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MODERATING EFFECT OF BOARD FINANCIAL EXPERTISE ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND MARKET VALUE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The global economic environment has witnessed a transformation from a traditional tangible to a new intangible economy due to globalization, and exponential growth of technological changes. The new economy, which has been tagged as a knowledge-based economy, can improve the competitive advantage of organizations. Intellectual capital is knowledge assets which belong to an entity and most importantly capable of improving the competitive power of the entity by adding value to the corporate organization. It is based on this that the study examined moderating effect of board financial expertise on the relationship between intellectual capital and market value of listed deposit money banks in Nigeria from 2011-2020. The study adopts an ex-post facto research design and intellectual capital is measured by human capital, structural capital and relational capital efficiency while market value is measured by market value added. Panel multiple regression is used for the analysis. From the analysis, the study found that human capital efficiency has a positive but insignificant effect on market value added, structural capital efficiency has a positive significant effect on market value added, and; relational capital efficiency has a negative but insignificant effect on market value added. Furthermore, moderated human capital efficiency has a positive significant effect on market value added, moderated structural capital efficiency has a negative significant effect on market value added while moderated relational capital efficiency has a positive but insignificant effect on market value added. Based on the finding, the study recommends that banks should pay sufficient attention to human capital since it is considered the most significant asset to the company by implementing policies that will enhance and upgrade their employees' skills and competence in the area of training and development.

Keywords: Intellectual capital, Human capital, Structural capital, Relational capital, Market value

Introduction

The current trend of the global economy requires companies to have a highly competitive ability in the challenging global market. This ability is very important and leads to knowledge-based resources as a major factor in maintaining the competitive advantage for the company. This is in line with the opinion of Al-Musalli and Ku-Ismail (2012) who stated that with the presence of a knowledge-based economy, intellectual capital compared to physical and financial capital becomes one major factor in creating corporate value as well as maintaining the competitive advantage of the companies. The emergence of a new economy that is principally driven by developments in information technology and science has also showed the growing interest in the disclosure of intellectual capital (Al-Musalli and Ku-Ismail, 2012).

Mandatory financial reporting is becoming less informative to the investors of large highly technical firms around the world. Companies are now investing largely in Research and Development (R&D) projects, intangibles, and intellectual properties. But traditional financial statements do not consider the true value of these intangibles and intellectual properties. As a bridge between this existing gap of information regarding valuable intangibles and intellectual properties, a new form of corporate voluntary disclosure has emerged which is called intellectual capital disclosure. Good forms of corporate reporting help to eliminate the information asymmetries underlying the capital market investors (Bashan, 2012).

Intellectual resources are capital inputs for firms that can increase competitive advantage, growth and sustainability, especially in a knowledge-transiting economy. Intellectual capital because of its intangibility in usage is acclaimed as a hidden source of wealth creation for firms (Anifowose, et al, 2017). This is because it encapsulates the human, structural and relational capitals of firms and the efficient use of each of these capital has numerous beneficial effects on performance. Hence, the capital resources possess unique value additions to the firm because of their rare and imitable nature. The optimal use of these resources can be directly attributed to the competence, skills, experience and diversity of the board of directors (Shettima & Dzolkarnaini, 2018). This is because they tend to make strategic decisions on the creation, usage and management of intellectual resources. In particular terms, board homogeneity with the participation of female directors tends to contribute to the efficient and effective decision-making process, which has a positive effect on the optimal usage of intellectual capital and firm performance (Adams & Kirchmaier, 2016).

The company always strives to maintain and enhance corporate value. One of the steps that can be taken by a company to maximize corporate value is by owning intellectual capital, disclosing intellectual capital, and performing good corporate financials. Intellectual capital disclosure will be a good signal for a company and help stakeholders in making a decision. The intellectual capital disclosure is intended to meet stakeholders' needs for intellectual capital information. According to Ching, Luther, Tayles and Haniffa (2013), there is a demand for information disclosure about intellectual capital, especially human capital. It can provide a competitive advantage and value creation to the company. Bhasin (2012) states that organizational managers must have initiatives to measure, manage, and distribute information about intellectual capital that refers to value creation for corporate stakeholders.

Intellectual capital is an addition from all of the knowledge that support company to gain and maintain its competitive advantage continuously. Human capital and structural capital, are related to organization itself, while relation capital is related to the relationship between the organization and the external parties such as customers, suppliers, investors, and other external stakeholders. Human capital includes knowledge, skills, and abilities of employees. It is an organization's combined human capability for solving business problems. It encompasses how effectively an organization uses its people resources, as measured by creativity and innovation (Achoki, et al, 2017). Structural capital is the supportive infrastructure that enables human capital to function (such as: buildings, hardware, software, processes, patents and trademarks). Intellectual capital disclosure is needed because it is a mechanism to cut down the agency cost which arises from the possibility that the manager acts not for the sake of the stakeholders (Hassan, Romilly, Achoki, et al). Therefore, intellectual capital is needed to improve the utilization of organization's resources in innovation (Achoki, et al, 2017).

