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THE IMPACT OF OWNERSHIP STRUCTURE ON INTELLECTUAL CAPITAL PERFORMANCE (ICP); AN EMPIRICAL ANALYSIS IN PAKISTAN STOCK EXCHANGE

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ABSTRACT

The aim of this research is to explain the effect of Value added Intellectual Capital (VAIC™) and its components that is Value added Human capital (VAHC), Structural capital Value added (SCVA) and Value added capital employed (VACA) on the ownership percentage of different types of owners. To explain the hypothesized relationship different set of independent variables are used. The data of 140 listed companies from Pakistan Stock Exchange for a time period spanning over 6 years from 2017 to 2022 is used for analysis. The results concluded that VAIC™ only showed a positive significant relation with Individual ownership and with the remaining components of ownership structures that includes ownership by largest shareholder (ownership concentration), ownership by state, ownership by companies and ownership by institutions it showed an insignificant relation.

INTRODUCTION

The concept of business ownerships has been started from sole proprietorship and now with the passage of time the ownership structure is shifted towards complex ownership structures. So the separation of ownership form the management leads towards the agency cost which had an impact on the firm performance. (Connelly *et al*., 2010; Perrini *et al*., 2008). The effective form of corporate governance is corporate ownership. To study the effect performance and ownership in the literatures of economics and finance, a prominent frame of reference is presented by agency theory (Shleifer &Vishny, 1997; McConnell & Servaes, 1990; Beiner *et al*., 2006). Shift towards knowledge-based organizations is worldwide with a special focus on corporate governance leading to a transition to knowledge-based societies (Keenan & Aggestam, 2001). In this context, knowledge assets are the building block of firms' strategic capabilities so the managers must need tools to manage the performance of those assets (Marr *et al*., 2004). For improving the performance, the firms must pay specific attention to intellectual capital showed (Nicholson & Kiel, 2004). For measuring intellectual capital one of the main reasons is external validation reported by Marr & Gray (2002). Also Marr (2004) reported that knowledge based firms are concerned to bring continuous enhancement in performance hence ICP is used and is considered as the core value driver (Marr & Schiuma, 2001). Therefore ROE and ROA are the historical measures of performance and on the conventional accounting principles they are calculated therefore to survive in the new competitive environment we should have intellectual capital to increase our competitive advantage (Edvinsson & Malone, 1997; Bontis, 2001).

Representing the contribution of intangible resources to corporate performance needs to measure the firm performance because the firm performance is historically measured on financial perspectives whereas intangible resources are measured by the Value added intellectual coefficient (VAIC™) method (Tseng & Goo, 2005). According to Keenan & Aggestam (2001), tangible financial and physical capitals are transformed into added performance and values that is why in all governance systems it is

important to pay most attention to intellectual capital. To the performance of the firm intellectual capital is critical. The impacts on physical and financial capitals by corporate governance was the focus of the studies in the past time and accordingly it is claimed that no impacts of CG on IC has been studied (Keenan & Aggestam, 2001). In this paper attempts have been made to find the answers to the following questions: The association of ICP with ownership structure? And in Pakistani firms to find the degree of ownership concentration and its ICP. Pakistani market is one of the growing market and its governance and policies still play an important role in its economy. The ICP measures are better indicators of future business performance than accounting measures and it is one of the primary reason of choosing the ICP (Marr *et al*., 2003).

This study contributes to the current literature in many ways as study is done on the impacts of ownership structure on ICP in Pakistan as one of the developing countries. As intellectual capital is an important asset so the findings of this study will enlighten the organizations about the importance of this capital. In Pakistan and other regions of the world the results of this paper maybe of significance to the managers, investors, corporate executives and academic researchers. Generally, this study will help the policy makers to make effective and efficient strategies for enhancing the wealth of shareholders because the results of this study will make them aware of ownership structure and ICP. For gaining more returns the results of this study can help the investors and shareholders. In the next section literature has been reviewed.

Literature Review:

A dominant theoretical frame of reference is represented by the agency theory in the literatures of finance, strategic management and economics explaining the relationship between ownership and performance (Demsetz & Villalonga, 2001; Shleifer & Vishny, 1997). So the basics to examine the corporate ownership is given by seminal work of Berle & Means (1932). So a conflict of interest arises between the managers and the shareholders because in the modern companies the management and shareholders are separate and it is explained by the work of Berle & Means (1932). Internal ownership is also necessary for the enhancement of firm's value (Jensen & Meckling, 1976). According to agency theory, the more the ownership will be concentrated the more effective regulation will be. As a result, to improve their ICP they help firms. It is showed in the conclusion that there is a direct association between performance and ownership concentration (Hill & Snell; 1988). When ownership concentration is used as an internal variable so it results as enlargement of shareholder wealth therefore the relation between performance and ownership structure must be inspected with the association between performance and ownership concentration reposted by Demstez (1983). Regarding the relationship between performance and ownership concentration the value of the frim decreases with the ownership concentration and this is a contradictory finding of Fama and Jensen (1983). Opportunity and power as a result of greater ownership concentration is provided to the large shareholders of the firm to minimize the management monitoring costs of the firm based on effective monitoring hypothesis. For the management of intellectual capital in firms there are several hypothetical implications. According to (Keenan & Aggestam, 2001) there will be low influence of ownership over the governance when ownership will be diversified and relatively un-concentrated, therefore maybe less concerned about the intellectual capital of the firm. (Wortzel & Wortzel, 1989; Martin & Parker, 1995) The state ownership give rise to inefficient corporate governance and the private ownership is more efficient than state ownership. On corporate governance this is the main idea in the literature. When the ownership of firms is private so those firms are highly motivated and as a results they seek more for opportunities in order to reduce costs and increase profits. State-owned enterprises (SOEs) have low Performance than privately-owned enterprises according to Goldeng *et al.,* (2008). The government considers political decisions in choosing the managers and other personnel of the company and also pay little attention to the ability of the individuals is one of the reasons for the inverse effect of state ownership (unlike private ownership) on corporate performance.

