contribution of this study is to develop the research literature by incorporating, first the relationship between intellectual capital and market share, also second the mediating effect of financial performance on the relationship between intellectual capital and market share. The importance of this study is to help investors choose companies with a higher intellectual capital. The priority of this research is not being similar researches (scientific priority) and study the role of intellectual capital on the performance and market share (economic priority). By considering to the importance of intellectual capital and intangible assets in the current era and its impact on the performance of organizations and their market share, the present study examines the mediating effect of financial performance on the relationship between intellectual capital and market share.

The rest structure of this paper is organized as follows: second section is explained the literature review, in the third section referring to methods and hypotheses of study, research models and measurement of variables, and fourth section refers to test of hypotheses and the fifth and last section concludes the paper.

2. LITERATURE REVIEW

2.1. Conceptualizing intellectual capital

In today's knowledge-based era, with sudden changes in it, the proper management of intangible resources in organizations is an important factor in achieving success. Hence, managers of organizations should identify and apply concepts that contribute to the better performance of intellectual capital in

their organizations. In the various definitions of intellectual capital presented by various scholars (Stewart, 1997; Bontis, 2002), there are three fundamental factors: value creation, value extraction, and maximization of value. Hence, we can conclude that intellectual capital is essential for creating competitive advantage for organizations. Correct management of the intellectual capital can make this phrase to be real: "people are the most important assets" (Senyucel, 2009).

On the other hand in the concept of business, capital is considered to be an asset, thereby creating a future cash flow for the company. When it comes to capital, tangible assets such as physical and financial assets are the first to come to mind that they can be found on the financial statements of the companies (Todericiu & Serban, 2015).

Edvinsson and Malone believe that Intellectual capital is a combination of factors such as having the knowledge, experience of the company and its use, the technology in the organization, the proper relationship between the customer and suppliers. It is also an important factor in creating competitive advantage for companies in the marketplace (Zarei et al, 2015).

2.2. Structure of intellectual capital

According to extensive research on intellectual capital, there is a collective agreement among researchers that divides intellectual capital into three parts of human capital, structural capital, and relational capital.

Human Capital: Includes knowledge and competencies that are present in the company's staff.

Human capital and relational capital can not be owned. That is, these capitals must necessarily be shared with the employees, suppliers, partners and customers of the company, and their growth depends on the environment we provide. The environment and conditions that are in line with a rich and stable organizational culture as well as a high nurturing capability can provide a context for an uninterrupted growth.

Organizational capital (structural): "The collective know how, beyond the capabilities of individual employees". For example, we can name the information system, processes and policies of the organization and intellectual property (Sullivan, 2000). The knowledge economy provides the conditions for organizations and corporations through which they can replace their physical assets at a low cost.

Relational capital: refers to a set of business relationships with suppliers, customers, partners, and vendors (Todericiu & Serban, 2015).

2.3. Financial performance

Business performance measures the factors that are related to the market. These factors include such as market share, growth, product development, and variety. "It is a mixture of growth in existing business and future positioning in terms of new product development and diversification". Organizational effectiveness is an important factor that focuses on stakeholders, quality and social responsibility. Financial performance is the central

element and core of this organizational effectiveness and also an essential factor for defining and explaining the overall effectiveness of organizations (Bacidore et al,1997).

Appropriate and acceptable financial performance for organizations is crucial because these good practices lead to their continued presence in the market and also as a viable investment. Sofyan (2006) believes that the profitability of companies is Their ability in using their resources. These resources can be the company's sales, the number of employees, cash and capital. In this study, Return on Assets (ROE) is used to measure corporate financial performance (Nuryaman, 2015).

2.4. Relationship between intellectual capital and financial performance

Intellectual capital has a significant impact on the performance of organizations. In firms and organizations with a reasonable human capital with a high level of competence and commitment, there is an increase in creativity and effectiveness. As a result of this high effectiveness, it will generate profits for the company. Structural capital of organizations can help organizations to meet market demand and achieve its goal by using the capabilities of the system, organizational structure, strategy and culture of the organization. The existence of an appropriate capital structure would help the organization achieve one of its fundamental goals of being profitable (Nuryaman, 2015). In last 25 years, there has been a lot of research and study on intellectual capital and its impact on the financial performance of companies and organizations. The review of the research literature shows numerous studies on the relationship between intellectual capital and financial performance. Wen-Min Lu et al. (2014) surveyed intellectual capital and performance in Chinese life insurance industry. The regression analysis showed a significant positive association with firm operating efficiency. Ornek and Ayas (2015) researched The Relationship between Intellectual Capital, Innovative Work Behavior and Business Performance Reflection. The results show that intellectual capital that is being transferred to the innovation can leads performance increases. Kalkan et al. (2014) conducted a study about the impacts of intellectual capital, innovation and organizational strategy on firm performance. The findings of the research show a positive relationships between intellectual capital, innovation and organizational strategy and firm performance. Abdollul and Sofian (2012) studied The Relationship between Intellectual Capital and Corporate Performance. the result of study confirms that all four IC components has a significant positive relationship with corporate performance of Malaysian PLCs. Gogan et al. (2015) researched The Effect of Intellectual Capital on Financial Performance of Banks Listed in Tehran Stock Exchange. The result of regression analysis showed that there was a positive and significant effect of structural capital and human capital efficiency on banks' financial performance

Intellectual capital is recognized as an essential intangible asset in the present age of knowledge economy and is also widely merged in technology.

