Considering the Effect of Structural Capital Efficiency on Profitability in the Insurance Companies Accepted in Tehran Stock Exchange

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A R T I C E L   I N F O

A B S T R A C T

In fact structural capital efficiency forms an important part of insurance companies' assets. Considering structural capital efficiency changes in the recent years at insurance companies of the country indicate that they have experienced, some downturns, some upturns and some irregular changes. Then of course structural capital efficiency is converted to a strategic asset for company to be effective in its competitive function. Objective: considering effect of structural capital efficiency on profitability in the insurance companies accepted in Tehran Stock Exchange. Method: this research with respect to method includes researches type of descriptive correlation. statistical population of the research include all accepted insurance companies in Tehran Stock Exchange which the reason for selection of these companies as statistical population , has been ease of access to audited financial statements of them and access to the companies' stock return in various dates. In this research using method of multistage sampling by systematic omission of12 active insurance companies in Tehran Stock Exchange during time slot of 2011 up to 2015, they were selected as samples, Eviews8 statistical software has been utilized for data analysis. Findings: the present research results indicate that structural capital efficiency effect on profitability at accepted insurance companies in Tehran Stock Exchange. Conclusion: existence of structural capital efficient in insurance companies will lead to competitive function improvement and as a result growth of profitability.

Introduction

During decade of 1980, neoclassic beliefs and hypotheses were challenged from the side of attitude based on resources. On the basis of Penrose remarks " " competitive advantage is not obtained by different combinations of products and markets in a definite market only, but also it is majorly emanated from difference in various types of human resources.

Since the resources are not always transferable, imitable and replaceable; it is necessary that for identifying the real and stable resources instead of attention to the outside, act on serious attention to the interior of the companies. Organizations are entering in to economy based on knowledge. the economy in which knowledge and intangible assets have been known as the most important organizations competitive advantage. Nowadays the utilization of intangible assets procedure involves a very crucial effect in success and survival of organizations in such a way that this subject caused the creation of a new research and study domain in management. In a simple classification intangible assets are divided into two categories which one of its most important elements include the intellectual capital which involve crucial effect on function and implementation of organizational strategies.hence, identification, measurement and management of intellectual capital include specific importance (GELDI SEDGHI, 2007)

On the other hand most of the current accounting capitals are unaware of the increasing importance and role of intellectual property and knowledge in the modern age organizations and are not able to measure the real value of assets in their calculations. In fact Financial Statements involve many limitations for explaining the real value of companies in the current knowledge base societies, the applied intellectual capital efficiency has got very much more importance than the applied financial capital return;

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this means that in comparison with the intellectual capital, the role and importance of financial capitals in determination of stable profitability have significantly decreased.

Therefore, structural capital efficiency strategic, symbol include insensible value of the companies and plays increasing role in production factors common function (Chan, 2009) .

With growth of knowledge economy or economy based on knowledge, we witness that remarkably that the intangible assets of the companies in comparison with other tangible assets of companies, they become important factor in reserving and fulfillment of their stable competitive advantage (King Hung, 2009). Business environment alters wonderfully, information, IT (Information Technology), e-commerce, software, Brands, patent, researches and innovations and …. Are invested in the 21st century business and economy which altogether are part of intangible Assets and intellectual capital and knowledge (SULIVAN, 2000,13)

Briefly in economy knowledge the most important assets and production factors are intangible which their usage doesn't decrease their value and even increase their value. These types of intangible assets including knowledge, intellectual capital and…, but in the industrial economy the most important factors are physical and tangible assets which their utilization decrease their value and these assets include piece of land, machineries, cash assets and…

Nuance industry is a knowledge base industry. In this industry what is sold include a piece of paper (policy) involving a number of conditional propositions; which in case of happening each of those conditions, a sum is paid as compensation for the tort to the injured party or his beneficiary. since issuance of policy requires no specific technology, it can be supposed that for the time being the insurers capacity is infinite and they are able to sell these leaflets as many as they want; but this moment is only the beginning of service rendering and the future moments which the insurance policy is in charge of covering future damages of the policy holder constitutes the main part of service render. On the basis provided in continuation, having structural capital efficiency in discretion at the insurance affair is something which has guaranteed the survival and growth of companies and marks the extent of their efficiency. Structural capital efficiency in fact constitutes an important part of insurance companies' asset and recently some attempts have been made for recognition and better utilization of this asset.

