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Effects of Intellectual Capital Efficiency on the Financial Performance of Share Companies; With the Special Reference of Ethiopian Banks and Insurance Companies

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Abstract
This study empirically examines the effect of intellectual capital on the financial performance of Ethiopian bank and insurance companies. Specifically, this study examined the effect of VAIC (HCE, SCE, CEE), liquidity, leverage and size on the financial performance of Ethiopian bank and insurance companies. To investigate the effect of such factors, panel data were used from national bank of Ethiopia and from private banks and insurance companies audited annual report. The samples of this study were ten banks and insurance companies covering the period of 2009-2013. To analyze the data, both descriptive and regression analysis were used through STAT version 13, and fixed effect panel data estimation technique is applied based on Hausman specification test results. Furthermore, this study finding suggests that intellectual capital has a positive and significant association with the financial performance of banks and insurance companies in Ethiopia. Subsequently, when the VAIC is segregated in to its three major components, we found that financial performance is positively associated with capital employed efficiency and human capital efficiency, but not with structural capital efficiency. Therefore, many stakeholders such as policy makers, regulators, shareholders, and managers of banks and insurance companies in Ethiopia may use the findings to attach different values to the three components of VAIC.
Key words; Intellectual capital, human capital, structural capital and capital employed efficiency.

1 Introduction

There is no doubt; all organizations in the world need assets both tangible and intangible for their growth, success and competitive advantage. However the world economies today are fast becoming knowledge-based economies through innovations and technological advancements. As a result in thedeveloped world intellectual capital has been a subject of intense research in recent years by the research communities. However only some number of studies has focused on developing economies in evaluating the effect of intellectual capital in specific industries (Kamath, 2007).Many scholars argued that intellectual capital is the possession of knowledge, experience, skills, good relationships and technological utilization capacity and technological advancement in an all aspects of the business operation, as a result which will give organizations competitive advantages (Kandemir, 2008; Kayacan & Alkan, 2005; Yalama, 2013). Now intellectual capital factors took priority after the information society has emerged because in today's world, sources of economic value and wealth include not only the products (real assets) manufactured by enterprises but also sources of economic value and wealth in the enterprises depends on their intellectual capital or intangible assets (Chen, Cheng, & Hwang, 2005; Goldfinger, 1997). For the comprehensive economical developments in an

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enterprise, most economists in the world widely believed that intangible assets called intellectual capital will play a fundamental role regarding to creating economic value and competitive advantage in the given business enterprise (Kamath, 2007). In other word, in the knowledge and information based socio economic period in all aspects intellectual capital has become one of firm's production factor and performance measurements for firms may not be possible with traditional accounting practices anymore. Therefore, many scholars argued that under this knowledge and information based socio economic period for the performance measurements of business enterprises there is a growing need to develop a new method taking account of the intellectual as well(Berzkalne & Zelgalve, 2014; Gan & Saleh, 2008).

A variety of methods have been developed by different scholars for the measurement of intellectual capital after it has been realized as an impact on creating value, competitive advantage and increasing the financial performance of firms in this information based economic world (Ozkan N., *et al*. 2016: Edvinsson, 1997: Steward, 1991 and Sveiby, 1997). As an evidence for the measurement of intellectual capital effect on the performance of business enterprise value added intellectual coefficient (VAIC) model has been developed by Pulic (1998) and Pulic (2004) (Chen et al.,2005; Ercan, Öztürk, & Demirgünes, 2003; Joshi, Cahill, Sidhu, & Kansal, 2013; Kayacan &Özkan, 2015; Mondal & Ghosh, 2012; Yalama, 2013).

Most of the recent empirical studies conducted analyzing the relationship between value added intellectual coefficient including its components and firms financial performance, suggests that intellectual capital has play a vital role to the profitability, efficiency and earning pershare of firms (Firer & Stainbank, 2003; Makki, Lodhi, & Rohra, 2009; Tan, Plowman, & Hancock, 2007).