Intellectual capital is a valuable asset in order to stimulate innovation in organizations, increase creativity, create competitive advantage, create value, and improve the performance of organizations (Bontis, et al, (2000); Bounfour, (2003); Pek, (2005); Saudah, (2005); Hong et al, (2007); Tayles et al, (2007); Marr, (2008)). According to Brocking (Brooking, 1997) intellectual capital refers to a set of intangible assets that contribute to the success of the organization.

2.5. Relationship between financial performance and market share

One of the most important factors affecting the market share is the profitability variable, which is considered as a functional variable. Brozen (1971) and Demsetz (1973) emphasize the positive relationship between profitability and market share. One of the important reasons for the direct relationship between the market share and profitability is that firms with a bigger market share have the efficiency advantage. On the other hand, there are several reasons that explain why firms with a larger market share may be more efficient. It is necessary that in the relationship of profitability and market share to distinguish between the dynamic factors (which lead to better performance and thus higher market share) and static factors (which enhance the efficiency benefits when the market share is high). Dynamic performance benefits may derive from features such as the intensity of R&D, management quality, and skilled workforce. R&D, for example, focuses on process technology, which may lead to cost-cutting techniques and allow firms to increase their market share by producing a certain amount of goods at a lower cost than competing firms. Another source of efficiency may be the firm's ability to learn and train experimentally. So that some firms have more experience in producing certain types of products or have more ability in training (Malebra, 1992).

If a firm has gained a higher market share and a size of firm in the industry increase, there are other reasons that why the efficiency advantage may be strengthened. One of these reasons is saving to scale that may occur in cost components such as capital, marketing, or research and development. These factors may either sustain or extend the benefits of the dynamic process. In the case of research and development, static factors may enhance dynamic factors. For example, a higher market share will generate more profit through innovation and an increase in the cost of research and development. Increasing the intensity of R & D may lead to more innovation and higher market share, which means there is a system of feedback between static and dynamic factors. The idea suggests that a positive relationship between concentration and profitability can be the result of competition that efficient firms have higher profits and get higher market share. Another point of view of theoretical relation of profitability and market share is that the higher profitability of some firms is related to their market power. This market power states that firms can set higher prices and earn higher profits at a certain cost level. Accordingly, if market power and market share have a positive relationship, this suggests that corporate profits are

associated with a larger market share. The dynamic and static factors mentioned above illustrate the complexity of the relationship between profitability and market share (Malebra, 1992). In addition to the views on the relationship between profitability and market share, Mancke (1974) states that all firms within the market have the same starting position and each firm re-invests its profits in commercial opportunities. Although each firm faces the same consequences of investing, but some firms are more lucrative in innovating of reducing costs and New products, and these firms will grow faster and more profitable over time than other firms, and there will be a positive relationship between profitability and market share (Mancke, 1974).

2.6. Relationship between intellectual capital and market share

Intellectual capital as an intangible asset for organizations and corporations is an important element in increasing their market share. Relational capital as one of the three elements of intellectual capital (human capital, structural and relational) plays a significant role in increasing the share of the corporate market. According to Chen et al. (2004), relational capital (customer relationship) reflects the power of marketing, increasing market share, and customer loyalty. On the other hand, from the point of view of many scholars in the field of intellectual capital, innovation is considered as a pillar of human capital. In a study by Lee and Kim in (2013) on the relationship between innovation and market share, it was found that there is a positive relationship between these two variables. According to a study by Al-Zyadaat et al. (2012) on the relationship between innovation and market performance, it became clear that a strong correlation between the correlative marketing and the marketing performance. As we have seen in the research literature, there is a positive relationship between the intellectual capital elements and the corporate market share, each of them directly or indirectly increases the corporate market share and improves their performance.

2.7. The mediating effect of financial performance on the relationship between intellectual capital and market share

The term intellectual capital can be as a set of skills and knowledge in which the company can develop the process of producing goods and delivering its services (Adelman, 2010). Intellectual capital determines the value of an organization and is a factor to measure the value of an organization (Adelman, 2010). Intellectual capital refers to the ability of manager in using the organization resource, that employees are one of these resources. Human resources theory also refers to employee knowledge about their job and business process. So the focal point is "the "intangible" intellectual capital knowledge pertaining to employees, customers, vendors, owners, investors, competitors, and any other partner relationships which impact the successful sustainability of the organization" (Adelman, 2010). According to human resource perspective in creating value for organizations and the impact of intellectual capital on financial performance (Ozkan et al. 2016; Nuryaman, 2015) it

is expected that financial performance playing a mediator role in the relationship between intellectual capital and market share.

3. HYPOTHESIS AND METHODS

According to the related researches and human resource theory we can create our hypotheses that are as follows:

Hypothesis 1. Intellectual capital has a positive effect on the market share.