Considering structural capital efficiency changes in the recent years at the country's insurance companies' level indicate that they have experienced some upturn, some downturn and some irregular changes. Of course structural capital efficiency then is converted to a strategic asset for the company so that it is effective in its competitive function (ZAKERI et al., 2015). In fact this research is accounted as an attempt for valuation of intellectual capital in Financial Statements which is followed by the reply to the essential question as followings:

Whether structural capital efficiency influence on profitability in insurance companies accepted at Tehran Stock Exchange

Subject Importance

The essential reason for the present research conduction is lack of items as intellectual capital in Financial Statements of the companies and amongst other reasons for research conduction the ample distance between market value and book value of companies can be pointed out which drives the researches towards discovering factors creating this distance.

Research Objectives

Considering the effect of structural capital efficiency on the return on assets at insurance companies accepted in Tehran Stock Exchange

Considering the effect of structural capital efficiency on the return on Equity at insurance companies accepted in Tehran Stock Exchange

Research Hypotheses

First hypothesis: structural capital efficiency has effect on the assets return on insurance companies accepted in Tehran Stock Exchange

Second hypothesis: structural capital efficiency has effect on the return on Equity at insurance companies accepted in Tehran Stock Exchange

Research Literature

Structural Capital

Structural capital includes capacities for perception of the market requirements and the cases such as the patents and involves institutionalized knowledge in structures, processes and organizational culture. Structural capital is a knowledge that at the end of each working day remains in the organization it belongs to the total organization is able to reproduce and shared with others. In this definition structural capital is obtained through subtraction of human capital (total paid payroll) out of added value (King Hung, 2009)

Return on Assets (ROA)

Return on Assets measures the year proceeds to the assets which in exchange for one unit of the company resources how much return has been proceed. In fact ROA expresses a profitability ratio for the company. This ratio is prepared to show the company's profitability proportional to the total book value of assets when it is compared between two or several companies in an industry in different sizes (NORAVESH et al., 2014)

Return on Equity (ROE)
Measures ROE annual proceeds to ROE which in exchange for one unit of equity how much profit has been proceed during the year. In fact ROE expresses a ratio of profitability for the shareholders. This ratio is prepared to indicate the company's profitability proportional to the shareholders book capital when it is measure between to or several companies in an industry in different sizes (NORAVESH et al., 2014)

Research History
Interior Researches
 FARZIN and HEMMATI (2015) conducted a research entitled with the effect of intellectual capital in creation of value added (economic and market). Results emanated from research hypotheses test signify that there is a significant and positive relationship between intellectual capitals with value added of the companies.
In another research entitled with consideration of relationship between intellectual capital and market value and financial function of non-financial companies, HEMMATI and MOZAFFARI (2015) indicated that there is a significant relationship between intellectual capital and market value and financial function of non-financial companies.
In a research entitled with the relationship of market value added changes with economic value added and accounting profit, ASADI (2014) concluded that regarding the scientific contexts it seems that the data and historical information are not capable of determining the value of an assets. But Evidences indicate that in the market, investors make their investment decisions based on financial reports and information inserted in them. Emanated results indicate that in Tehran stock exchange market economic value added and accounting net profit, are inefficient and weak criteria for identifying the created value in the market.
NAMAZI (2013) has considered the effect of intellectual capital on the current and future function of the accepted companies in Tehran Stock Exchange and has expressed that, emanated results from this research hypotheses test utilizing « Partial Least Square Regression Method » signify that apart from the company size, the past financial function and debt structure , intellectual capital and the current and future function of the company, both at all companies levels and also at industries level there is a positive significant relationship.
MADHOOSHI (2013) has tested intellectual capital measurement and its relationship with financial return of the companies' consideration and expressed that in fact the traditional financial accounting is not able to calculate the real value of the companies and only suffices to measurement of financial balance sheet and tangible assets. Findings signify a positive significant relationship between intellectual capital and financial return; intellectual capital and future financial return, intellectual capital growth rate and growth rate of future financial return investing companies in Tehran Stock Exchange.
YAZDANI (2011) the traditional thought in economy which was based on resources and tangible assets measurement nowadays has been replaced by value creation emanated from intangible assets. In the middle of the 20th century financial economists tried to attract the attention of companies to a new approach towards business. This approach was based on the thought that each organization involves capabilities, scores and exclusive immaterial resources distinguished from other organizations which is the genesis of value and wealth creation. Hence it is necessary that all organizational capacities and resources and assets out of balance sheet to identified and measured.
MADHOOSHI (2009) intellectual capital include all assets that are not indicated in the balance sheet of the company and include those category of intangible assets such as brand, patents and inventions , and human superiorities, structural and environment communications which are not reflected in the balance sheets through accounting methods.
Growth of the companies' intangible assets, guarantees the competition power and stable development.