Over the managers of the subsidiaries corporate-owned companies have great influence and control. A small category of shareholder is made-up by individual shareholders. According to Sun and Tong (2003) with the subsidiaries corporate-owned companies have close ties and firm performance is positively related with corporate ownership (legal persons) and this conclusion was made by examining

634 companies listed in Chinese Stock Exchange. Because of being motivated for gaining profit and accessing more information corporate owners may have better performance (La Porta *et al*., 1999).

The largest category of shareholders in most countries is institutional ownership. In stocks they invest a considerable part of their funds. Among all US equities institutional investors own over 60 percent (Brancato, 2005). According to Pound, (1988) between performance and institutional ownership there is a significant positive relationship and based on effective monitoring hypothesis. In reducing the cost and monitoring the management effectively as compared to individual shareholder's institutional shareholders have the necessary tools. Between performance and institutional ownership there is a significant negative relationship according to strategic-alignment hypothesis and conflict of interest hypothesis (Barnhart & Rosenstein, 1998). Attention to intellectual capital is important in all systems of governance because intellectual capital transforms the relatively tangible financial and physical capitals into added value. So according to Keenan and Aggestam, (2001) the performance of the firm intellectual capital is critical. Because of the paradigms of the intellectual capital the governance members are required to think holistically about all those intangible resources that can create both stability and change and also they should think to create value by both extra-organizational and intra-organizational relationships. So intellectual capital is not only the one that should be accurately measured but also the resulting information must be used effectively (Ross, 2003).

Moreover, deployment and human capital acquisition may be influenced by ownership structure of a business according to Delmas and Toffel (2004). It is demonstrated by research in institutional theory that in response to isomorphic pressures from external environment shareholder's organizations develop and maintain certain organizational practices. To consider intellectual capital and human capital corporate governors are forced for mobilizing, assuring the culture of innovation. Internal structure and external structure is directed towards achieving the goals and values of the firm. To leverage and create value corporate governance uses intellectual capital, physical and financial resources according to Keenan and Aggestam, (2001). Intellectual capital does provide company with value and better financial performance shown by several studies (Pulic 2004, 2000; Shiu, 2006; Alipour, 2012). On the basis of the literature reviewed above the following hypotheses have been developed;

H1: The impact of ownership structure on intellectual capital performance is positively significant.

Methodology

The aim of this study is to examine the impact of ownership concentration and its elements on the intellectual capital performance of the firm. This study strives to analyze how Intellectual capital performance is affected by the governance practices in non-financial listed firm of Pakistan stock exchange. The next section elaborates the formation of dependent variable of this study.

Value added Intellectual Capital

Intellectual capital which is defined by Stewart1(997) is the collection of knowledge, information, intellectual property, and experiences of each individual. There is another detailed definition which states that the prime value driver for shareholders and a major source of competitive advantage for firms is the intellectual capital which is obtained or controlled by the business unit (Alipour, 2012; Hitt *et al*., 2001). Intellectual capital is also divided into human capital, relational capital, and structural capital by some researchers (e.g. Bontis, 1998; Sveiby, 1997; Edvinsson & Malone, 1997).

VAIC™: stands for Value Added Intellectual Capital. Measuring the value of businesses under new economy becomes crucial because their value is derived by intangible assets suggested by Rangone (1997). Methods to measure intellectual capital and its performance have been developed by researchers (Edvinsson & Malone, 1997; Roos *et al*., 1998). In a knowledge based economy a measure for value creation of firms was introduced by Pulic and named as Value added Intellectual capital (VAIC™) (Pulic, 2000, 2004). Pulic developed this measure to recognize the role of knowledge and intellectual capital in improving the firm performance. The Value added Intellectual Coefficient (VAIC™) is a financial valuation method of intellectual capital (Andriessen, 2004). It refers to the ''total value creation efficiency due to both intellectual capital (structural and human capital) and the financial

capital (structural employed) functioning in a business environment'' (Pulic, 2004).

$VAIC^{TM} = VACA + VAHC + SCVA$

Table 1: Variable formation

Formula	Description
VACA→ VA/CA VAHC→ VA/HC SCVA→ SC/VA $VAIC^{TM}$	VA→ Value added, VA = sales – cost of goods - depreciation CA→ Structural employed consists of both tangible and intangible assets VAHC→ HC is human capital and it is equal to all the salaries and wages paid to the employees SCVA→ SC is the structural capital which is equal to the difference between value added and human capital = VACA + VAHC + SCVA

Independent Variables: According to Shahveisi. Khairollahi and Alipour, (2016), mentioned five independent variables. According to them within the sample the companies have different types of ownerships that is state, individual, corporate, and institutional ownership. The independent variable of the research is ownership concentration (OC) and is defined as the company's largest shareholder ownership percentage. Another variable is state ownership (SOP), which means investments made by governmental institutions into stocks. Individual ownership (IOP) is another independent variable. Corporate ownership (COP), in the sample companies is the level of corporate (legal persons) ownership. And the last one is Institutional ownership (INOP), public and union pension funds, mutual funds, investment bankers, insurance companies are included in institutional investors. Based on the work of Grosfeld & Hashi, (2007); Perrini *et al*., (2008), the percentage state, individual, corporate, and institutional ownership and the percentage of the shares of the largest shareholder is taken as ownership concentration. The development of intellectual capital via the access to resources and market power maybe influenced by the firm size (Serenko *et al*., 2007; Youndt *et al*., 2004). (Youndt *et al*., 2004) also controlled for firm size because they predicted that knowledge creation and diffusion are inherently evolutionary in nature and would be influenced by an organization's access to resources (Reed *et al*., 2006).