Hypothesis 2. The firm's performance has a mediation effect on the relationship between intellectual capital and market share.

3.1. Methods

According to the purpose of research, the present study is an applied research. The research method is descriptive - correlation and used regression method for analysis of data and based on panel data. The collection of information in the literature section of the research, theoretical fundamentals and background of the research have been gathered by library method. The research financial data has been collected through the KODAL website, the information technology company of Tehran Stock Exchange and the Central Library of Tehran Stock Exchange. To measure the independent variable (intellectual capital), the Pulic model has been used. for Data collection, Excel software and for data analysis, Eviews 8 software used. The Chow and Hausman tests were also used to select the analytical method.

3.2. Statistical population and research sample

The statistical population of the study consisted of all companies listed to the Tehran Stock Exchange. In this research, a systematic method has been used to select a sample, so that first all companies were selected during the period from 2011 to 2015, then from among existing companies, companies that did not have any of the following conditions were excluded:

1. Before the year 2011 are admitted to the exchange.
 2. Their information is available.
 3. It is not part of investment companies and financial intermediation.
 4. The shares of the companies have been traded between 2011 and 2015.
 5. Companies should not change their fiscal year.
- After applying the restrictions, 99 companies were surveyed for fiscal years 2011, 2012, 2013, 2014 and 2015.

3.3. Measurement of variables

Dependent Variable

This rate is derived by dividing the firm's sale to total sales in the industry.

$$\text{Market Share} = \frac{\text{Sale}}{\sum_{it}^{\text{NF}} \text{Sale}}$$

N_t represents the companies active in the industry during the t and it is the sales revenue of firm i at time t (Lee & Kim, 2013).

Independent Variable

In this research, for measuring intellectual capital, the value-added intellectual coefficient that proposed by Pulic(1998) has been used. VAIC is calculated as follows:

$$VAIC = CEE + HCE + SCE$$

CEE: Value Added efficiency of capital employed; HCE: efficiency of human capital in creating value; SCE: Value Added efficiency of structural capital:

$$CEE = \frac{VA}{CE}$$

CE (Capital Employed): the book value of total tangible assets:

$$HCE = \frac{VA}{HC}$$

HC (Human Capital): personnel costs

$$SCE = \frac{SC}{VA}$$

SC (Structural Capital): the difference between VA and HC

Also Value Added is computed as follows:

$$VA = OP + EC + D + A$$

OP = Operating Profits; EC = Total Employee Expenses; and D = Depreciation and A = Amortization (Al-Musali & Ku Ismail, 2014).

Mediator Variable

There are several indicators to analyze financial performance that in this study we used the return on equity (ROE). "ROE represents returns on common stocks of shareholders" and it is one of the most important financial indicators that recognized by owners. This rate is derived by dividing the annual net profit of individual bank before tax to average shareholders` equity (Sumedrea, 2013; Al-Musali & Ku Ismail, 2014).

$$ROE_t = NetPofit_t / ShareholdersEquity_t$$

Control variables

NI (Net Income): Net Income is defined as the profit of a firm over an accounting period. It is calculated from deduction of operating costs and taxes from the income of a company (Brown & Abaraham, 2012).

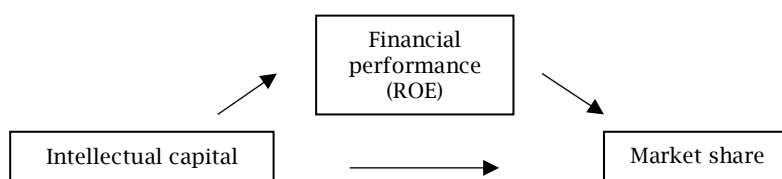
Tobin's q: This indicator has been used to measure competition in the market. It is calculated by sum of market value of equity, total liability and minus deferred tax expense, divided by total assets (Wang & Sarkis, 2017).

Size: the size of a firm is defined as a variety of products and services that a firm can provide for its customers. It is also defined as a capacity of production. It is calculated by the logarithm of the firm's assets (Aloy Niresh & Velnampy, 2014).

4. RESEARCH MODEL

In the present study, we use the following relationships to examine the effect of intellectual capital on the market share and the mediating effect of financial performance. Considering the hypotheses and the conceptual model of the research, the following models will be used to test the hypotheses:

Figure 1. Conceptual Model



5. STATISTICAL METHOD

The most common method for studying the mediator effect is Baron and Kenny's (1986) method. However, in recent years, changes have been made by Zhao, Lynch and Chen (2010). In this study, we use the Zhao method to study the mediation effect of financial performance on the relationship between intellectual capital and market share. According to Baron and Kenny (1986), testing the mediator effect takes place in three steps. The first step is to go back from the mediator variable to the independent variable. The second step is to return from the dependent variable to the independent variable and the third step is return from dependent variable to the mediator variable and independent variable. They have shown that the independent

variable in the first two models shows statistical significance. This is while the third model is expected to show the statistical significance of the mediating variable as well as the importance of the independent-variable.