Exterior Researches
ESVINSON (1997) introduces two parts of intellectual capital as the human capital and structural capital that it can be interpreted as the individuals who are in an organization and what remains after their leave.
BROKING (1997) intellectual capital regards intellectual capital as a combination of intangible assets which enables the economic establishment to act on responsibilities.
In SMITH's point of view (2013) the structural capital include capabilities and existing knowledge in the company which is in control of the company and after staff leaving the company , remains there.
Kaplan and Norton (1996) regard balance sheet exterior intangible assets including human capital as information capital and organizational capital. Exterior balance sheet intangible assets cannot be transacted in the market. There is no possibility of supervision an control of these assets existences, these assets don't have a limited lifespan and their amortization has not been calculable yet.
Chen et al., (2012) believe that structural capital is the supporting division of intellectual property for organizational function improvement. therefore, structural capital is a subordinate of human capital and these two are interacting each other and in their point of view, the relationship capital – relationship with customers – express the power of marketing, increasing market share and customers' loyalty.
From BONITES (2012) point of view the relational – social capital expresses all relationships that the company establishes with customers, competitors, material and goods suppliers, commercial associations or the government, BONITES et al., (2000) think that amongst the intellectual capital ingredients, human capital is more important; since human capital is the resource of innovation and strategic rebuilding of the companies which is obtained through human skills improvement.

From the Stewart (2010) intellectual capital include knowledge, information, intellectual asset and experience which can be effective in wealth creation. In his opinion it includes structural capital, information technology knowledge the right of registration and utilization of commercial brands.

From RAS et al., (2011) point of view, the staff create intellectual capital through qualifications, views, intellectual skills and experience. In their opinions structural capital is all impersonal reserves and the existing knowledge of organization including databases and resources, organizational charts, formations and methods, directives and regulations, shape and content of processes, organizational strategies and operational plans

BONITES (2010) divided the elements of intellectual capital in to three factions of human capital, structural and social. In the opinion of BONITES the intellectual capital is a combination of intangible assets, human asset and substructures which enable the company in performing its duties. He believes human capital of an organization include expertise, problem solution capabilities and leadership styles.

This research has been conducted with the objective of considering the effect of capital effectiveness on profitability of insurance companies accepted in Tehran Stock Exchange with the following hypotheses test, which of the assets return and equity return as the profitability indicators have been utilized.

Hypothesis 1- the effectiveness of structural capital influences on the return of insurance companies accepted in Tehran Stock Exchange

Hypothesis 2- structural capital effectiveness on the equity return of insurance companies accepted in Tehran Stock Exchange

Research Method
Research Conduct Method
This research based on classification is based on the research method type of descriptive - correlation

Information Collection Method
In this research information collection method associated with the research literature has been library method including books, various articles, internal and foreign journals and the methods of collecting the required information in this research, for hypotheses test, has been library method.