Therefore, the objective of this study is to examine analyzes the relationship between the intellectual capital and the financial performance of banks and insurance companies currently operating in Ethiopia between the year 2009 and 2013 through the use of VAIC and its components model with panel data regression analysis.

2 Research objectives

The general objective of the study is to examine the effect of intellectual capital on the performance of banking and insurance sector firms in Ethiopia. And this study is conducted with the following specific objectives.

1) To examine the effect of VAIC on the financial performance banks and insurance firms in Ethiopia
2) To examine the effect of VAIC components on the financial performance banks and insurance firms in Ethiopia

Research hypotheses

A lot of theoretical and empirical literatures suggest that firm's performance is a function of the effective and efficient use of not only the tangible resources, but also depends on the effective and efficient use of their intangible assets. Therefore, this study expects intellectual capital to play an important role in enhancing firms financial performance. Using the study VAIC as a measure of banking and insurance firms intellectual ability, this study proposes the following hypothesis:

H_1;there is appositive relationship between VAIC and the financial performance of banks and insurance firms in Ethiopia.

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H_2;there is appositive relationship between human capital efficiency and the financial performance of banks and insurance firms in Ethiopia.

H_3;there is appositive relationship between structural capital efficiency and the financial performance of banks and insurance firms in Ethiopia.

H_4;there is appositive relationship between capital employed efficiency and the financial performance of banks and insurance firms in Ethiopia

3 Literature review

3.1 Intellectual capital

There is no one line or single definition for the concept of intellectual capital because different scholars define intellectual capital in different ways. However most of the scholars recognize the concept of intellectual capital as the intangible assets, which are not stated explicitly on the firm's balance sheet but which have a positive impact on the performance and success of it (Mondal & Ghosh, 2012). According to (Kaya, *etal.* 2010) every firm needs three types of capital in its operation to be successful and competent such as physical, financial and intellectual. Intellectual capital can be defined as business performance factors consisting with knowledge, experience, information and skills and furthermore in this information based economic system which have current and future influence on the competitive advantages of the firm and as a result intellectual capital with respect to intangible assets such as patent, copy right, knowledge system and license agreement, increase an organization performance in every aspect than the competitors (Edvinsson & Malone, 1997).

As a lack of common compromise in the literature for the definition of intellectual capital, still researchers in the world have not agreed on the components of it. However it is widely acknowledged that intellectual capital encompasses three components, i.e. human capital, structural capital and relation/ customer capital (Ozkan N., *et al*. 2016). On the other hand intellectual capital can be classified in to human and structural capital (Edvinsson & Malone, 1997). According to Roos, (1997), human capital is in the heads of employees whereas structural capital is what is left in the organization when people go home in the evening. In the recent various intellectual capital studies have been conducted across the world, and as a result after it has been realized that intellectual capital has an impact on creating value and increasing the financial performance of firms, and also various methods have been developed to measure it (Edvinsson, 1997; Kaplan & Norton, 1996). Fore-instance, methods used to measure intellectual capital includes market to-book value ratio, Tobin's Q ratio (Steward, 1997); balanced scorecard (Kaplan & Norton, 1996); intellectual capital service IC index (Roos et al.,1997); the technology broker IC audit (Brooking, 1996); economic value added (Steward, 1991); market value and value added intellectual coefficient (VAIC) (Pulic, 1998; Pulic, 2004) (Çelikkol, 2008; Karacan & Ergin, 2011; Yalama & Coskun, 2007).

However this study used value added intellectual coefficient (VAIC) for the measurement of intellectual capital effect on the firm's performance, which is developed by Pulic (1998) and Pulic (2004).