Zhao (2010) proved that the importance of the relationship between an independent and dependent variable is not necessary and can be misleading. "This is because it represents the total effect of the sum of direct and indirect effects, including the mediator, and that mediation must be only established by the existence of an indirect effect. Put simply, to demonstrate mediation all that matters is that the indirect effect is significant" (Zhao et al., 2010, p. 204).

6. EMPIRICAL MODEL

In this research, using the following models, relations between variables are investigated through regression testing. According to the hypothesis, experimental models of research are as follows:

The first model: The effect of intellectual capital on the market share.

$$\text{Market Share}_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 NI_{it} + \alpha_4 Q_{tobin}_{it} + \varepsilon_i$$

Second Model: The mediating effect of Financial Performance on the Relationship between Intellectual Capital and Market Share.

$$ROE_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 NI_{it} + \alpha_4 Q_{tobin}_{it} + \varepsilon_i$$

$$\text{Market Share}_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 ROE_{it} + \alpha_3 \text{Size}_{it} + \alpha_4 NI_{it} + \alpha_5 Q_{tobin}_{it} + \varepsilon_i$$

Independent variable (IC): Intellectual capital

α : Coefficients of research variables

Mediator variable: financial performance (ROE)

Dependent variable: Market Share

Control variables: Size (logarithm of size), NI (Net Income), Qtobin (Competition)

Table 1. Descriptive statistics of the research

Variable	Observation	Average	Max	Min	Median	Standard deviation
Market Share	495	0/141	0/895	0/0007	0/074	0/179
Intellectual capital (IC)	495	4/961	8/953	0/374	4/771	2/120
Qtobin	495	1/565	9/951	0/430	1/368	0/738
Logarithm of Size	495	12/238	14/297	10/792	12/114	0/632
Net Income (NI)	495	0/120	0/626	-0/293	0/096	0/135
Return On Equity (ROE)	495	0/363	45/24	-3/762	0/275	2/096

In Table (1), the descriptive statistics of the research variables, which contain the quantitative statistics, include the minimum, maximum, median, average, and standard deviation are shown. Considering the use of cross-sectional data (data panel) to test the hypotheses, the number of observations based on the combined data of 99 companies in the periods 2011-2015 has been investigated. The number of observations in panel data was 495. The most important central indicator is the average that represents the equilibrium point and the center of gravity, and is a good indicator of the centrality of the data, and most data is centered around this point. The second and third parameters are maximum and minimum. These two parameters represent the aggregated data and indicate how much data begins and ends. In other words, these parameters represent the range of data changes. The fourth is the median parameter. The median separates 50% of the top and 50% of bottom in a distribution. This parameter is also provided for all variables. The fifth and last parameter is the standard deviation, which is a scale for dispersion, the smaller it is, indicating that the studied group is in terms of the characteristics are Congruent and also shows the dispersion of the data from the average. A low standard deviation indicates a low scatter of data from the average and high standard deviation indicating a large dispersion of data from the average. In Table (1), the ROE has the least standard deviation (0/13) from dispersion of the average and Intellectual Capital has the maximum Standard deviation (2/12) from dispersion of the average. According to Table (1), it can be seen that the small difference between the average and the median of all variables indicates that they have a normal distribution.

Test of research hypotheses

1. The first hypothesis of the research states that intellectual capital affects market share.

$$\text{Market Share}_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 NI_{it} + \alpha_4 Q_{tobin}_{it} + \varepsilon_i$$

Before testing the first hypothesis, a suitable model for the regression model is chosen. The results of the F-limer test are presented in Table (2). The probability of the F limer was less than 5%. Therefore, to test the hypothesis, using pooled data method is discarded.

Table 2. Choosing pooled data method versus panel data method, first hypothesis

Test type	Amount of test statistic	Degrees of freedom	The probability of the test statistic
F-Limer	254/337	(98/392)	0/000

Because of using panel data method, the Hausman test was chosen to select the fix or random data method. The result of the Hausman test is presented in Table (3). The probability value of the Hausman statistic is less than 5%, so we use a fix effect method to test the first hypothesis.

Table 3. Choosing fix effect model versus random effect model, first hypothesis

Test type	Amount Chi 2 statistic	Degrees of freedom Chi 2	The probability of the test statistic
Hausman	10/474	4	0/0332

The results of testing the first hypothesis are presented in table (4). In this model, the Durbin-Watson stat is 1.82, which is between 1.5 and 2.5. As a result, self- Correlation between the remainders is rejected. The probability of the F-statistic is zero, and the significance of this model is accepted at 95% confidence level. The Adjusted R-squared of the model is 98, which means that 98% of the variation of the dependent variable can be described by the

independent and controlling variable. By considering to the coefficient of intellectual capital, it can be said that if the intellectual capital increase one unit, the market share will 0.001 increase. The VIF of variables are less than 10. As a result, there is no multicollinearity problem. Considering the obtained coefficients and the probability of statistics, it can be said that there is a significant positive relationship between intellectual capital and market share.