Information Collection Tools
Information collection tools, have been databases and document search and the required data include operational profit, payroll cost, amortization cost, tangible asset, total of assets, equity, income and the price of statistical sample companies share price in the financial information inserted in the audited financial statements of them which these information have been extracted from the past record existing in RAHAVARD NOVIN software and also in some cases from the electronic and internet archives.

Research Statistical Population
Research statistical population include all insurance companies accepted in Tehran Stock Exchange and the reason for selection of these companies as statistical population has been ease of access to the financial statements audited and also access to the companies share return in different dates.

Regarding the 5 year course of research (since the eve of the year 2011 up to the end of the year 2015), those insurance companies have been selected that since the beginning of the year 2011 have become member of Tehran Stock Exchange and also their financial period has ended to March 19, . Sample method is stage by stage and has been with systematic omission.

In this research, those insurance companies were selected as sample which included all of the following conditions:

1- They had become member of Tehran Stock Exchange before 2011.

2- Financial course of insurance companies ended to March 20, annually

3- The above mentioned insurance companies didn't involve incomplete information.

Tools and methods of data analysis
regarding that in this research information related to 12 insurance companies accepted in Tehran Stock Exchange has been collected and the extracted information include dependent variable, independent and control and the objective of the research involves considering the effect of independent variable on the dependent variables; therefore, regression analysis has been the most convenient method for the research hypotheses test and for considering the linear relationship between independent and dependent variables, regression general coefficient test has been utilized.

For considering the research stability the test of IPS (IM PESARAN SHIN unit root test) (1997) was utilized and for selection one of the methods of balanced panel and consolidated data F-LIMER was utilized.

Distribution Normality of the research variables finding was also considered through JARK-BRA and also for considering variance heterogeneity existence, error models, and White test has been utilized. And ultimately for Autocorrelation test between remainders Durbin - Watson test was utilized.

Research Findings

Initially the descriptive statistics of the studied data were calculated. Table (1) indicates the descriptive statistics of the model variables which include information related to the Mean, intermediate, standard deviation, SKEWNESS coefficient and Coefficient of kurtosis

Table (1): Model Variables Descriptive Statistics

Distribution Indices		Dispersion Index	Central Indices		Symbol	Variables	Variable Type
Kurtosis Coefficient	SKEWNESS Coefficient	Standard Deviation	Intermediate	Mean			
5.069168	1.417323	0.061491	0.045000	0.059500	ROA	Assets Return	Dependent
12.67314	2.377360	0.135041	0.074733	0.096535	ROE	Equity Return	
38.61496	-5.501368	0.617874	0.470000	0.388167	SCE	Structural Capital Efficiency	Independent
2.244385	-0.512543	0.362154	12.25111	12.17486	SIZE	Size Of Company	Control
3.624377	-1.304462	0.254400	0.759171	0.673383	LEV	financial leverage	

The main central index includes the Mean which is indicator of balance point and center of gravity for distribution and a good index for indicating centrality of data. For example the amount of Mean for the assets return variable is equal to 0.059500 which indicates that most of the data have been concentrated around this point. Also dispersion parameters, is a criterion for determination of dispersion extent from each other or the extent of their dispersion proportional to the mean. Standard deviation is amongst the most important parameters of dispersion. Amongst the research variables assets return involves the minimum and structural capital efficiency include the maximum extent of dispersion.

Variables Stability Consideration Test

For variables stability consideration the IPS (IM PESARAN SHIN unit root test) (1997) was utilized. The results of this test have been indicated at tables 2

Table (2) IPS (IM PESARAN SHIN Test Results) (1997)

P-Value	W-Statistic	Variable
0.0000	-6.07845	ROA
0.0000	-1.72673	ROE
0.0000	-4.33291	SCE
0.0000	-4.00539	SIZE
0.0000	-5.76945	LEV

Regarding IPS test results (table 2), since amount of p-value for all variables is less than 0.05, as a result these research variables during research course have been at stable level.

As a result IPS test results indicate that the Mean and variables variance during the time and Covariance variables have been stable through various years. As a result, utilization of these variables in the model does not create a false regression.