For controlling the effect of profitability on corporate ICP, ROA is used and it is equal to net profits divided by total assets. With performance and profitability of firms intellectual capital has a relationship shown by researchers (Alipour, 2012; Ho & Williams, 2003). Between intellectual capital and leverage there is a positive relationship founded by Liu and Wong, (2011). It is equal to total debts divided by the book value of total assets and for controlling the effect of debts on corporate ICP leverage is used (Swartz & Firer, 2005). The liquidity position of the firm which is measured by current ratio (CR) is anticipated to have a positive coefficient (Cho, 1998). Firms were expected to increase their investments in new ventures when liquidity was high. The following regression model has been developed and used.

$$Y = \alpha + \beta 1(Ownership) + \beta 2(Ownership)^2 + \beta 3(FSIZE) + \beta 4(ROA) + \beta 5(LEV) + \beta 6(CR) + \varepsilon_{it}$$

The dependent variables are Y and it consists of $VAIC^{TM}$, VACA, VAHC and SCVA. The independent variables are denoted by ownership structure it consists of ownership concentration, state, individual, corporate, and institutional ownership . Control variables have been incorporated in the regression model they are Firm Size, Profitability, Leverage and Current Ratio and are represented by FSIZE, ROA, LEV and CR respectively. To control for the potential nonlinear effect of ownership structure on ICP we include $(ownership)^2$ (Wei *et al*., 2005).

The sample consists of 140 companies from different sectors including Textile, Cement, Automobile and Chemical sector all over Pakistan. The financial data has been collected from their annual reports for the period of 6 years from 2017 to 2022.

Empirical Analysis

Table 2: Summary Statistics					
Variables	**Mean**	**Median**	**St. Dev**	**Skewness**	**Ex Kurtosis**
VAIC	6.7243	6.7432	0.33773	-16.877	283.56
VAHC	2.4285	2.3736	0.35757	1.3853	16.901
SCVA	6.6813	6.7415	0.58197	-9.6729	91.602
VACA	0.33386	0.28590	0.29265	8.1525	82.146
OC	0.29939	0.24990	0.19936	0.72935	-0.034061
SOP	0.0050331	0.0000	0.033423	8.7342	77.759
COP	0.31014	0.14880	0.31417	0.54499	-1.2318
IOP	0.33778	0.26895	0.29070	1.0393	0.14077
INOP	0.072083	0.021500	0.16724	4.3457	18.934
FSIZE	19.182	20.053	3.0965	-0.087502	-1.3572
ROA	0.055586	0.039500	0.13737	-0.39022	19.293
LEV	1.2200	0.51050	6.3759	13.137	190.04
CR	1.5318	1.1980	1.3328	2.7825	10.937

In the above table it is clearly shown that VAIC has the highest mean. In case of median VAIC is having the highest median and is again followed by SCVA both of them are dependent variables. SCVA is has the highest standard deviation. When the standard deviation is high it means there is a high variation in the data. As SCVA is the difference between value added and human capital so which means that this difference is high and there is high variation in this difference. As far as skewness is concerned so in above table most of the variables shows positive values of skewness which means that data is rightward skewed. Kurtosis values for most of the variables in above table are greater than 3 which means indicating a heavy distribution.

Panel Diagnostics

Autocorrelation can be checked by using Durbin Watson test. The results showed that there is positive autocorrelation among the error terms in the data. For checking Heteroskedasticity in the data white test is used. The results show that there is hetroskedasticity in the data.

Table 3: regression results (dependent variable: VAIC)						
Variables	**Fixed Effect**		**Random Effect**		**Weighted Least Square**	
	Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
Constant	6.34347	<0.0001	6.45154	<0.0001***	6.74729	<0.0001***
OC	−0.293174	0.6542	−0.222705	0.5145	0.0151869	0.1144
OC^2	0.503666	0.5009	0.243123	0.5725	−0.0189247	0.1279
FSIZE	0.0186919	0.5451	0.0148640	0.0453**	−0.000393992	0.0001368***
ROA	0.745372	0.0001	0.476091	0.0021**	0.0296643	0.0004
LEV	−0.000139838	0.9760	0.00118430	0.7198	−7.22151e-05	0.6275
CR	0.00243117	0.9140	−0.00326088	0.8393	0.000297404	0.5943
R-Squared	0.255574		NA		0.153718	
F-statistic (p-value)	0.137968		NA		8.567287(1.45e^{-8})***	
CHOW Test, Test statistics (p-value)	1.3777(0.253336)					

Breusch-Pagan test, Test statistics (p-value)	0.168871(0.681117)
Hausman test, Test statistics (p-value)	6.21886(0.399125)
*** 99% confidence, ** 95% confidence, * 90% confidence	

According to the p value of Chow test in the above table 3 pooled is superior over fixed. From the above value of Breusch-Pegan test it is found that pooled is still superior over the random effects. The results of the Hausman test that fixed is superior over random effect. To correct the concerns of autocorrelation in dataset the WLS method is used. The results showed that between VAIC™ and Ownership concentration (ownership by largest shareholder) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the ownership concentration. ROA showed a significant relationship with VAIC™ while FSIZE, LEV and CR showed insignificant relationship. It is also concluded that ROA and CR are positively related while LEV and FSIZE are negatively related with VAIC.™

The next step is to check the validation and fitness of the model so this can be checked by R-square value and F-statistics. So in the above table R-square value is 0.153 or 15.3% which means that 15.3% changes in the dependent variable is occurred because of the independent variables. This value shows that the remaining changes occur because of uncontrollable factors or there are still some independent variables missing which could influence the dependent variable (VAIC™). And as far as the model fitness is concerned so the regression model is significant because the F-statistics is 8.567 and the P-value of F-statistics is below 0.01.