3.2 Intellectual capital andfinancial performance

In the recent academic works as a primary measurement of IC, several studies have adopted and used the VAIC model (Nazari and Herremans, 2007). On the other hand, the VAIC model has been widely utilized for the measurement of intellectual capital impact on firm's performance in various

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countries with in different sectors. As a result there were a wide range of studies conducted in order to investigate the impact of intellectualcapital on the performance of firm's by the adoption and implementation of VAIC model. Fore-instance, to examine the real relationship between firm's intellectual capital and market to-book value ratios. Chen et al. (2005) has used VAIC model. Chen et al. (2005), in their empirical study they analyzed whether intellectual capital contribute to firm's financial performance and / or it can be used as a leading indicator for firm's future financial performance. In their study they found that firms market value and financial performance is positively associated with corporate intellectual ability. And finally they assured that intellectual capital may be an indicator for firm's future financial performance.

According to Bontis, *et. al.(*2000), from the developed economies i.e. In Malaysian industries the impact of the three components of intellectual capital (human, structural and relational and/or customer) on the business performance is positive and components in the intellectual capital have interrelationship. Also in South Africa Stainbank (2003) empirically conducted to test the relationship between intellectual capital and firm's performance and this investigation supported that intellectual capital has positive correlation with profitability and productivity but argued that have no relationship with market valuation.

Aziz, *et. al. (*2010), were conducted empirical study to measure the effect of intellectual capital on Jordan pharmaceutical industry and they explored that intellectual capital has significant and positive effect on the performance of sampled companies as a whole. In Turkey Yalama and Coskun (2007), tested the effect of intellectual capital performance on profitability of banks for the period 1995 to 2004 with panel data and as a result they conclude that IC is more important than physical capital for banks and in India Kamath, (2007), estimated VAIC in measuring the value based performance of the Indian banking sector for the period of five years from 2000 to 2004, the study confirmed that IC has a positive impact on the performance of sampled companies in India.

In addition there have been a number of researches that adopt and used VAIC as measurement to examine the influence of intellectual capital on the financial industries. Fore-instance among other studies Pulic (1997 and 2002) measured intellectual capital performance of Austrian banks for the period 1993-1995 and Croatian banks for the period of 1996-2000. Therefore, this study analyzing the relationship between the efficiency of intellectual capital and financial performance of financial industry, VAIC and its components i.e. CEE, HCE and SCE are used as indicators of intellectual capital efficiency. In the other hand, return on assets (ROA) is utilized as an indicator of the financial industry financial performance.

4 Methodology

Data type and Collection Methods

For the investigations of intellectual capital on the financial performance of banks and insurance firms the study was used secondary data. Most of the data were collected from secondary sources such as audited financial statements and annual reports. Document review was used to collect all necessary information from such secondary sources of financial statements.Moreover, the study uses the data of 6 banks and 4 of insurance companies operating between2009 to 2013 and they were currently operating in Ethiopia. Data have been obtained from the statistical reports uploaded to the website of national bank of Ethiopia and the data that are not obtained from the national bank of Ethiopia website have been obtained directly from sampled banks and insurance firms website.

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Research variables and measurements

Dependent variable

In most empirical study, return on asset (ROA), is one of the traditional firms performance measurement. According to Dietrich and Wanzenried, (2011) ; Pasiouras and Kosmidou, (2007), it is the key measure of firms profitability and it is calculated by dividing the net profit of the current year by total assets.

Independent variables

Components of the VAIC model were used as independent variables in this study, VAIC and its components in this study can be calculated as follows (Ghosh & Mondal, 2009; Pulic, 1998; Pulic, 2004; Yalama, 2013):

Table 1 Study variables with their measurement and symbols

Variables		Measurement	Symbol
Dependent variable	Performance	Performance $=\frac{NI}{TA}$	ROA
Independent variables	Value added intellectual coefficient	VAIC= CEE+HCE+SCE	VAIC
	Human capital efficiency	VA/HC	HCE
	Capital employed efficiency	VA/CE	CEE
	Structural capital efficiency	VA-HC	SCE

Compiled by the researcher

Methods of Data analysis

For this study, the collected data from secondary source would be rearranged, edited and calculated in order to make the data more meaningful in the study. The raw data after arrangements and editing in meaning full manner needs to be analyzed. To analysis the collected raw data the researcher used statistical analysis such as descriptive statistics (mean, minimum, standard deviation and maximum) values of each explanatory variables and dependent variable in the study.

