The Impact of Human Capital on Sales Growth and Assets Return among the Companies Listed in Tehran Stock Exchange

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Abstract

The aim of this paper is to examine the impact of human capital on value creation of listed companies in Tehran Stock Exchange. In order to measure the value of human capital, Palick (2000) coefficient of human capital was used. Dependent variables of the study consist of changes in net sales (sales growth) of company and return on assets. Therefore, the accruals model is used (Dees et al., 2010). The statistics sample contains the financial statements of 163 companies from various industries from 2007 to 2014. All activities conducted in companies in order to utilize human capital would have the impact on company values. Our results show that human capital efficiency coefficient significantly and positively affect sales growth and return on assets as a measure of value creation in companies.

Keywords: Human capital, value creation, sales growth, returns on assets, coefficient value

Introduction

Present world is the world of knowledge. Today, endowments and other natural and tangible assets are not only the key for communities and organizations success, but also are the enjoyment of human capital and capital management that are success within the field of turbulent and challenging environment. Human capital is recognized as valuable asset of an organization's intangible assets. Today's economy is based on intellectual capital in which knowledge and information are its goods. Intangible resources are factors other than financial and physical assets, that contribute to value creation of a company and they are under its control. Human capital is defined as assets that are valued zero in the balance sheet. Brookings (1997) identifies intellectual capital as a combination of intangible assets which enables economic foundations to take responsibilities. There is no general theory or accepted classification for intellectual capital. Many of the current accounting systems are unaware of the role and the growing importance of intellectual property rights and knowledge in modern organizations and fail to measure the actual value of assets in calculations. In other words, financial statements are full of limitations in describing the real value of a company. In today's knowledge-based society, employed intellectual capital efficiency has been much more important than employed return on financial capital (Bontis, 1999). This means that in the future, the role and importance of financial capital in determining sustainable profitability, will significantly decrease compared to human capital.

Theoretical foundations

Human capital

Human capital represents the knowledge of an organization. Bontis (2002) describes human capital as a collective capability of an organization to extract the best of the staff's knowledge. Chen et al (2004) suggest that human capital as the base of intellectual capital refers to factors such as: knowledge, skills, abilities and attitudes of staff which improves the performance and therefore customers are willing to pay for it. Brooking believes that the human assets of an organization include the skills, expertise, problem solving and leadership styles.

Value

The value is among the variables that has wide connotations. The extent of connotations of value is associated with the extent of fields and expertise such as social value, financial value, and economic value. The symbol of each value is selected and offered according to their objectives (Javadi, 2008). Value of any company which equals to the total value of shares in hands of shareholders can be determined based on several factors including cash, income, profits, output, market fair value of net assets, investments, fixed assets and savings. Value is the process of using internal and external resources in order to increase company value and wealth for investors, given that the company was impressed by its size.

Background of study

External research

Mehralian et al. (2003) studied prioritizing intellectual capital indicators in knowledge based industries and the results show that human capital and in particular the knowledge and skills of managers and employees is a priority in the company's intellectual.

Darabi and Salmani (2012) in a research entitled "The relation of the disclosure of the components of intellectual capital on the quality of financial reporting" and indicated that there is a significant positive correlation between efficiency of human capital, efficiency of physical capital, and the quality of financial reporting but there is a negative relation between the efficiency of the capital structure and financial reporting quality. Zanjir dar and Chogaha (2012) have presented that there is a significant relationship between profit quality and intellectual capital.

Zhou and Han (2011) with regard to financial data and financial ratios assessed the impact of intellectual capital on business unit performance, the results show that the relationship between employed capital and structural capital is negative with efficiency and the relationship between human capital and efficiency is positive.

Demetrius et al. (2011) examined the impact of intellectual capital on the market value and company performance in the Athens Exchange. The results show that in Greece it seems that the development of human resources is one of the most important factors of economic success.

Vicente and Lopez (2010) examined the relationship between leverage dividend and ownership structure. In spite of growth opportunities, there is a negative relationship between dividend and value of the company. They believe that with the assumption of the existence of information asymmetry and growth opportunities (investment) dividend by the company can reduce the internal resources, and increase the need for external resources, and ultimately, decrease the value of company. Thus, it is expected that in the present state of development opportunities, there is a negative relationship between the company's dividend and value. The result of Vicente and Lopez research also showed that in the absence of -growth opportunities, there is a positive relationship between dividend and value of the company.

Internal research

Fazel Yazdi et al. (2014) evaluated the performance of artificial neural networks in predicting the efficiency of intellectual capital and the results showed that artificial neural network model is accurate in predicting the efficiency of intellectual capital of listed companies in the Stock Exchange.