4.3.2 Model 2(a):

The following tests are found and the tests are run in gretl software

Table 4: regression results (dependent variable: VAHC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	5.00437	<0.0001***	2.69890	<0.0001***	2.37401	<0.0001***
OC	−0.289056	0.5816	0.175096	0.6465	0.273548	0.0037***
OC^2	0.617481	0.3034	−0.0869943	0.8525	−0.252264	0.0863*
FSIZE	−0.135067	<0.0001***	−0.0206964	0.0281**	−0.00510862	0.0017***
ROA	0.637027	<0.0001***	0.646177	<0.0001***	0.819195	<0.0001***
LEV	0.000265572	0.9431	−0.00112011	0.7359	−0.00130703	0.0095***
CR	−0.00918390	0.6106	0.0331866	0.0362**	0.0256121	0.0003***
R-Squared	0.573672		NA		0.570698	
F-statistic (p-value)	4.827108($1.11e^{-18}$)***		NA		62.70150($3.66e^{-49}$)***	
CHOW Test, Test statistics (p-value)	3.5194($1.09968e^{-011}$)***					
Breusch-Pagan test, Test statistics (p-value)	32.7722($1.03614e^{-008}$) ***					
Hausman test, Test statistics (p-value)	34.2774($5.94644e^{-006}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

To correct the concerns of autocorrelation in dataset the WLS method. The results showed that between VAHC and Ownership concentration (ownership by largest shareholder) there is a positive significant relation. It also showed a negative significant relation with the square of the ownership concentration. FSIZE, ROA, LEV and CR showed a significant relationship with VAHC. It is also concluded that

ROA and CR are positively related while LEV and FSIZE are negatively and significantly related with VAHC. R-square value is 0.5706 or 57.06% which means that 57.06% changes in the dependent variable is occurred because of the independent variable.

Table 5: regression results (dependent variable: SCVA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	5.90645	<0.0001***	6.62512	<0.0001***	6.74061	<0.0001***
OC	−0.537797	0.6446	−0.815501	0.1576	−0.00946189	0.5777
OC^2	0.514471	0.6994	0.887953	0.2237	0.0107482	0.6064
FSIZE	0.0427163	0.4376	0.00738044	0.5511	−1.92894e-06	0.9938
ROA	0.527059	0.1270	0.356486	0.1849	0.0102659	0.2764
LEV	−0.000228338	0.9780	0.000198352	0.9720	−3.53086e-05	0.7336
CR	0.0136970	0.7326	0.0156407	0.5712	0.000197566	0.7515
R-Squared	0.204756		NA		0.007421	
F-statistic (p-value)	0.923645(0.637774)*		NA		0.352657(0.908053)*	
CHOW Test, Test statistics (p-value)	0.932709(0.6131143)*					
Breusch-Pagan test, Test statistics (p-value)	0.145826(0.702557) *					
Hausman test, Test statistics (p-value)	2.44099(0.875012) *					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between SCVA and Ownership concentration (ownership by largest shareholder) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the ownership concentration. None of the control variables showed a significant relationship with SCVA while FSIZE, ROA, LEV and CR showed insignificant relationship. It is also concluded that ROA and CR are positively related while LEV and FSIZE are negatively related with SCVA. R-square value is 0.0074 or 0.74% which means that 0.74% changes in the dependent variable is occurred because of the independent variable. This value is very small and it shows that the remaining changes occur because of uncontrollable factors or there are still some independent variables missing which could influence the dependent variable (SCVA).

Table 6: regression results (dependent variable: VACA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	2.92879	<0.0001***	0.547488	0.0001***	0.361296	<0.0001***
OC	0.387614	0.4763	0.427752	0.1413	0.250077	<0.0001***
OC^2	−0.400840	0.5193	−0.507006	0.1670	−0.316673	<0.0001***
FSIZE	−0.137248	<0.0001***	−0.0160822	0.0107**	−0.00728596	<0.0001***
ROA	−0.323831	0.0449**	−0.280435	0.0347**	0.290492	<0.0001***
LEV	0.00133586	0.7294	−0.000220832	0.9375	0.000362428	0.5836***
CR	−0.00661507	0.7236	0.0314513	0.0220**	0.0199876	<0.0001***
R-Squared	0.315054		NA		0.573769	
F-statistic (p-value)	1.650046(0.004266)***		NA		63.49321($1.34e^{-49}$)***	

CHOW Test, Test statistics (p-value)	1.44781(0.0309567)**
Breusch-Pagan test, Test statistics (p-value)	0.0741662(0.785365)
Hausman test, Test statistics (p-value)	26.7193(0.000163435) ***
*** 99% confidence, ** 95% confidence, * 90% confidence	

The results of the WLS model showed that between VACA and Ownership concentration (ownership by largest shareholder) there is a positive significant relation. It also showed a negative significant relation with the square of the ownership concentration. FSIZE, ROA and CR showed a significant relationship with SCVA while LEV showed an insignificant relationship. It is also concluded that ROA, LEV and CR are positively related while FSIZE is negatively related with VACA. R-square value is 0.5737 or 57.37% which means that 57.37% changes in the dependent variable is occurred because of the independent variable.

Table 7: regression results (dependent variable: VAIC)

	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.29254	<0.0001***	6.40224	<0.0001***	6.75193	<0.0001***
SOP	−2.38005	0.5778	−0.570924	0.8527	0.00994614	0.9182
SOP^2	7.78290	0.5727***	2.13211	0.8308	−0.0770249	0.8039
FSIZE	0.0203127	0.5074	0.0155948	0.0291**	−0.000519735	0.0706*
ROA	0.723791	0.0002	0.484686	0.0022***	0.0355458	<0.0001***
LEV	−6.91336e-05	0.9881	0.00163873	0.6110	−0.000119445	0.5541
CR	0.00333709	0.8820	−0.00362613	0.8217	0.000343728	0.5479
R-Squared	0.254208		NA		0.224786	
F-statistic (p-value)	1.222757(0.146274)		NA		13.67675(1.22e-13)***	
CHOW Test, Test statistics (p-value)	1.13627(0.255401)					
Breusch-Pagan test, Test statistics (p-value)	0.19951(0.655116)					
Hausman test, Test statistics (p-value)	6.02847(0.420008)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results of WLS showed that between VAIC and Ownership by State (SOP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the ownership by state. ROA showed a significant relationship with VAIC while FSIZE, LEV and CR showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VAIC. R-square value is 0.224 or 22.4% which means that 22.4% changes in the dependent variable is occurred because of the independent variable.