And inferential statistics also used for the analysis of these raw data. Inferential statistics are statistical procedures that are used to reach the conclusions about the relationships among variables in the study and which is important to test hypothesis. For the analysis of the data in this study statistical software package of 'STATA' version 12 and EViews 9 were used accordingly.

Model specification

In this study the researcher was used panel data, since; it combines the elements of both time series dimensions and cross-sectional data dimensions. According to Gujarati (2004), investigating the problem using panel data provide greater advantages over simply using pure cross sectional and pure time series data separately. "panel data provides more degree of freedom and efficiency, reduce linear relationships among variables, provides more informative data and dynamic changes, lastly, it helps to detect and measure effects that simply cannot be investigated in pure cross-sectional data or

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pure time series data"(Gujarati, 2004). Therefore, in this study for each year, there would be ten cross-sectional observations and for each bank and insurance, there would be five time series observations on each study variables with50 pooled (combined) observations. As a result, the general form of panel data regression models to be used in this study presented as follows:

$ROA_{it}= \beta_0 + \beta_1 VAIC_{it}+ \beta_2 SIZE_{it}+ \beta_3 LQU_{it}+ \beta_4 LEV_{it} + u_{it}$

$ROA_{it}= \beta_0 + \beta_1 HCE_{it}+ \beta_2 SCE_{it}+ \beta_3 CEE_{it}+ \beta_4 SIZE_{it} +\beta_5 LQU_{it} + \beta_6 LEV_{it} + u_{it}$

Where

ROA	**Return on assets**
VAIC	Value added intellectual coefficient for bank and insurance$_i$ at period$_t$
LIQ	Liquidity for bank and insurance$_i$ at period$_t$
LEV	Leverage for bank and insurance$_i$ at period$_t$
SIZE	Size for bank and insurance$_i$ at period$_t$
HCE	Human capital efficiency for bank and insurance$_i$ at period$_t$
SCE	Structural capital efficiency for bank and insurance$_i$ at period$_t$
CEE	Capital employed efficiency for bank and insurance$_i$ at period$_t$
U_{it}	Disturbance or the error term
i	Stands for the i^{th} cross-sectional unit and t for the t^{th} time period.
β_0	Represent a constant or intercept term and $\beta_1 \ldots \beta_7$ represent slope coefficients.

In this study the determination of appropriate panel data estimation model were performed by applying different specification tests, such as F-test, Breusch and Pagan Lagrange Multiplier test and Hausman specification test. F-test is applied to make a choice between pooled OLS regression model and fixed effect model.

Pooled OLS against fixed-effect specification test (F-test)

F test that all u_i=0: F(9, 34) = 6.85 Prob > F = 0.0000

In this result, F-test emphasizes the validity of fixed effect model over the pooled OLS regression model since the test statistics in the F- test is statistically significant at 1% level of significance.On the other hand to choice between pooled OLS regression model and random effect model Breusch and Pagan's (1980) Lagrange Multiplier (LM) test was appropriately tested. This test is performed based on the following hypothesis.

Null: pooled OLS regression model is appropriate (random disturbance term is zero)
Alt: random effect model is appropriate (random disturbance term is non-zero)

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```
Breusch and Pagan Lagrangian multiplier test for random effects

        ROA[ComCode,t] = Xb + u[ComCode] + e[ComCode,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                     ROA |    .0000636       .0079725
                       e |    2.26e-06       .0015049
                       u |    1.02e-06        .001012

        Test:   Var(u) = 0
                             chibar2(01) =    11.95
                          Prob > chibar2 =   0.0003
```

The result of this test rejected the alternative hypothesis, suggesting that pooled OLS regression model is appropriate for efficient and consistent parameter estimates. As a result, Hausman specification test was applied to make choice between fixed effect model and random effect model following the tests of both F-test and Breusch and Pagan's(1980) Lagrange Multiplier (LM) test with the null hypothesis of random effect model is appropriate against fixed effect model in the alternative and the test results presented below accordingly.