Setayesh et al. (2014) studied the relationship between intellectual capital elements and profit management and the results showed that there is no significant relationship between intellectual capital and its elements with profit management. This means that listed companies in Tehran Stock Exchange do not manage company’s profit through the disclosure of intellectual capital.

Ghayour moghadam et al. (2013) investigated the impact of intellectual capital on efficiency as criteria of business unit performance and the results of study indicated that the type of industry cannot be much effective on the impact of intellectual capital on the performance (efficiency).

Namazi et al. (2013) examined the relationship between the changes in inventory, profitability and value of companies listed in Tehran Stock Exchange. The results of this study demonstrated that there is a significant inverse relationship between the changes in inventory and short-term changes in the company's profits and changes in company's value. Also, the results indicate that there is no significant relationship between changes in the inventory with long-term changes in profit and return on assets of the company. In addition there was no significant relationship between control variables and changes in inventory, profitability and company value.

Sinaee et al. (2011) studied the impact of growth opportunities on relationship between capital structure, dividend and ownership structure with company value. The results indicated that there is a significant relationship between capital structure (leverage) and dividend with company value in existence of growth opportunities, this relationship is negative and significant but without this growth opportunities the relationship would be positive and significant. Also, the results indicated that there is a nonlinear and significant relationship between ownership structure and company value and growth opportunities have significant impact on this relationship.

Shams and Khalili (2011) evaluated the relationship between intellectual capital and financial performance of the companies listed in stock exchange. For this purpose, first five key indicators of companies' performance and the indicator of intellectual capital efficiency were measured by using "Palick" model among the population of the companies listed on the Stock Exchange from 2006 to 2010, then the impact of intellectual capital and its components was examined on each of financial performance indicators through using linear regression model. The results of this study indicated that intellectual capital is directly related to indicators of return on equity, staff productivity and market value ratio to book value per share, return on asset and profit per share.

Methodology

In research method, method is considered as a set of activities that are carried out to achieve the target and research is activities that researchers use to find the rules of reality. This research is quasi-experimental in the field of accounting and financial matters and the aim of the research is application. In terms of classification, it is the descriptive study based on solidarity. In general, the results of this study with the emphasis on the importance and the role of human capital can be useful for the framers of accounting standards (for purposes of disclosure) such as financial accounting researchers, stock agencies, companies' managers and financial analysts (in terms of contributing to investment decisions).

Research Hypothesis

In this research, the researcher aims to achieve and provide reliable results for companies' managers as well as investors and stock market professionals (for more attention to the issue of human capital management) by conducting research and by using appropriate models and real data of listed companies in Tehran stock exchange. Therefore, to achieve this goal the researcher follows the below goal:

- Determining the effect of human capital on the creation value of the listed companies in Tehran Stock Exchange.

Based on this objective the research hypotheses were formulated as follows:

H1: Human capital has positive and significant impact on sale's growth.

H2: Human capital has positive and significant impact on the rate of return on assets

Population and sample

The population in this study is companies listed in Tehran Stock Exchange. Easy access to information about these companies, as well as standard and homogeneity of information on these companies are the reasons for selecting these companies as the study population. The study sample consists of companies that have the following conditions:

a) Financial information of companies is found from 2007 to 2014.
b) Their fiscal year ends in March.
c) The companies listed on the Stock Exchange up to January 2006 (before 2007 are listed on the stock exchange) and the name of the company has not been removed from the companies listed in Tehran Stock Exchange during the review period.
d) Financial terms have not changed during the under review period, accordingly, after the five mentioned limitations in the above paragraphs, a total of 163 companies have had the above conditions from 2007 to 2014.

Data collection and analysis of data

For financial data collection of the study, Rah Avarde Novin software and web site of the Tehran Stock Exchange, as well as (codal.ir) were used. After the original data and requirements establishment in excel software and the necessary calculations, data analysis was done by using software eviews7.

Variables of the study and how to measure them

a- Dependent variables

- Sales Growth (SGrowth) which is the percentage change in net sales over the previous year, in other words:

$$SGrowth_{it} = \frac{Sales_{it} - Sales_{it-1}}{Sales_{it-1}}$$

- Return On Assets (ROA which is (operating profit) / Average assets during the period. In other words:

$$ROA_{it} = \frac{Ebit}{Assets\ Average_{it}}$$

b- Independent variables

The independent variable of this study is human capital, for measuring human capital added value of the coefficient is used for human capital (Palick, 2000).