Table 8: regression results (dependent variable: VAHC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	4.93619	<0.0001***	2.80731	<0.0001***	2.48034	<0.0001***
SOP	−2.95039	0.3908	−2.97117	0.3354	−1.99621	0.0056***
SOP^2	9.59621	0.3870	9.54776	0.3385	6.30985	0.0109**
FSIZE	−0.131673	<0.0001***	−0.0239535	0.0103**	−0.00829522	<0.0001***
ROA	0.601088	0.0001***	0.664075	<0.0001***	0.854873	<0.0001***
LEV	0.000336325	0.9282	−0.00156487	0.6341	−0.00208816	0.0286**
CR	−0.00777047	0.6671	0.0324520	0.0406**	0.0275055	<0.0001***
R-Squared	15.87429		NA		0.625245	
F-statistic (p-value)	4.762911($2.22e^{-18}$)***		NA		78.69346($1.95e^{-57}$)***	
CHOW Test, Test statistics (p-value)	3.51086($1.20871e^{-011}$)***					
Breusch-Pagan test, Test statistics (p-value)	36.287($1.70299e^{-009}$) ***					
Hausman test, Test statistics (p-value)	29.2734($5.40003e^{-005}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAHC and Ownership by State (SOP) there is a negative significant relation. It also showed a positive significant relation with the square of the ownership by state. FSIZE, ROA, LEV and CR showed a significant relationship with VAHC and none of them showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VAHC. R-square value is 0.625 or 62.5% which means that 62.5% changes in the dependent variable is occurred because of the independent variable.

Table 8: regression results (dependent variable: SCVA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	5.89342	<0.0001***	6.44220	<0.0001***	6.74227	<0.0001***
SOP	−4.10476	0.5895	−2.23399	0.6741	−0.0345072	0.8864
SOP^2	13.2107	0.5905	7.93729	0.6453	0.116691	0.8796
FSIZE	0.0387289	0.4775	0.0102157	0.3990	−0.000110361	0.7298
ROA	0.548635	0.1068	0.397964	0.1493	0.00959608	0.4205
LEV	−0.000107971	0.9896	0.00191987	0.7297	−2.88755e-05	0.9060
CR	0.0132235	0.7409	0.0136399	0.6245	3.61559e-05	0.9540
R-Squared	0.204973		NA		0.005023	
F-statistic (p-value)	0.924873(0.635341)		NA		0.238128(0.963681)	
CHOW Test, Test statistics (p-value)	0.967088(0.546567)					
Breusch-Pagan test, Test statistics (p-value)	0.0360882(0.849333)					
Hausman test, Test statistics (p-value)	1.78462(0.938404)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between SCVA and Ownership by State (SOP) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the ownership by state. None of the control variables showed a significant relationship with SCVA and all of them showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VAHC. R-square value is 0.005 or 0.05% which

means that 0.05% changes in the dependent variable is occurred because of the independent variable. This value is very small which means that there must be some independent variables missing that could influence the dependent variable (SCVA).

Table 9: regression results (dependent variable: VACA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	2.96148	<0.0001***	0.630476	<0.0001***	0.401228	<0.0001***
SOP	1.38776	0.6961	0.992522	0.7072	0.647181	0.1387
SOP^2	−4.46036	0.6973	−3.82546	0.6555	−1.92654	0.1862
FSIZE	−0.135684	<0.0001***	−0.0171054	0.0053***	−0.00740834	<0.0001***
ROA	−0.323862	0.0419**	−0.297256	0.0289**	0.339395	<0.0001***
LEV	0.00124381	0.7474	−0.000973250	0.7252	−2.90509e-05	0.9719
CR	−0.00678003	0.7167	0.0317064	0.0218**	0.0177081	<0.0001***
R-Squared	0.313963		NA		0.501399	
F-statistic (p-value)	1.641716(0.004621)**		NA		47.43136($4.45e^{-40}$)***	
CHOW Test, Test statistics (p-value)	1.47758(0.0243689) **					
Breusch-Pagan test, Test statistics (p-value)	0.012854(0.909733)					
Hausman test, Test statistics (p-value)	26.691(0.000165439) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The WLS results showed that between VACA and Ownership by State (SOP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the ownership by state. FSIZE, ROA and CR showed a significant relationship with VACA while LEV showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VACA. R-square value is 0.5013or 50.13% which means that 50.13% changes in the dependent variable is occurred because of the independent variable.

Table 10: regression results (dependent variable: VAIC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.50118	<0.0001***	6.40022	<0.0001***	6.74816	<0.0001***
IOP	−0.496939	0.4792	−0.0553286	0.8268	0.00442265	0.4226
IOP^2	0.362188	0.6116	0.0992600	0.6843	−0.00186534	0.7559
FSIZE	0.0142907	0.6563	0.0155844	0.0298**	−0.000412067	0.1205
ROA	0.701670	0.0002***	0.487453	0.0020***	0.0376243	<0.0001***
LEV	−0.000221364	0.9620	0.00170932	0.5964	−0.000116608	0.5533
CR	0.00412171	0.8551	−0.00327252	0.8423	0.000466220	0.3937
R-Squared	0.255528		NA		0.230158	
F-statistic (p-value)	1.231283(0.138240)		NA		14.10132($4.79e^{-14}$)***	
CHOW Test, Test statistics (p-value)	1.13597(0.255808)					
Breusch-Pagan test, Test statistics (p-value)	0.157193(0.361754)					
Hausman test, Test statistics (p-value)	5.66239(0.462051)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAIC and Ownership by Individual (IOP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the ownership by Individual. ROA showed a significant relationship with VAIC while FSIZE, LEV and CR

showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VAIC. R-square value is 0.230 or 23% which means that 23% changes in the dependent variable is occurred because of the independent variable.