```
. estimates store fixed_group

. hausman random_group fixed_group

                 ---- Coefficients ----
                 |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                 | random_group fixed_group      Difference          S.E.
-----------------+------------------------------------------------------------
             HCE |    .0013081     .0016199      -.0003118                .
             SCE |    .0051879     .0091635      -.0039756        .0033786
             CEE |    .5289485       .49976       .0291885                .
            Liqu |    .0026172     .0019355       .0006817        .0004236
            Leve |   -.0065318     .0022196      -.0087513                .
            Size |   -1.94e-06    -4.81e-07      -1.46e-06        3.16e-06
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       21.39
                Prob>chi2 =      0.0016
                (V_b-V_B is not positive definite)
```

From such model specification tests conducted above clearly the two tests (F-test and Hausman specification tests) suggests that the best model to be used in this study was fixed effect regression model at 1% level of significance. Therefore, the regression result obtained from fixed effect regression model was used for further statistical inference and analysis

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Checking Data Problems and Validity of OLS Assumptions in a Data set

Test for normality assumption

4. In this study Skewness/Kurtosis tests for Normalitytest (with sktest stata command) was used to test the normality distribution of residuals with the null hypothesis of residuals are normally distributed against not normally distributed in the alternative hypothesis and the test results presented below.

```
. sktest resid
```

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
resid	50	0.1117	0.6448	2.90	0.2345

.**Source: STATA 12 output**

The result of this Skewness/Kurtosis tests for Normality shows that Prob>z = 0.2345which is statistically insignificant, indicating that the null hypothesis was not to be rejected, confirming that the residual was normally distributed.

Test for Multicollinearity assumption

In this study variance inflation factor (vif) stata command was used to check the prevalence of multicollinearity in the model and the test results presented below accordingly.

```
. vif
```

Variable	VIF	1/VIF
SCE	6.12	0.163294
HCE	4.26	0.234670
CEE	2.28	0.437887
Leve	1.11	0.903523
Liqu	1.09	0.914169
Size	1.04	0.961409
Mean VIF	2.65	

Source: STATA 12 output

According to the result of vif test above, all explanatory variables included in the regression model are not perfectly linearly related. Therefore, the result suggesting that no multicollinearity problem in the model (i.e. explanatory variables are not perfectly linearly correlated with one another).

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Model Specification test