Table 4. Estimating the first model

$$Market\ Share_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 Size_{it} + \alpha_3 NI_{it} + \alpha_4 Qtobin_{it} + \varepsilon_i$$

Variable	coefficient	t-statistic	Prob (t-statistic)	VIF
C	0/032	1/526	0/127	-
IC	0/001	421/6	0/000	1/08
Qtobin	-0/001	-2/166	0/030	1/07
NI	3/14	4/801	0/000	1/32
Size	0/008	4/711	0/000	1/39
statistics of the research model				
F statistic	417/339	Durbin-Watson stat	1/824	
Prob (F-statistic)	0/000	Adjusted R-squared	0/998	

2. The second hypothesis of the study states that financial performance has a mediation effect on the relationship between intellectual capital and market share. The ROE variable has been used to investigate the mediator effect of financial performance. The following models have been used to measure the mediator role of financial performance (Zhao, 2010):

Second hypotheses, first model:

$$ROE_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 Size_{it} + \alpha_3 NI_{it} + \alpha_4 Qtobin_{it} + \varepsilon_i$$

Second hypotheses, second model:

$$Market\ Share_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 ROE_{it} + \alpha_3 Size_{it} + \alpha_4 NI_{it} + \alpha_5 Qtobin_{it} + \varepsilon_i$$

Second hypothesis, first model

Before testing the second hypothesis, first model, a suitable model for the regression model is chosen. The results of the F-limer test are presented in Table (5). The probability of the F limer was less than 5%. Therefore, to test the hypothesis, using pooled data method is discarded.

Table 5. Choosing pooled data method versus panel data method, second hypothesis, first model

Test type	Amount of test statistic	Degrees of freedom	The probability of the test statistic
F-Limer	11/483	(98/392)	0/000

Because of using panel data method, the Hausman test was chosen to select the fix or random data method. The result of the Hausman test is presented in Table (6). The probability value of the Hausman statistic is less than 5%, so we use a fix effect method to test the first hypothesis.

Table 6. Choosing fix effect model versus random effect model, second hypothesis, first model

Test type	Amount Chi 2 statistic	Degrees of freedom Chi 2	The probability of the test statistic
Hausman	19/053	4	0/0008

The results of testing the second hypothesis, the first model are presented in Table (7). In this model, the Durbin-Watson stat is 1.97, which confirms the H0 assumption, which means self-Correlation between the remainders is rejected. Also, the probability of F-statistic is zero, which confirms the significance of the model at 95% of confidence. The Adjusted R-squared of the model is 85, which means that 85% variation of the dependent variable can be described by independent and controllable variables. the VIF of variables are less than 10. As a result, there is no multicollinearity problem. By considering the coefficient of intellectual capital, it can be said that for one unit of increase in intellectual capital, financial performance will increases 0.775. Considering the obtained coefficients and the significance of intellectual capital, it can be said that there is a positive and significant relationship between intellectual capital and financial performance.

Table 7. Estimation of the second hypothesis, first model

$$PER_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 Size_{it} + \alpha_3 NI_{it} + \alpha_4 Qtobin_{it} + \varepsilon_i$$

Variable	coefficient	t-statistic	Prob (t-statistic)	VIF
C	-2/562	-6/125	0/000	-
IC	0/075	18/925	0/000	1/08
Qtobin	0/026	2/577	0/0103	1/07
NI	6/11	4/815	0/000	1/32
Size	0/205	6/015	0/000	1/39
statistics of the research model				
F statistic	28/850	Durbin-Watson stat	1/973	
Prob (F-statistic)	0/000	Adjusted R-squared	0/851	

Second hypotheses, second model

Before testing the second hypothesis, first model, a suitable model for the regression model is chosen. The results of the F-limer test are presented in Table (8). The probability of the F-limer was less than 5%. Therefore, to test the hypothesis, using pooled data method is discarded.

Table 8. Choosing pooled data method versus panel data method, second hypothesis, second model

Test type	Amount of test statistic	Degrees of freedom	The probability of the test statistic
F-Limer	93/43	(98/391)	0/000

Because of using panel data method, the Hausman test was chosen to select the fix or random data method. The result of the Hausman test is presented in Table (9). The probability value of the

Hausman statistic is less than 5%, so we use a fix effect method to test the first hypothesis.

Table 9. Choosing fix effect model versus random effect model, second hypothesis, second model

Test type	Amount Chi 2 statistic	Degrees of freedom Chi 2	The probability of the test statistic
Hausman	11/780	5	0/0379

The results of testing the second hypothesis, the second model is presented in Table (10). The Durbin-Watson stat is 1.81, which is between 1.5 and 2.5, which means self- Correlation between remainders is rejected. Also, the F-statistic is zero, which confirms the significance of the model at 95% confidence. The adjusted R-Squared is 95. That means that 95% variation of the dependent variable can be described by independent and controllable variables. . The VIF of variables are less than 10. As a result, there is no multicollinearity problem. Considering the coefficient of ROE, we can say for one unit of increase in this variable, the relationship between intellectual capital and market share reduced by -0.001. According to t-statistic, the significance of intellectual capital (0.0002) and meaningless of ROE (0.54) in the model, can be concluded that the ROE isn't a mediator in the relationship between Intellectual capital and market share.