Table 11: regression results (dependent variable: VAHC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	4.29748	<0.0001***	6.40022	<0.0001**	2.55755	<0.0001***
IOP	1.33443	0.0173**	−0.0553286	0.8268	−0.0964973	0.1036
IOP^2	−1.08094	0.0571*	0.0992600	0.6843	0.0407289	0.4538
FSIZE	−0.110986	<0.0001***	0.0155844	0.0298**	−0.0103337	<0.0001***
ROA	0.595999	<0.0001***	0.487453	0.0020***	0.709486	<0.0001***
LEV	0.000704330	0.8486	0.00170932	0.5964	−0.00215951	0.0126**
CR	−0.00683032	0.7031	−0.00327252	0.8423	0.0236032	0.0014***
R-Squared	0.581512		NA		0.614809	
F-statistic (p-value)	4.984746($2.04e^{-19}$)***		NA		75.28356($9.21e^{-56}$)***	
CHOW Test, Test statistics (p-value)	3.67127($2.05916e^{-012}$) ***					
Breusch-Pagan test, Test statistics (p-value)	0.157193(0.691754)					
Hausman test, Test statistics (p-value)	5.66239(0.462051)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAHC and Ownership by Individual (IOP) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the Ownership by Individual. FSIZE, ROA, LEV and CR showed a significant relationship with VAHC while none of the control variable showed an insignificant relationship. It is also concluded that ROA, CR are positively related while FSIZE and LEV is negatively related with VAHC. R-square value is 0.614 or 64.1% which means that 64.1% changes in the dependent variable is occurred because of the independent variable.

Table 12: regression results (dependent variable: SCVA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.34756	<0.0001***	6.55170	<0.0001***	6.73892	<0.0001***
IOP	−1.34919	0.2795	−0.381041	0.3706	0.00153276	0.8961
IOP^2	1.61327	0.2032	0.254829	0.5345	0.00278494	0.8424
FSIZE	0.0223109	0.6954	0.00924685	0.4415	2.59248e-05	0.9221
ROA	0.499064	0.1365	0.312890	0.2530	0.0110539	0.2587
LEV	−0.000136363	0.9868	0.00236032	0.6696	−6.51494e-05	0.8096
CR	0.00914663	0.8194	0.00661661	0.8158	0.000118721	0.8484
R-Squared	0.210049		NA		0.008697	
F-statistic (p-value)	0.953867(0.577287)		NA		0.413794(0.869658)	
CHOW Test, Test statistics (p-value)	0.976793(0.527797)					
Breusch-Pagan test, Test statistics (p-value)	0.104438(0.746568)					
Hausman test, Test statistics (p-value)	3.59256(0.731617)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between SCVA and Ownership by Individual (IOP) there is a positive insignificant relation. It also showed a positive insignificant relation with the square of the Ownership by Individual. None of the control variables showed a significant relationship with SCVA all of them showed an insignificant relationship. It is also concluded that FSIZE, ROA, CR are positively related while LEV is negatively related with SCVA. R-square value is 0.086 or 8.6% which means that 8.6% changes in the dependent variable is occurred because of the independent variable.

Table 13: regression results (dependent variable: VACA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	2.72662	<0.0001***	0.652054	<0.0001***	0.403435	<0.0001***
IOP	0.614842	0.2919	0.00206329	0.9924	0.00203588	0.9573
IOP^2	−0.632008	0.2861	−0.0722264	0.7290	−0.0186528	0.6208
FSIZE	−0.127773	<0.0001***	−0.0173488	0.0046***	−0.00734325	<0.0001***
ROA	−0.305716	0.0515*	−0.304132	0.0244**	0.358006	<0.0001***
LEV	0.00132222	0.7317	−0.00102199	0.7115	−3.32756e-05	0.9679
CR	−0.00574493	0.7591	0.0302697	0.0318**	0.0167898	<0.0001***
R-Squared	0.317019		NA		0.447431	
F-statistic (p-value)	1.665119(0.003689)***		NA		38.19227($7.35e^{-34}$)***	
CHOW Test, Test statistics (p-value)	1.47966(0.0239592) **					
Breusch-Pagan test, Test statistics (p-value)	0.044079 (0.833707)					
Hausman test, Test statistics (p-value)	27.3438(0.00012483) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VACA and Ownership by Individual (IOP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the Ownership by Individual. FSIZE, ROA and CR showed a significant relationship with VACA while LEV showed an insignificant relationship. It is also concluded that FSIZE, ROA, CR are positively related while LEV is negatively related with VACA. R-square value is 0.447 or 44.7% which means that 44.7% changes in the dependent variable is occurred because of the independent variable.

Table 14: regression results (dependent variable: VAIC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.34295	<0.0001***	6.46954	<0.0001***	6.74516	<0.0001***
COP	−0.411056	0.5884	−0.216208	0.3879	−0.00523622	0.4750
COP^2	0.829679	0.3072	0.156293	0.6139	0.00872916	0.3456
FSIZE	0.0160284	0.6038	0.0136038	0.0702*	−0.000171213	0.5113
ROA	0.710161	0.0002	0.515958	0.0011**	0.0271892	0.0023***
LEV	−9.33721e-05	0.9839	0.00100597	0.7568	−8.63135e-05	0.5254
CR	0.000410674	0.9855	0.000377042	0.9817	5.11190e-05	0.8741
R-Squared	0.258332		NA		0.091990	
F-statistic (p-value)	1.249499(0.122237)		NA		4.778450(0.000117)***	
CHOW Test, Test statistics (p-value)	1.12972(0.264549)					
Breusch-Pagan test, Test statistics (p-value)	0.113719(0.735949)					
Hausman test, Test statistics (p-value)	5.64156(0.464516)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAIC and Ownership by Companies (COP) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the Ownership by Companies. FSIZE, ROA showed a significant relationship with VAIC while FSIZE, LEV and CR showed an insignificant relationship. It is also concluded that FSIZE, ROA, CR are positively related while LEV is negatively related with VAIC. R-square value is 0.091 or 9.1% which means that 9.1% changes in the dependent variable is occurred because of the independent variable.