```
. linktest
```

Source	SS	df	MS	Number of obs	=	50
				F(2, 47)	=	314.29
Model	.002897768	2	.001448884	Prob > F	=	0.0000
Residual	.000216673	47	4.6101e-06	R-squared	=	0.9304
				Adj R-squared	=	0.9275
Total	.003114441	49	.00006356	Root MSE	=	.00215

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
_hat	1.003514	.1484134	6.76	0.000	.7049444	1.302083
_hatsq	-.0769367	3.130174	-0.02	0.980	-6.374035	6.220162
_cons	-.0000336	.0017913	-0.02	0.985	-.0036373	.00357

For this model specification test the Stata output reveals that our regression model is correctly specified, since thecoefficient of the predicted dependent variable (_hat) is statistically significant andthe coefficient of the predicted dependent variable square (_hatsq) is statistically insignificant. Therefore, The linktest acceptsthe hypothesis that the model is correctly specified

Operational model

The following two models are utilized to investigate the relationship between firms financial performance and the aggregate measure of VAIC and its three components (HCE, SCE and CEE) respectively.

$ROA_{it} = \beta_0 + \beta_1 VAIC_{it} + \beta_2 SIZE_{it} + \beta_3 LQU_{it} + \beta_4 LEV_{it} + u_{it}$

$ROA_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 CEE_{it} + \beta_4 SIZE_{it} + \beta_5 LQU_{it} + \beta_6 LEV_{it} + u_{it}$

5 Empirical Results and discussion

Descriptive statistics

Table 4.3below summarizes the descriptive statistics of both dependent and independent variables for ten sampled banksand insurance companies over the period of 2003-2016 with a total of 50 observations.

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	50	.0279803	.0079725	.0023033	.0402831
VAIC	50	6.854386	1.969815	2.549913	12.98229
HCE	50	5.971356	1.907141	2.015599	11.99963
SCE	50	.8138121	.0744419	.5038695	.9166641
CEE	50	.069218	.012429	.0304445	.0889544
Liqu	50	.4594384	.1927022	.207	.971
Leve	50	.8624888	.0444229	.70125	.9523
Size	50	5.671064	38.0007	.112	269

As presented above the mean value of ROA 2.7%, indicating that the profitability of Ethiopian banks and insurance companies is relatively moderate. The mean value of VAIC is 6.85 with the minimum of 2.54 and the maximum of 12.9. The positive VAIC

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value suggests that the cost incurred in the sampled companies possessing intellectual capital are lower than its contribution in the process of their value creation to be competent in their respective industry. In addition the mean value of HCE (5.97) is the greatest compared with that of SCE and CEE, therefore, which suggests that HCE is the primary deriving force of value creation in the sampled companies.

Correlation Analysis

Table 4.4 below presents a correlation matrix which shows that, the linear relationship between dependent and independent variables as well as among independent variables themselves included in the model.

	ROA	VAIC	HCE	SCE	CEE	Liqu	Leve	Size
ROA	1.0000							
VAIC	0.4834	1.0000						
HCE	0.4654	0.9996	1.0000					
SCE	0.7172	0.8193	0.8035	1.0000				
CEE	0.9014	0.1929	0.1708	0.5619	1.0000			
Liqu	0.2961	0.1240	0.1218	0.1291	0.1826	1.0000		
Leve	-0.0513	0.1705	0.1693	0.1742	-0.0131	-0.1689	1.0000	
Size	-0.0317	0.0867	0.0864	0.0880	-0.0312	0.0393	0.1498	1.0000

Regression results

Table 4.5 Fixed effect model regression results for model-1

```
Fixed-effects (within) regression               Number of obs      =        50
Group variable: ComCode                         Number of groups   =        10

R-sq:                                           Obs per group:
     within  = 0.6812                                         min =         5
     between = 0.1260                                         avg =       5.0
     overall = 0.2377                                         max =         5

                                                F(4,36)            =     19.23
corr(u_i, Xb)  = -0.7780                        Prob > F           =    0.0000
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
VAIC	.0056421	.0006519	8.66	0.000	.0043201	.0069642
Liqu	.0032282	.0040658	0.79	0.432	-.0050177	.0114741
Leve	.0214773	.0191212	1.12	0.269	-.0173024	.0602569
Size	-.0000205	.0000169	-1.21	0.233	-.0000549	.0000138
_cons	-.0305837	.0181716	-1.68	0.101	-.0674374	.00627
sigma_u	.01000873					
sigma_e	.00406437					
rho	.85844043	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(9, 36) = 10.59                     Prob > F = 0.0000
```

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Fixed effect model regression results for model-2

```
Fixed-effects (within) regression               Number of obs      =        50
Group variable: ComCode                         Number of groups   =        10

R-sq:                                           Obs per group:
     within  = 0.9587                                         min =         5
     between = 0.8239                                         avg =       5.0
     overall = 0.8999                                         max =         5