Table 10. Estimation of the second hypothesis, second model

$Market Share_{it} = \alpha_0 + \alpha_1 IC_{it} + \alpha_2 PER_{it} + \alpha_3 Size_{it} + \alpha_4 NI_{it} + \alpha_5 Qtobin_{it} + \epsilon_i$				
Variable	coefficient	t-statistic	Prob (t-statistic)	VIF
C	-0/108	-0/699	0/484	-
IC	0/004	3/698	0/0002	1/08
ROE	-0/001	-1/925	0/054	1/01
Qtobin	0/026	2/577	0/0103	1/07
NI	2/49	1/81	0/071	1/32
Size	0/018	1/485	/138	1/39
statistics of the research model				
F statistic	106/173	Durbin-Watson stat	1/815	
Prob (F-statistic)	0/000	Adjusted R-squared	0/956	

Table 11. Summary of the results of research hypotheses

Research hypotheses	Result
Intellectual capital affects the market share.	Confirm
Financial performance has a mediator effect on the relationship between intellectual capital and market share	reject

7. CONCLUSION AND IMPLICATIONS

The purpose of this paper was to Study of the mediate effect of company financial performance on the relationship between intellectual capital and market share in Tehran stock exchange. For this

purpose, two hypotheses have been developed, which are as follows:

According to the first hypothesis, the findings showed there is a positive and significant relationship between intellectual capital and market share. This means that with the increase in the level of intellectual capital in organizations and companies, their market share will increase, because the components of intellectual capital, which are human capital, structural capital and relational capital, each have a significant role in increasing the market share, also indicating of confirmation of human resource theory that contribute to the research literature which it is following the results of a study by Chin Chen et al (2005), they investigated the relationship between intellectual capital and stock market value and financial performance of Taiwan stock exchanges. They used the model of value added intellectual capital (VAIC) as the measure of intellectual capital. By applying regression model, higher intellectual capital of companies improves financial performance and increases the stock market value of companies. Also, Chen et al. (2004) showed that relational capital (customer relationship) represents the power of marketing, increased market share, and customer loyalty. The result of this test is consistent with the findings of Chen et al (2004).

In the second hypothesis, we examined the effect of financial performance as a mediator variable on the relationship between intellectual capital and market share. We used the ROE indicator for financial performance. In the second model of second hypothesis, test results show that ROE as a financial performance indicator is not a mediator variable in the relationship between intellectual capital and market share. In the first model of second hypothesis, the effect of intellectual capital on financial performance was tested. The result of this test show that there is a positive and significant relationship between intellectual capital and financial performance. That is, increasing the level of intellectual capital in organizations and companies will improve their financial performance. In a study by Ozkan et al. (2016) on intellectual capital and financial performance in the turkish banking sector, they stated that intellectual capital has a positive effect on financial performance. In a study conducted by Al-Musali and Ku Ismail (2014), it was found that intellectual capital Affects financial performance. The results of the present research are consistent with this researches.

From the results obtained, it can be concluded that the increase in the level of intellectual capital (human capital, structural capital and relational capital) in organizations and companies can increase their market share. By applying the mediator variable in the second hypothesis it was shown that ROE as a financial performance indicator doesn't have mediation effect on the relationship between intellectual and market share of firms, and its increase or decrease cannot be a criterion for increasing or decreasing firm's market share.

According to human resource theory we expected a positive relationship between intellectual capital and market share. Our findings show there is a positive relationship as well as. But the mediating effect of financial performance not confirmed.

Also according to the human resource theory, intellectual capital is an intangible asset and its effect is long term, whereas accounting indicators like ROE is a short time indicator. So it is one of

reasons which we can't find any evidence. So with this relationship we concluded that investors with long term view can choose stocks and including them in their portfolio.

