Relationship between innovation capital and intellectual capital with value and financial performance

Sajjad Tanideh

Master of Financial Management

Abstract: The term intellectual capital conventionally refers to the difference in value between tangible assets (physical and financial) and market value. The main purpose of this paper is to understand the intellectual capital and innovation capitalwith financial performance and value of Companies Accepted in Tehran Stock Exchange. Results indicate that there is not a significant relationship between intellectual capital and corporate value, there is a significant relationship between intellectual capital and financial performance of corporations, there is not a significant relationship between innovation capital and corporate value, there is a significant negative relationship between innovation capital and financial performance of corporations.
[Sajjad Tanideh. **Relationship between innovation capital and intellectual capital with value and financial performance.** *Life Sci J* 2013;10(10s):251-254] (ISSN:1097-8135). http://www.lifesciencesite.com. 40

Keywords: Intellectual Capital, Innovation Capital, Financial Performance, Value of Companies, Tehran Stock Exchange

1. Introduction

Recent studies of intellectual capital can be divided into two trends, one is the overall surface, such as integration with the national innovation system, or create various types of capital indicators (Pomedaet al., 2002; Lin and Lin, 2008); the other is a decent look into the relationship between corporate performance (Kamath, 2008). Choong (2008) try to sum scholars from various countries on the construction and classification of intellectual capital, so that the content of intellectual capital accounting information can be translated into measurable by the subject to explore with the relationship between corporate performance, he uses a meta-analysis Methods appropriate classification of intellectual capital, of the academic general acceptance. Kamath (2006) that a company's intellectual capital is the potential that can be observed in strategic asset, and this strategic asset, tangible and intangible assets between inclusive. Because intellectual capital is, in essence, no specific shape is real assets; Kamath (2008) is divided into customer relationship capital, human resources, capital and structuralcapital, the three indicators of return on investment, market value - book value ratio correlation between productivity levels. As Kamath (2008) study looked only at the Indian biotech industry, and a statement of intellectual capital in India is just a fledgling country, this paper studies continuation Kamath, into Taiwan from 2001 to 2007 data of all listed companies, in addition to Index of use of the same impact on performance, but also increase R & D spending to discuss this variable impact on business performance, the use of mixed data ordinary least regression analysis found that all five indicators of business performance correlation. Then, according to industry characteristics, and to avoid sampling selection bias, I use of Logistic regression model to investigate whether the R & D expenditures under the conditions of the four indicators of intellectual capital on business performance.

From the resource base that (resource-based theory) point of view; core competencies can be constructed from the organizational point of view, many ideas that intellectual capital is a core competence or power. How do we use the simplest method from the internal resources or external search to form a reliable measure of further discussion and the relationship between corporate performances, intellectual capital is often used to demonstrate its value in the company to replace the implementation of force measurement. Academic definition of intellectual capital, and its characteristics are (1) intellectual capital is intangible assets, representing a potential value creation (Mavridis, 2005); (2) from the Board of Directors of the organization point of view, it is specific to the company and can often adapt changes in conditions; (3) the composition of many intangible assets can improve business functions (Brooking, 1996). Pulic (2000) proposed the added value of intellectual capital model (VAIC), to compare with the measure of corporate cross-sectional data,Deol (2009) in the same way with the concept of strategic environmental impact on Indian banks and state bank of wisdom capital on the local economy development.

The main purpose of this paper is to understand the intellectual capital and innovation capitalwith financial performance and value of Companies Accepted in Tehran Stock Exchange.

2. Research Method

We have used regression and correlation analysis in corporations of Tehran stock exchange.

Hypothesis:

1. There is a significant relationship between intellectual capital and corporate value.
2. There is a significant relationship between intellectual capital and financial performance of corporations
3. There is a significant relationship between innovation capital and corporate value.
4. There is a significant relationship between innovation capital and financial performance of corporations

Sample

Statistical sample is corporations of Pharmaceutical industry and cement industry that accepted in Tehran stock exchange.