Depreciation expense + Staff salary costs + Operating Profit = Value Added

Human capital efficiency coefficient (VAHU): The measure is as follows:

Staff salary costs ÷ Value Added = Human capital efficiency coefficient

Hypothesis testing models

In this study, the following models are used to test the research hypotheses (Deese et al., 2010):

Model (1)

$$SGrowth_{it} = \alpha_0 + \beta_1 VAHU_{it} + \beta_2 EMP_{it} + \beta_3 AGE_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

In which:

$VAHU_{it}$: is the coefficient of human capital efficiency.

EMP_{it} : Logarithm of the number of employees (representing the size of the company).

AGE_{it} : Logarithm of company age (from the start).

LEV_{it} : The ratio of debt to total assets

Model (2)

$$ROA_{it} = \alpha_0 + \beta_1 VAHU_{it} + \beta_2 EMP_{it} + \beta_3 AGE_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

Findings of the study

Descriptive statistics of variables and collected data are described in table 1.

Table 1. Descriptive statistics of the study

Variable	Elongation	Skewness	Standard deviation	Middle	Average	Maximum	Minimum	Total number
Sales Growth	68.350	5.661	.48051	.1605	.2187	7.35	-1.00	1304
Return on assets	1.610	.889	.15861	.1690	.1905	.87	-.2	1304
Human Capital	40.872	5.935	9.32601	3.7201	5.8620	97.02	-10.2	1304
Company size	.688	-.183	.38959	2.7120	2.7321	3.81	1.00	1304
Company age	2.511	-1.501	25011.	1.5990	1.5401	1.82	.35	1304
Debt Ratio	5.130	.881	.19970	.6712	.6704	1.95	.14	1304

According to the above table, the values of the independent variables for the 163 companies from 2007 to 2014 are obtained for 1304 annuity. One of the most important indicators of the distribution is the skewness. Skewness is the indicator of data symmetry and shows asymmetry in the distribution of the specified indicator (usually the average). The skewness coefficient (torque) is the most important indicator of skewness. If the coefficient of skewness is negative, the distribution has a skewness to the left and if the coefficient of skewness is positive, the distribution has a skewness to the right. If the distribution is asymmetric, the skewness coefficient is equal to zero. Eighth and ninth columns respectively represent the minimum and maximum values of the study variables.

As it can be seen the amount of skewness and elongation variables are high and this suggests that the asymmetry of research variables and the distribution of these variables are farther than normal distribution (one of the main assumptions of regression) and to overcome this defect in the following the logarithm of the variables will be used in place of the variable. As can be seen in the above table, the average of value creation of companies using sales growth is equal to 2187 and the average of value creation using the criteria of return on assets ratio has been 1905 which the mean values of these variables are not near their median values (respectively equal to 0/1605and 0/1690) indicates a lack of normal distribution of the variable. According to the sign of the skewness coefficient of value creation variable based on sales growth and return on assets ratio, it can be said that distribution tends to right (skewness to the right) and due to the amounts of skewness coefficient and elongation coefficient and lack of closeness of mean and median values, possible variable is not normally distributed.

The results show that human capital efficiency coefficient is (VAHU) that its average equals to 5/8620. Other important results of descriptive statistic show that the average of debt ratio of sample companies is 0/6704 and this indicates that about 67% of financial resources of companies in the sample are taken from the external financing.

As mentioned above, this study attempts to examine the impact of human capital efficiency on the value creation of the listed companies in Tehran Stock Exchange. To ensure the effectiveness of the impact of human capital efficiency on the creation of value, first multivariate regression models are used to examine the research hypotheses and then by using analyzed correlation coefficient between variables, we will do further analysis. The results are shown in table (2) and (3). By looking at the table of model coefficients, the t-statistic coefficient of human capital efficiency is 3/545 and level of significance equals to 0/002.

Table 2. The results of the test model (1) and the coefficients of the variables

Variable	T statistic	Significance level sig	Linearity test t statistics Vif
Fixed	-4.6	0.000	
Human capital	3.545	0.002	1.329
Company size	-0.085	0.896	1.088
Company age	0.012	0.886	1.199
Debt ratio	0.998	0.245	1.219

This variable is smaller to the significance level of tolerable level of error (5%) which means that the impact of human capital variables on the dependent variable efficiency coefficient (a measure of value creation based on sales growth) is significant. Since the t-statistic for this variable is positive and significant, by increasing the variable the value of the company's sales growth (value creation) will be added, and vice versa.

These results indicated that the first hypothesis in which human capital has significant and positive impact on the sales growth of listed companies in Tehran Stock Exchange, and is approved in 95% level of reliability. Therefore, human capital has a positive and significant impact on company sales growth as criteria for measuring value creation.