                                                F(6,34)           =    131.60
corr(u_i, Xb)  = -0.2153                        Prob > F          =    0.0000
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
HCE	.0016199	.0004781	3.39	0.002	.0006483	.0025916
SCE	.0091635	.0083015	1.10	0.277	-.0077071	.0260342
CEE	.49976	.0385116	12.98	0.000	.4214949	.578025
Liqu	.0019355	.0015303	1.26	0.215	-.0011745	.0050456
Leve	.0022196	.0073043	0.30	0.763	-.0126246	.0170637
Size	-4.81e-07	6.44e-06	-0.07	0.941	-.0000136	.0000126
_cons	-.0265436	.007096	-3.74	0.001	-.0409644	-.0121229
sigma_u	.0023391					
sigma_e	.00150488					
rho	.70725988	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(9, 34) = 6.85                     Prob > F = 0.0000
```

In model (1), the coefficients on VAIC are significantly positive, indicating that companies with greater intellectual capital perform better in terms of their profitability. This result leads to support **H_1.** The regression coefficient of VAIC indicated in table 4.5 above is positive (0 .005645) at 5% level of significance. 0 .005645 is the partial regression coefficient of VAIC and tells us that with the influence of all other explanatory variables held constant, as VAIC increases, say, by a Birr, on average, the financial performance of sampled companies goes up by 0 .005645 Birr. This implies that theVAIC position of a firm is an important determinant of their financial performance. In model (2), components of VAIC such as HCE and CEE are significantly positive at 1% significance level, but the coefficients on SCE is not significantly positive. The regression coefficient of HCE and CEE indicated in table 4.5 above is positive (0 .00164 and 0.49978) at 1% level of significance. 0 .00164 and 0.49978 are the partial regression coefficient of HCE and CEErespectively and tells us that with the influence of all other explanatory variables held constant, as HCE and CEE increases, say, by a Birr, on average, the financial performance of sampled companies goes up by 0 .00164 and 0.49978 Birr respectively. This implies that theHCE and CEE position of a firm is an important determinant of their financial performance. This finding is consistent with prior studies such as Chen et al. (2005), Kamath (2007), Mavridis and Kyrmizoglou (2005), and Yalama and Coskun (2007).However in the two models the regression coefficient of SCE, Liue, Leve and Size are insignificance. Which implies the financial performance of sampled Ethiopian banks and insurance companies is not that much affected by SCE, Liue, Leve and Size. This is consistent with prior studies such as Chen et al. (2005), Firer and Williams (2003), and Goh (2005). The adjusted R^2value in mode(2), is greater than adjusted R^2value of model (1), which implies that the three components of VAIC such

as HCE, CEE and SCE measures are better than the aggregate VAIC measure in explaining the financial performance.

6 Conclusion

Intellectual capital is increasingly recognized as a major driver of corporate competitiveness and sustainability. As a result in this study, we have provided empirical evidence regarding the contribution of IC efficiency and its sub-components to explain banks and insurance companies' financial performance in Ethiopia. The first, second, third and fourth hypothesis of this study tests the relationship between VAIC and its components (CEE, HCE, and SCE) and ROA. The result indicate that VAIC and its components of CEE, HCE have positive and significant effect on the profitability of sampled firms in the study where as SCE is not the significance determinants of their profitability. Therefore, Ethiopian banks and insurance companies with better IC efficiency will achieve their greater profitability and greater sustainable growth.

7 Recommendations

- ✓ Ethiopian banks and insurance companies should maintain awareness of the importance of intellectual capital and invest more in IC in order to sustain competitive advantage. Recognizing the role of IC components, companies also need to develop strategies to invest in different components of IC by reasonably allocating their limited knowledge based resources.
- ✓ We empirically find an insignificant impact of SCE on firm's financial performance. .Ethiopian banks and insurance companies should establish a positive corporate culture and develop the right management control systems to support internal business processes.

Conflicts of Interest: The author declares no conflict of interest.

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