Table 1.Selection and sample extraction

cement industry	Pharmaceutical industry	Condition Industry
28	41	The number of manufacturing companies in the years 1383 to 1388 have been in stock
26	37	Financial year-end number of companies that are leading to the end of March
22	34	The number of companies during the financial year have not changed
17	27	The number of companies that are actively trading symbol and its stock has traded at least once a year.
17	25	The number of companies during the course of their financial information is available.
17	25	The final sample size

We have used 42 corporations at 6 years during 2004-2009 period.

Measuring Intellectual Capital

First Step: determine Value Added

VA = OUT - IN

VA :Value Added

OUT :Total Revenue

IN :Total Cost

Second Step: Determine efficiency of Capital

CEE = VA / CE

CEE: Efficiency of Cap ital

CE: Capital

Third Step: Determine Efficiency of Human Capital

HCE = VA / HC

HCE: Efficiency of Human Capital

HC: Human Capital

Fourth Step: Determine Efficiency of Structural Capital

SC = VA - HC

SC: Structural Capital

SCE = SC / VA

SCE: Efficiency of Structural Capital

ICE = HCE + SCE

ICE: Efficiency of Intellectual Capital

Fifth Step: Determine Coefficient of Intellectual Value Added

VAIC = ICE + CEE = HCE + SCE + CEE

VAIC: Value Added Intellectual Capital.

Measuring Innovation Capital

R&D IN = R&D EX ÷ NI

R&D IN: R & D intensity

R&D EX: R & D Expenditure

NI: Net operating profit

Measuring Financial Performance

$$ROA = \frac{NI}{TA(A)}$$

ROA: Return on assets

NI: Net profit

Measuring Value of Corporation

We have used Q Tobin for measuring value of corporation.

Tobin's $Q_{i,t}$= M.V.S+ B.V.D/ B.V.A

M.V.S :Market value of common stock

B.V.D :Book value of debt

B.V.A :Book value of assets

Method of Testing Hypothesis

We have used four regression models for testing hypothesis as following:

Model for First Hypothesis:

$$Q_{it}=\beta_0+\beta_1 VAIC_{it}+\beta_2 SIZE_{it}+\beta_3 GROW_{it}+\varepsilon_{it}$$

Model for Second Hypothesis:

$$ROA_{it}=\beta_0+\beta_1 VAIC_{it}+\beta_2 SIZE_{it}+\beta_3 GROW_{it}+\varepsilon_{it}$$

Model for Third Hypothesis:

$$Q_{it}=\beta_0+\beta_1 RDT_{it}+\beta_2 SIZE_{it}+\beta_3 GROW_{it}+\varepsilon_{it}$$

Model for fourth Hypothesis:

$$ROA_{it}=\beta_0+\beta_1 RDT_{it}+\beta_2 SIZE_{it}+\beta_3 GROW_{it}+\varepsilon_{it}$$

Q_{it}: Q-Tobin Index

ROA_{it}: Return of company assets

$VAIC_{it}$: Efficiency of Intellectual Capital

RDT_{it}: R & D intensity

$SIZE_{it}$: Size of Corporation (Control Variable)

$GROW_{it}$: Rate of sales growth (Control Variable)

3. Results

Results for First Hypothesis:

First hypothesis: There is a significant relationship between intellectual capital and corporate value.

Table 2. Regression Results

R^2	DW	F-Statistic	P-Value (F-Test)
0.641	1.207	142.054	0.00

Table 3. Estimation Results

Variable	Coefficient	t-statistic	(P-value)	Colinearity Test	
				Tolerance	Variance
VIAC	**-0.90**	**-0.902**	**0.438**	**0.267**	**1.313**
Size	**0.697**	**18.2**	**0.00**	**0.787**	**1.271**
Grow	**0.931**	**3.615**	**0.001**	**0.961**	**1.04**

Results indicate that there is not a significant relationship between intellectual capital and corporate value. So, first hypothesis is rejected.
Also, the size of corporation and rate of sales growth have a significant positive effect on value of corporations.

Results for Second Hypothesis:

Second Hypothesis: There is a significant relationship between intellectual capital and financial performance of corporations.