LIMRO HAUSMAN F Test

To determine appropriate model (consolidated or balanced panel with fixed or random) for the hypotheses, tests of CHOW test (F LIMR) and HAUSMAN

Table (3) CHOW Test (F LIMR) and HAUSMAN Test

Result	p-value	Probability	HAUSMAN statistics	Result	p-value	Probability	F LIMR statistics	Hypotheses
-	-	-	-	Consolidated Data	P≥0.05	0.0946	1.741748	Hypothesis 1
-	-	-	-	Consolidated Data	P≥0.05	0.1059	1.280465	Hypothesis 2

In all hypotheses regarding that the amount of p-value obtained from the LIMR F Test is larger than 0.05, the null hypothesis (H0) is confirmed (p-value ≥ 0.05) and the method of consolidated data is accepted. Also regarding p-value amount obtained from the LIMR F Test, there is no need to HAUSMAN test conduction.

Variables Distribution Normality Test

In this research, the study of variables distribution normality was considered through JARQUE – BERA statistics

Table (4) Test Normality (JARQUE – BERA)

Variables					Parameter Description
LEV	SIZE	SCE	ROE	ROA	
60	60	60	60	60	Quantity
17.99083	4.054389	3473.714	290.4426	30.79169	Test Criterion
0.000124	0.000000	0.000000	0.000000	0.000000	Significance Level

By means of the table 4 the possibility of JARQUE – BERA statistics in the case of all research variables is smaller than 0.05, the results are indicator of this subject that the variables don't include normal distribution. In continuation for normalizing the variables transformations such as LOG و LN have been utilized that the results have been provided in the table 4-5.

Table (5) Normality Test (JARQUE – BERA)

Variables					Description Parameter
LEV	SIZE	SCE	ROE	ROA	
60	60	60	60	60	Quantity
0.864523	0.864608	092344.0	0.8380737	0.9537753	Criterion Test
0.068257	0.068289	0.0642486	0.0718236	0.0638852	Significance Level

By means of the table 5 the possibility of JARQUE – BERA statistics in the case of all research variables is larger than 0.05, the results are indicator of this subject that the variables include normal distribution.

Considering Heterogeneity Variance

Table (6) White Heterogeneity Test Results

Result	p-value	Possibility	statistics amount	Description	Hypotheses
Variance Heterogeneity	P<0.05	0.0000	5.560227	F-statistic	Hypothesis 1
Variance Heterogeneity	P<0.05	0.0000	14.78117	F-statistic	Hypothesis 2

In all hypotheses regarding that the statistics of these tests are significant at the level of 5 percent; therefore, the hypothesis of variance homogeneity is nulled and variance heterogeneity error models are accepted.

Hypothesis Analysis

The First Hypothesis Test

Structural capital efficiency effects on assets return in the insurance companies accepted in Tehran Stock Exchange

Table (7) Data Analysis Results for the First Hypothesis Test

Dependent Variable: ROA				
Method: Panel EGLS (Cross-section weights)				
Date: 05/02/17 Time: 00:28				
Sample: 2011 2015				
Periods included: 5				
Cross-sections included: 12				
Total panel (balanced) observations: 60				
Linear estimation after one-step weighting matrix				
White cross-section standard errors & covariance (no d.f. correction)				
p-value	t Statistics	Standard Deviation	Coefficient	Variable
0.0004	3.840817	0.069323	0.266256	C
0.0000	4.858511	0.008820	0.042853	SCE
0.0390	-2.126440	0.005278	-0.011223	SIZE
0.0000	-6.615132	0.019474	-0.128826	LEV
14.74606	F-statistic	1.954816	DURBIN WATSON Statistics	
0.000	Prob(F-statistic)	0.765356	Adjusted R-squared	