REFERENCES

1. Abdullah, D. F., & Sofian, S. (2012). The relationship between intellectual capital and corporate performance. *Procedia - Social and Behavioral Sciences* 40, 537-541. <https://doi.org/10.1016/j.sbspro.2012.03.227>
2. Al-Musali, M.A.K., & Ku Ismail, K.N.I. (2014). Intellectual capital and its effect on financial performance of banks: Evidence from Saudi Arabia. *Procedia - Social and Behavioral Sciences* 164, 201-207. <https://doi.org/10.1016/j.sbspro.2014.11.068>
3. Aloy Niresh, J., Velnampy, T. (2014). Firm size and profitability: A study of listed manufacturing firms in Sri Lanka. *International Journal of Business and Management*, 9(4), 57-64.
4. Al-Zyadaat, M.A., Saudi, M.A., & Al-Awamreh, M.A. (2012). The relationship between innovation and marketing performance in business organizations: An empirical study on industrial organizations in the industrial city of King Abdullah II. *International Business and Management*, 5(2), 76-84.
5. Asiaei, K., & Jusoh, R. (2017). Using a robust performance measurement system to illuminate intellectual capital. *International journal of accounting Information System* 26, 1-19. <https://doi.org/10.1016/j.accinf.2017.06.003>
6. Bacidore, J.M., Boquist, J.A., Milbourn, T.T., & Thakor, A.V. (1997). The search for the best financial performance measure. *Financial Analysts Journal*, 53, 11-20. <https://doi.org/10.2469/faj.v53.n3.2081>
7. Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality & Social Psychology*, 51, 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
8. Bontis, N., Chua, W. C. K., & Richardson, S. (2000). Intellectual Capital and Business Performance in Malaysian Industries. *Journal of Intellectual Capital*. 1(1), 85-100. <https://doi.org/10.1108/14691930010324188>
9. Bontis, N. (2002). National intellectual capital index: Intellectual capital development in the Arab Region, United Nations Development Program Research Initiative, New York.
10. Brooking, A. (1997). Intellectual Capital, London: International Thomson Business Press.
11. Brown, C., Abraham, F. (2012). Sum of perpetuities method for valuing stock prices. *Journal of economics* 38 (1), 59-72.
12. Brozen, Y. (1971). The persistence of high rates of return in high stable concentration industries. *Journal of Law and Economics*, 14, 501-512.
13. Bounfour, A. (2003). The Management of intangibles: The organization's most valuable assets. London: Routledge. <https://doi.org/10.4324/9780203465035>
14. Chen, J., Zhu, Z., Xie, Y.H. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital*, 5, 85- 100. <https://doi.org/10.1108/14691930410513003>
15. Chen, M.C., Cheng, S.J., & Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), 159-176. <https://doi.org/10.1108/14691930510592771>
16. Demstesz, H. (1973). Industry structure, market rivalry and public policy. *Journal of Law and Economics*. 16(1), 1-9. <https://doi.org/10.1086/466752>
17. Edvinsson, L. (1997). Developing intellectual capital at Skandia. *Long Range Planning*, 30(3), 320-373. [https://doi.org/10.1016/S0024-6301\(97\)00016-2](https://doi.org/10.1016/S0024-6301(97)00016-2)
18. Enterprise Information Management Institute (EIMI). (2010). Intellectual capital: A human resource perspective. Retrieved from the World Wide Web: <http://www.eiminstitute.org/current-magazine/volumn-4-issue-5-october-2010/intellectual-capital-a-human-resources-perspective>.
19. Firer, S., & Williams, S.M. (2003). Intellectual capital & traditional measures of corporate performance. *Journal of Intellectual Capital*, 4(3), 348-360. <https://doi.org/10.1108/14691930310487806>
20. Gogan, L.M., Borca, C., Rennung, F., & Sirbu, R. (2015). Intellectual Capital Management - a possible approach. Management, knowledge and learning, joint international conference. *Technology, Innovation and Industrial management*, 1321-1327.
21. Hong, P. T., Plowman, D. & Hancock, P. (2007). Intellectual Capital and Financial Returns of Companies. *Journal of Intellectual Capital*, 8(1), 76-95. <https://doi.org/10.1108/14691930710715079>
22. Inkinen, H.T. (2015). Review of empirical research on intellectual capital and firm performance. *J. Intellect. Cap.* 16 (3). <https://doi.org/10.1108/JIC-01-2015-0002>
23. Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: An evaluation of the Australian financial sector. *Journal of Intellectual Capital*, 14(2), 264-285. <https://doi.org/10.1108/14691931311323887>
24. Kalkan, A., Bozkurt, O.Z., & Arman, M. (2014). The impacts of intellectual capital, innovation & organizational strategy on firm performance. *Procedia - Social & Behavioral Sciences*, 150, 700 - 707. <https://doi.org/10.1016/j.sbspro.2014.09.025>
25. Kaplan, R. S., & Norton, D.P. (1996). The balanced scorecard: Translating strategy into action. Boston: Harvard Business School Press.
26. Kianto, A., Ritala, P., Spender, J.C., & Vanhala, M. (2014). The interaction of intellectual capital asset and knowledge management practices in organizational value creation. *J. Intellect. Cap.* 15 (3), 362-375. <https://doi.org/10.1108/JIC-05-2014-0059>
27. Lee, J., & Kim, B. Ch. (2013). The relationship between innovation & market share: Evidence from the global LCD industry. *Industry & Innovation*, 20(1), 1-21. <https://doi.org/10.1080/13662716.2013.761375>
28. Lu, W.M., Wang, W.K., & Long Kweh, Q. (2014). Intellectual capital and performance in the Chinese life insurance industry. *Omega* 42, 65-74. <https://doi.org/10.1016/j.omega.2013.03.002>
29. Malebra, F. (1992). Learning by firms and incremental technical change. *Economic Journal*. 102, 845-859.