Also, the t- statistic and significance level of logarithm variable, number of employees (EMP), which represent the size of the company, respectively equals to -0/085 and 0/896 which indicates the negative and insignificant impact of this variable on value creation of company (sales growth).

The age of the company has had a positive and insignificant impact on dependent variable of research namely, company sales growth (value creation) (Note that the value of t-statistics and significance levels respectively equals to 0/886 and 0/012).

The t-statistic and significance level of company's debt ratio variable which represents the company pattern finance are respectively equal to 0/998 and 0/245, representing positive and insignificant impact on company value creation. The results of linear test show that the amounts of VIF statistic in all variable models is close to one that indicates there is no linear relation between independent variables (Less than 10 indicates absence of multicollinearity between the research variables). Therefore, another regression assumption also is approved in this way.

Table 3. The results of the test model (2) and the coefficients of the variables

Variable	T statistic	Sig	Linearity test t statistics Vif
Fixed	-7.307	0.000	
Human capital	16.651	0.000	1.191
Company size	3.472	0.002	1.183
Company age	-0.595	0.562	1.094
Debt ratio	-9.85	0.001	1.099

As it can be seen in table of model coefficients, the significance level of human capital efficiency is 0/000 and the t- statistic equals to 16/651 and this means that the impact of human capital variables on the dependent variable efficiency coefficient (a measure of value creation based on sales growth) is significant. Since the t-statistic for this variable is positive and significant, by increase in the variable the value of the company's sales growth (value creation) will be added. These results indicated that the second hypothesis based on that human capital has significant and

positive impact on the return on assets of listed companies in Tehran Stock Exchange, and is approved in 95% level of reliability. Therefore, human capital has a positive and significant impact on company return on assets as criteria for measuring value creation.

Other results of the study are as follows:

- The t- statistic and significance level of logarithm variable, number of employees (EMP) which represent the size of the company, respectively is equal to 0/002 and 3/472 which indicates the positive and significant impact of this variable on value creation of company (return on assets). The obtained results show that the company size (number of employees) has a larger, higher return on assets and the ability to create more value.
- The age of the company has had a negative and insignificant impact on dependent variable of research namely company return on assets (value creation) (Note that the value of t-statistics and significance levels respectively equal to -0/595 and 0/562). The obtained result indicates that with increasing age, the amount of created value will be reduced and vice versa. In other words, this result shows that younger companies compared to older companies, have higher ability of value creation, although this relationship is not reliable or significant statistically.
- The t-statistic and significance level of company's debt ratio variable which represents the financial leverage equal to -9/85 and 0/001 which represent negative and significant impact on company's value creation (return on assets). This result indicates that companies which use higher financial leverage in their financial structure, have less ability of value creation (return on assets). In all VIF results of linear test show that amount of statistic in all variable models, is close to one that indicates there is no linear between dependent variables (Less than 10 indicates absence of multicollinearity between the research variables). Therefore, another regression assumption also is approved in this way.

Conclusion

In this paper, according to the results of tests applied to evidence, human capital has had a significant and positive impact on sales growth and return on assets as the company's value creation metrics. Therefore, the study hypothesis about the positive and significant impact of human capital on the creation of value of both models is approved at 95% level of reliability. This result indicates that the companies with more human capital have higher return and growth compared to companies with less capital.

This result confirmed the result of Bontis research. In the current knowledge-based societies, employed human capital efficiency is much more important than employed financial asset returns (Bontis, 1999). This means that in the future, the role and importance of financial resources in determining the profitability of sustainable will decrease compared to human capital.

Although this paper showed that in today’s knowledge based world “Organizational capabilities is based on knowledge and human capital, and managers should understand what capabilities are needed to maintain a competitive advantage”. Therefore, knowledge assets and human capital are becoming strategic lever for managing the company's business performance and continuous innovation.

Recommendations of the study

According to the results of research on the impact of human capital and value creation in companies listed on the Stock Exchange the following suggestions offered to improve the conditions governing the company:

- Using the results to write new accounting standards as well as for the previous accounting standards

- Subtracting the difference and distance between most fields of science and practice. In reality it is not applied so that the most important fields of human capital have been reduced.

- Managers should pay attention to consider the skills and competence of staff, important conditions of their employment and by this they will guarantee company's success by using the helpful human capital.

- Competent and efficient use of labor rather than cheap labor in companies makes efficient use of human capital. Therefore, economy will be much more attractive to domestic and foreign investment and managers will be more successful in the use of the workforce.

- Comparison of intellectual capital and human capital on growth and return on companies.

- Motivating employees by managers to make greater use of their human capital.

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