Estimation Command:
=========================
LS(CX=F,WGT=CXDIAG,COV=CXWHITE,NODF) ROA C SCE SIZE LEV
Estimation Equation:
=========================
ROA = C(1) + C(2)*SCE + C(3)*SIZE + C(4)*LEV + [CX=F]
Substituted Coefficients:
=========================
ROA = 0.266256342827 + 0.0428529700827*SCE - 0.0112232341459*SIZE - 0.128825902595*LEV + [CX=F]

Regarding results emanated from regression model test as explained in the above mentioned table, it is observed that that amount of P-Value associated with the F statistics (prob [F-statistic]) which is explanatory of the total regression significance is equal to 0.000 and signifies that the model is significant at the reliability level of 95 percent. The adjusted determination coefficient of R2 is equal to 0.765356 and expressing that almost 76% of the variable changes depend upon the model independent variables are explainable and also Durbin Watson Statistics is 1.954816 and this amount is between 1.5 up to 2.5 which is indicator of lack of Autocorrelation between the variables.

As it is observed in table 7 variable coefficient of Structural Capital Efficiency (SCE) equals with 0.042853 and its Significance Number (Prob) is 0.0000.

Regarding t statistics and p-Value of this variable, the results are indicator of this coefficient significance at error level of 5 percent. These findings indicate structural capital efficiency effects on assets return of insurance companies accepted in Tehran Stock Exchange.

Second hypothesis test
Structural capital efficiency effect on the equity of insurance companies accepted in Tehran Stock Exchange.
Table (8) Data Analysis Results for Second Hypothesis Test

Dependent Variable: ROE
Method: Panel EGLS (Cross-section weights)
Date: 05/02/17 Time: 00:30
Sample: 2011 2015
Periods included: 5
Cross-sections included: 12
Total panel (balanced) observations: 60
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (no d.f. correction)

p-value	statistics t	standard deviation	coefficient	variable
0.0000	4.927830	0.214330	1.056183	C
0.0000	7.664777	0.011868	0.090969	SCE
0.0000	-4.849674	0.017944	-0.087022	SIZE
0.0000	7.255708	0.013206	0.095821	LEV
15.64544	F-statistic	2.243728	Durbin Watson Statistics	
0.0000	Prob(F-statistic)	0.776546	Adjusted R-squared	

Estimation Command:
=========================
LS(CX=F,WGT=CXDIAG,COV=CXWHITE,NODF) ROE C SCE SIZE LEV

Estimation Equation:
=========================
ROE = C(1) + C(2)*SCE + C(3)*SIZE + C(4)*LEV + [CX=F]
Substituted Coefficients:
=========================
ROE = 1.05618343221 + 0.0909688831639*SCE - 0.0870222299139*SIZE + 0.0958205635458*LEV + [CX=F]

Regarding results emanated from regression model test as explained in the above mentioned table, it is observed that that amount of P-Value associated with the F statistics (prob [F-statistic]) which is explanatory of the total regression significance is equal to 0.000 and signifies that the model is significant at the reliability level of 95 percent.

The adjusted determination coefficient of R2 is equal to 0.776546, expressing that almost 78% of the variable changes depend upon the model independent variables are explainable and also Durbin Watson Statistics is 2.243728 and this amount is between 1.5 up to 2.5 which is indicator of lack of Autocorrelation between the variables.

As it is observed in table 8 variable coefficient of Structural Capital Efficiency (SCE) equals to 0.090969 and its Significance Number (Prob) is 0.0000.

Regarding to statistics and p-Value of this variable, the results are indicator of this coefficient significance at error level of 5 percent. These findings indicate that structural capital efficiency effects on assets return of insurance companies accepted in Tehran Stock Exchange.

Conclusion Discussion

In a similar research which has been conducted in the domain of intellectual capital and its relationship with the financial indices, the emanated results express positive and significance relationship between these variables. (They have been mentioned in advance in the subject of interior histories)

Results emanated from this research also indicate that :

Structural Capital Efficiency (SCE) effect on equity return of insurance companies accepted in Tehran Stock Exchange.

Regarding the achieved results in the case of the research hypotheses, the effect of Structural Capital Efficiency (SCE) on profitability insurance companies accepted in Tehran Stock Exchange is proved.

Resources

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