30. Mancke, R.B. (1974). Causes of inter firm profitability differences: A new interpretation of the evidence. *Quarterly Journal of Economics*, 88, 181-193. <https://doi.org/10.2307/1883068>
31. Marr, B. (2008). *Intangible Asset Measurement. Accountants Today*. Kuala Lumpur, Malaysia.
32. Mavridis, G.D. (2004). The intellectual capital performance of the Japanese banking sector, *Journal of Intellectual Capital*, 5(1), 92-115. <https://doi.org/10.1108/14691930410512941>
33. Mondal, A., & Ghosh, S.K. (2012). Intellectual capital and financial performance of Indian banks. *Journal of Intellectual Capital*, 13(4), 515-530. <https://doi.org/10.1108/14691931211276115>
34. Nuryaman (2015). The influence of intellectual capital on the firm's value with the financial performance as intervening variable. *Procedia - Social and Behavioral Sciences* 211, 292 - 298. <https://doi.org/10.1016/j.sbspro.2015.11.037>
35. Ornek, A.S., & Ayas, S. (2015). The Relationship between intellectual capital, innovative work behavior and business performance reflection. *Procedia - Social and Behavioral Sciences*, 195, 1387-1395. <https://doi.org/10.1016/j.sbspro.2015.06.433>
36. Ozkan, N., Cakan, S., & Kayacan, M. (2016). Intellectual capital and financial performance: A study of the Turkish banking sector. *Borsa Istanbul Review*, 23, <https://doi.org/10.1016/j.bir.2016.03.001>
37. Pek, C.G. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital*. 6(3), 385-396. <https://doi.org/10.1108/14691930510611120>
38. Pulic, A. (1998). Measuring the performance of intellectual potential in knowledge economy. Paper presented at the 2nd McMaster World Congress on Measuring and Managing Intellectual Capital by the Austrian Team for Intellectual Potential.
39. Pulic, A. (2004). Intellectual capital - Does it create or destroy value?. *Measuring Business Excellence*, 8(1), 62-68. <https://doi.org/10.1108/13683040410524757>
40. Roos, J., Roos, G., Dragonetti, N.C., & Edvinsson, L. (1997). *Intellectual capital: Navigating in the new business landscape*. London: MacMillan Press. <https://doi.org/10.1007/978-1-349-14494-5>
41. Saudah, S. (2005). *Intellectual capital and management accounting practices*. School of Management. Bradford, University of Bradford.
42. Segelod, E. (1998). Capital budgeting in a fast-changing world. *Long Range Plan.* 31 (4), 529-541. [https://doi.org/10.1016/S0024-6301\(98\)80046-0](https://doi.org/10.1016/S0024-6301(98)80046-0)
43. Senyucel, Z. (2009). *Study guide: Managing the human resource in the 21st century*. Ventus Publishing: Denmark.
44. Sofyan Syafri, H. (2006). *Critical analysis on financial statement*. First Edition, Grafindo Persada. Jakarta.
45. Steward, T. (1991). *Intellectual capital: Brainpower. Fortune*.
46. Stewart, T. (1997). *Intellectual Capital, the new wealth of organization*, Doubleday, New York.
47. Sullivan Jr., & Patrick H. Sullivan Sr., (2000). Valuing intangibles companies - An intellectual capital approach, *Journal of Intellectual Capital*, 1(4), 328 - 340.
48. Sumedrea, S. (2013). Intellectual capital and firm performance: A dynamic relationship in crisis time. *Procedia Economics and Finance* 6, 137-144. [https://doi.org/10.1016/S2212-5671\(13\)00125-1](https://doi.org/10.1016/S2212-5671(13)00125-1)
49. Sveiby, K.E. (1997). San Francisco, CA: Berrett-Koehler Publishers.
50. Tayles, M., Pike, R.H. & Sofian, S. (2007). Intellectual capital, management accounting practices and corporate performance: Perceptions of managers. *Accounting, Auditing & Accountability Journal*, 20(4), 522-548. <https://doi.org/10.1108/09513570710762575>
51. Teirlinck, P. (2017). Configurations of strategic R&D decisions and financial performance in small-sized and medium-sized firms. *Journal of Business Research* 74, 55-65. <https://doi.org/10.1016/j.jbusres.2017.01.008>
52. Todericiu, R., & Serban. A. (2015). Intellectual Capital and its Relationship with Universities. *Procedia Economics and Finance* 27, 713 - 717. [https://doi.org/10.1016/S2212-5671\(15\)01052-7](https://doi.org/10.1016/S2212-5671(15)01052-7)
53. Wahba, H., & Elsayed, Kh. (2015). The mediating effect of financial performance on the relationship between social responsibility and ownership structure. *Future business Journal*, 1, 1-12. <https://doi.org/10.1016/j.fbj.2015.02.001>
54. Wang, Z., & Sarkis, J. (2017). Corporate social responsibility governance, outcomes, and financial performance. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2017.06.142>
55. Yalama, A. (2013). The relationship between intellectual capital and banking performance in Turkey: Evidence from panel data. *International Journal of Learning and Intellectual Capital*, 10(1), 71-87. <https://doi.org/10.1504/IJLIC.2013.052079>
56. Yazdanifard, R., & Esmaeili Nia, M. (2011). The impact of new intellectual capital on a firm's market share value. *International Conference on Sociality and Economics Development IPEDR*, 10.
57. Zarei, A., Shamszadeh, B., & Zarei, Zh. (2015). The effect of intellectual capital on financial performance of banks listed in Tehran Stock Exchange. *Journal of Money and Economy*, 9(4), 49-71.
58. Zhao, X., Lynch, J., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197-206. <https://doi.org/10.1086/651257>