Table 15: regression results (dependent variable: VAHC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	4.91945	<0.0001***	2.67670	<0.0001***	2.41043	<0.0001***
COP	−0.196422	0.7485	0.258017	0.4072	−0.0203174	0.7335
COP^2	0.0441708	0.9462	−0.164533	0.6652	0.226053	0.0107**
FSIZE	−0.128324	<0.0001***	−0.0195884	0.0421**	−0.00534464	0.0007***
ROA	0.579200	0.0002***	0.613549	<0.0001***	0.728293	<0.0001***
LEV	0.000348890	0.9256	−0.000996480	0.7624	−0.00150702	0.0034***
CR	−0.00639182	0.7255	0.0304269	0.0575*	0.0238881	<0.0001***
R-Squared	0.569529		NA		0.697700	
F-statistic (p-value)	4.746138 ($2.66e^{-18}$)***		NA		108.8593($1.52e^{-70}$)***	
CHOW Test, Test statistics (p-value)	3.36621($6.0085e^{-011}$)***					
Breusch-Pagan test, Test statistics (p-value)	31.9524($1.57995e^{-008}$) ***					
Hausman test, Test statistics (p-value)	29.5149($4.8596e^{-005}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAHC and Ownership by Companies (COP) there is a negative insignificant relation. It also showed a positive significant relation with the square of the Ownership by Companies. FSIZE, FSIZE, ROA, LEV and CR showed a significant relationship. It is also concluded that ROA and CR are positively related while FSIZE and LEV is negatively related with VAHC. R-square value is 0.697 or 69.7% which means that 69.7% changes in the dependent variable is occurred because of the independent variable.

Table 16: regression results (dependent variable: SCVA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.11145	<0.0001***	6.43243	<0.0001***	6.74180	<0.0001***
COP	−1.97178	0.1446	0.0233782	0.9564	−0.00906658	0.3953
COP^2	2.23800	0.1214	−0.0327550	0.9506	0.00701798	0.5775
FSIZE	0.0366455	0.5041	0.0105951	0.4081	−2.65525e-05	0.9400
ROA	0.521729	0.1187	0.376152	0.1740	0.0102843	0.3495
LEV	−0.000150946	0.9854	0.00199273	0.7234	−4.47511e-05	0.8598
CR	0.00930454	0.8164	0.0139888	0.6249	0.000257827	0.6994
R-Squared	0.212526		NA		0.011286	
F-statistic (p-value)	0.968150(0.548510)		NA		0.538413(0.778852)	
CHOW Test, Test statistics (p-value)	1.01838(0.448829)					
Breusch-Pagan test, Test statistics (p-value)	0.0425594(0.836557)					
Hausman test, Test statistics (p-value)	4.40745(0.621714)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between SCVA and Ownership by Companies (COP) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the Ownership by Companies. None of the control variables showed a significant relationship with SCVA. It is also concluded that ROA and CR are positively related while FSIZE and LEV is negatively related with SCVA. R-square value is 0.011 or 11% which means that 11% changes in the dependent variable is occurred because of the independent variable.

Table 17: regression results (dependent variable: VACA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	2.92023	<0.0001***	0.577008	<0.0001***	0.413921	<0.0001***
COP	0.369010	0.5595	0.0527928	0.8043	0.0598582	0.1488
COP^2	−0.540092	0.4243	0.0212682	0.9357	−0.0506904	0.3690
FSIZE	−0.134061	<0.0001***	−0.0150789	0.0183**	−0.00832849	<0.0001***
ROA	−0.315513	0.0445**	−0.315313	0.0203**	0.299629	<0.0001***
LEV	0.00125654	0.7446	−0.000564931	0.8390	−2.80761e-05	0.9688
CR	−0.00536363	0.7753	0.0285932	0.0425**	0.0172581	<0.0001***
R-Squared	0.315609		NA		0.458620	
F-statistic (p-value)	1.654294(0.004095)***		NA		39.95643($4.27e^{-35}$)***	
CHOW Test, Test statistics (p-value)	1.47074(0.0257585)					
Breusch-Pagan test, Test statistics (p-value)	0.0974337(0.754931)					
Hausman test, Test statistics (p-value)	28.2304($8.50244e^{-005}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VACA and Ownership by Companies (COP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the Ownership by Companies. FSIZE, ROA and CR showed a significant relationship with VACA while LEV showed an insignificant relationship. It is also concluded that ROA and CR are positively related while FSIZE and LEV is negatively related with VACA. R-square value is 0.025 or 2.5% which means that 2.5% changes in the dependent variable is occurred because of the independent variable.

Table 18: regression results (dependent variable: VAIC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.60381	<0.0001***	6.38212	<0.0001***	6.75172	<0.0001***
INOP	0.379659	0.1850	0.0566209	0.6509	−0.0140665	<0.0001***
$INOP^2$	−0.103669	0.6672	0.0540121	0.4538	0.00145707	0.5174
FSIZE	0.00355795	0.9148	0.0157590	0.0271**	−0.000517450	0.0556*
ROA	0.719042	0.0002***	0.494105	0.0016***	0.0325411	0.0001***
LEV	−5.00933e-05	0.9914	0.00169647	0.5987	−0.000121456	0.5322
CR	0.00362093	0.8722	−0.00288414	0.8584	0.000506501	0.2443
R-Squared	0.259664		NA		0.233153	
F-statistic (p-value)	1.258203(0.115131)		NA		14.34060($2.83e^{-14}$)***	
CHOW Test, Test statistics (p-value)	1.16239(0.221022)					
Breusch-Pagan test, Test statistics (p-value)	0.180537(0.670912)					
Hausman test, Test statistics (p-value)	6.791(0.340609)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAIC and Ownership by Institutions (INOP) there is a negative significant relation. It also showed a positive insignificant relation with the square of the Ownership by Companies. FSIZE, ROA showed a significant relationship with VAIC while FSIZE p value is little above the significance level so still it showed insignificant relationship just as LEV and CR. It is also concluded that ROA and CR are positively related while FSIZE and LEV is negatively related with VAIC. R-square value is 0.233 or 22.3% which means that 23.3% changes in the dependent variable is occurred because of the independent variable.