Table 4. Results from second model

R^2	DW	F-Statistic	P-Value (F)
0.459	1.65	67.488	0.00

Table 5. Estimation Results

Variable	Coefficient	t-statistic	(P-value)	Colinearity Test	
				Tolerance	Variance
VIAC	**0.396**	**12.713**	**0.00**	**0.762**	**1.313**
Size	**0.154**	**2.871**	**0.004**	**0.787**	**1.271**
Grow	**0.137**	**2.831**	**0.005**	**0.961**	**1.04**

Results indicate that there is a significant relationship between intellectual capital and financial performance of corporations.

Also, the size of corporation and rate of sales growth have a significant positive effect on financial performance of corporations.

Results for Third Hypothesis

Third Hypothesis: There is a significant relationship between innovation capital and corporate value.

Table 6. Results from third model

R^2	DW	F-Statistic	P-Value (F)
0.64	1.704	142.178	0.00

Table 7. Estimation Results

Variable	Coefficient	t-statistic	(P-value)	Colinearity Test	
				Tolerance	Variance
RDT	**0.003**	**0.082**	**0.935**	**0.995**	**1.005**
Size	**0.8**	**20.527**	**0.00**	**0.989**	**1.011**
Grow	**0.37**	**2.52**	**0.00**	**0.992**	**1.008**

References

1. Stirilng G, Wilsey B. Emprical relationships between species richness, eveness and proporational diversity. Am Nat 2001;158(3):286-99.
2. Smith MD, Wilcox JC, Kelly T, Knapp AK. Dominance not richness determines invasibility of tallgrass prairie. Oikos 2004;106(2):253–62.
3. Gaston K J. Global pattern in biodiversity. Nature 2000;405(1):220-7.
4. Tilman D. Causes, consequences and ethics of biodiversity. Nature 2000;405(4):208-11.
5. Brown J. Mammals on mountainsides: elevational patterns of diversity. Global Ecology and Biogeography 2001;10(1):101-9.
6. Sanders NJ, Moss J, Wagner D. Pattern of ant species richness along elevational gradients in an arid ecosystem. Global Ecology and Biogeography 2003;10(2):77-100.
7. Grytnes JA, Vetaas OR. Species richness and altitude: A comparison between null models and interpolated plant species richness along the Himalayan altitudinal gradient, Nepal. The Am Nat 2002;159(3):294-304.
8. Singh JS, Singh SP. Forest vegetation of the Himalaya. Bot Rev 1987;52(2):80-192.
9. Rawat YS, Singh JS. Forest floor, litter falls, nutrient return in central Himalayan forests. Vegetatio, 1989;82(2):113-29.
10. Singh JS, Singh SP. Forest of Himalaya: Structure, Functioning and Impact of man. Gyanodaya Prakashan, Nainital, India, 1992.
11. Valida KS. Geology of Kumaun lesser Himalaya, Wadia Institute of Himalaya Geology, Dehradun, India, 1980;291.
12. Shannon CE, Wienner W. The mathematical theory of communication. Univ. Illinois Press, Urbana, 1963.
13. Simpson EH. Measurement of Diversity. Nature 1949;163(2):688-91.
14. Whittaker RH. Community and Ecosystems. IInd ed. McMillan, New York, 1975.
15. Whittaker RH. Evolution and measurement of species diversity. Taxon 1972;21:213-51.
16. Saxena AK, Pandey P, Singh JS. Biological Spectrum and other structural functional attributes of the vegetation of Kumaun Himalaya, Vegetatio 1982;49(1):111-9.
17. Mehrotra P. Adaptive significance of leaf in relation to other parts in oak forest herbs of Kumaun Himalaya, Ph. D. Thesis, Kumaun University, Nainital, India, 1988.
18. Moustafa AA. Environmental Gradient and Species Distribution on Sinai Mountains. Ph. D. Thesis, Botany Department, Faculty of Science, Suez Canal University, Egypt, 1990;115.
19. Tewari JC. Vegetational analysis along altitudinal gradients around Nainital, Ph. D. Thesis, Kumaun University, Nainital, 1982;570.
20. Pielou EC. Ecological Diversity. Wiley, New York, 1975;165.
21. Magurran AE. Ecological Diversity and Its Measurement. Princeton University Press, Princeton, New Jersey, 1988;179.

8/1/2013