Table 19: regression results (dependent variable: VAHC)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	4.41898	<0.0001***	2.81239	<0.0001***	2.51993	<0.0001***
INOP	−0.537233	0.0190**	−0.347345	0.0174**	−0.102033	0.0975*
$INOP^2$	0.181470	0.3449	−0.109703	0.2328	−0.0545888	0.0011***
FSIZE	−0.104716	0.0001***	−0.0218574	0.0188**	−0.00888562	<0.0001***
ROA	0.563088	0.0002***	0.624202	<0.0001***	0.753140	<0.0001***
LEV	0.000348939	0.9246	−0.00162510	0.6181	−0.00224319	0.0166**
CR	−0.00708507	0.6926	0.0322666	0.0400***	0.0238493	0.0009***
R-Squared	0.581212		NA		0.565779	
F-statistic (p-value)	4.978615($2.18e^{-19}$)***		NA		61.45686($1.80e^{-48}$)	
CHOW Test, Test statistics (p-value)	3.6272($3.345e^{-012}$)***					
Breusch-Pagan test, Test statistics (p-value)	37.9745($7.16854e^{-010}$) ***					
Hausman test, Test statistics (p-value)	29.8841($4.13538e^{-005}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VAHC and Ownership by Institutions (INOP) there is a negative significant relation. It also showed a negative significant relation with the square of the Ownership by Institutions. FSIZE, ROA, LEV and CR showed a significant relationship with VAHC. It is also concluded that ROA and CR are positively related while FSIZE and LEV is negatively related with VACA. R-square value is 0.565 or 56.5% which means that 56.5% changes in the dependent variable is occurred because of the independent variable.

Table 20: regression results (dependent variable: SCVA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	6.08312	<0.0001	6.45203	<0.0001***	6.73937	<0.0001***
INOP	0.371212	0.4666	0.0617190	0.7704	−0.000343403	0.8923
$INOP^2$	0.332809	0.4389	−0.0901200	0.4565	0.00356319	0.5622
FSIZE	0.0240128	0.6854	0.0106109	0.3748	1.56773e-05	0.9547
ROA	0.527441	0.1161	0.347297	0.2014	0.00753275	0.4724
LEV	0.000185690	0.9821	0.00204942	0.7110	−3.22503e-05	0.8982
CR	0.00997453	0.8036	0.0113311	0.6848	0.000134670	0.7976
R-Squared	0.207806		NA		0.006502	
F-statistic (p-value)	0.941010(0.603141)		NA		0.308690(0.932189)	
CHOW Test, Test statistics (p-value)	0.97544(0.530407)					
Breusch-Pagan test, Test statistics (p-value)	0.0807919(0.776227)					
Hausman test, Test statistics (p-value)	3.20715(0.782434)					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between SCVA and Ownership by Institutions (INOP) there is a negative insignificant relation. It also showed a positive insignificant relation with the square of the Ownership by Institutions. None of the control variables showed a significant relationship with SCVA. It is also concluded that FSIZE, ROA and CR are positively related while LEV is negatively related with SCVA. R-square value is 0.006 or 0.6% which means that 0.6% changes in the dependent variable is occurred because of the independent variable.

Table 21: regression results (dependent variable: VACA)

Variables	Fixed Effect		Random Effect		Weighted Least Square	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Constant	2.38342	<0.0001***	0.624683	<0.0001***	0.434646	<0.0001***
INOP	−0.605819	0.4540	0.205267	0.6269	0.00448872	0.9608
$INOP^2$	−0.0894703	0.9190	−0.364734	0.4348	−0.0845172	0.4469
FSIZE	−0.103101	0.0006***	−0.0168154	0.0065***	−0.00888389	<0.0001***
ROA	−0.336779	0.0320**	−0.307224	0.0237**	0.261170	<0.0001***
LEV	0.00113564	0.7655	−0.000913316	0.7422	−0.000169098	0.8443
CR	−0.00517477	0.7793	0.0308037	0.0276**	0.0195615	<0.0001***
R-Squared	0.338619		NA		0.460346	
F-statistic (p-value)	1.836652(0.000659)***		NA		40.23501(2.74e-35)***	
CHOW Test, Test statistics (p-value)	1.66318(0.00490612)					
Breusch-Pagan test, Test statistics (p-value)	0.0638445(0.80050)					
Hausman test, Test statistics (p-value)	35.5316($3.39901e^{-006}$) ***					
*** 99% confidence, ** 95% confidence, * 90% confidence						

The results showed that between VACA and Ownership by Institutions (INOP) there is a positive insignificant relation. It also showed a negative insignificant relation with the square of the Ownership by Institutions. FSIZE, ROA and CR showed a significant relationship with VACA while LEV showed and insignificant relationship. It is also concluded that FSIZE, ROA and CR are positively related while LEV is negatively related with VACA. R-square value is 0.460 or 46% which means that 46% changes in the dependent variable is occurred because of the independent variable.

Conclusion:

It is concluded from the results that between Ownership concentration and VAIC there is a positive insignificant relation. VAIC relation with the State ownership is positive insignificant. From our results it is concluded that between VAIC and Individual ownership there is a positive significant relation. Our results concluded that between Corporate ownership and VAIC there is a negative insignificant relation. Negative significant relation between Institutional ownership and VAIC is concluded from our results.

As we compared the components of VAIC it was concluded that between Ownership concentration and VAHC there is a significant positive relation. SCVA with the Ownership concentration; there is a significant negative relation. Ownership concentration was also compared with VACA so from our results it showed that there is a positive significant relation between VACA and Ownership concentration. When the components of intellectual capital were compared so it was found that between State ownership and VAHC shows negative significant relation. While SCVA shows negative insignificant relation. While VACA shows positive insignificant relation. It means H2 is rejected as there is positive insignificant results also present. SCVA with Individual ownership showed positive insignificant relation. VACA showed positive insignificant relation with Individual ownership. Relation of VAHC with Corporate ownership and SCVA with Corporate ownership showed negative insignificant relation. While VACA showed positive insignificant relation with Corporate ownership. VAHC and Institutional ownership showed and negative insignificant relation. Our results showed a negative insignificant relation between SCVA and Institutional ownership. And VACA with Institutional ownership showed a positive insignificant relations.

The first limitation that occurred in the study was while in data collection method employee cost was difficult to calculate that is why Value Added was difficult to calculate so instead of calculating employee cost the value added was calculated by other method in which sales, COGs and depreciation method was used. After calculating the value added the results were negative due to the formula because deprecation was subtracted from the COGs which results in negative value added. There were also outliers in the data as a result of negative VA and it was later balanced by data transformation.

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