Market value is used as a tool to attract investment and increase the number of investors in the company, because it is the point of decision by the investor existing or expected, and the most reliable indicator of the performance of the company, and helps the company to plan its management and achieve the highest level of competition in the market. Due to a series of economy reforms embarked upon, there is evident dynamism in the Nigerian economy through shifting from its traditional product-based economy to a knowledge-based orientation and diversification approach (Ibikunle & Damagum, 2013) which signifies the significance of intellectual capital in the corporate organization. Since intellectual capital are all employees' abilities that create value addition and also, it is intangible resources that contribute to the firm's value creation process, it is expected that intellectual capital disclosure by companies should impact on their market value added. However, to be the best of the researcher's knowledge, none of the empirical studies used market value added (MVA) to measure corporate market value. Most of the studies used market capitalization, Market value of shares, Tobins Q and other measures of performance such as the study of Joseph, Asamoah, Safianu, Saah and Baghr (2018); Abraham and Ofosu (2018); Ali (2018); Subaida and Mardiati (2018); Mačerinskienė and Survilaitė (2019); Shubita (2019)).

Furthermore, board financial expertise has the potential to increase board effectiveness and corporate value process. Financial experts, however, might affect firm policies beyond more accurate disclosure. A board with financial expertise members is more able to integrate the interest of multiple stakeholders, including employees, customers, suppliers and the communities with the performance-based interests of shareholders (Harrison & Coombs, 2012). With this, it is expected that disclosure of intellectual capital in the financial statement shall surely be affected by board financial expertise. Some of the studies that examined such influence of board expertise on the relationship between intellectual capital and corporate performance are Rabaya, Saleh and Hamzah (2020); Heryana, Wahyudi and Mawardi (2020); Isola, Adeleye and Olohunlana (2019). It is based on the above assertion that this study is motivated to assess how board financial expertise had affected the interaction between intellectual capital disclosure and corporate market value of deposit money banks in Nigeria.

Literature Review

Concept of Intellectual Capital (IC)

Intellectual capital is a valuable and skillful resource based on knowledge, both tacit knowledge, and explicit knowledge. Tacit knowledge is a hidden knowledge that cannot or is difficult to imitate by others. Explicit knowledge is the knowledge that is easily transferred or imitated by others (Christa, 2011). According to Engelman, Fracasso, Neto and Schmidt (2015), intellectual capital is the knowledge assets of the company and how those assets change are expected to change over time.

Anam, Fatima and Majdi (2011a) defined intellectual capital as the knowledge-assets that can create value for firms as well as achieve and sustain a competitive edge for them; also, Saleh (2010) seen intellectual capital as a non-monetary asset that can generate future economic values in firms. Such intellectual assets themselves, according to Bismuth and Tojo (2008), do not create value nor generate growth and development but need to be combined with other factors of production. The focus of Intellectual Capital is on the resources of organizations which are clearly relevant in decision making as to the wealth-creating ability of the firm; whilst Intellectual Capital Disclosure, on the other hand, is about achieving full disclosure of these intangibles, thereby guaranteeing fairness and transparency. Therefore, the disclosure of Intellectual Capital is to ensure that the firm

has steady control of its value-creation intangibles and to enhance their transparency as well as facilitate their effective and efficient management.

Human capital

Anuonye (2014) defined human capital as knowledge, skills, and abilities of employees. It is an organization's combined human capability for solving business problems. Human capital is inherent in people and cannot be owned by organizations. It also encompasses how effectively an organization uses its people resources, as measured by creativity and innovation.

Ali (2018) describes human capital (HC) as the knowledge, skill, expertise/know-how, problem solving capacity, education, training, judgment, experience, abilities, and loyalty of the employees of the firm; represented as the collective capabilities of a company's workforce to solve customer and operational problems (Phusavat, Comepa, Sitko-Lutek & Ooi, 2011). Human capital is the firm's collective capability to extract the best solutions from the knowledge of its people. It is important because it is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, daydreaming at the office, throwing out old files, reengineering new processes, improving personal skills or developing new sales leads.

This study aligns with the definition of human capital by Sonnier (2008) that human capital (HC) is the knowledge, skill, expertise/know-how, problem solving capacity, education, training, judgment, experience, abilities, and loyalty of the employees of the firm.

Structural capital

Anuonye (2014) defined structural capital as everything in an organization that supports employees (human capital) in their work. It is the supportive infrastructure that enables human capital to function (such as: buildings, hardware, software, processes, patents and trademarks). In addition, structural capital includes things such as the organization's image, organization structure, information system, and proprietary databases.

Abraham and Ofosu (2018) described structural capital (SC) as the knowledge that belongs to the organization as a whole in terms of technologies, inventions, data, publications, strategy and culture, structures and systems, organizational routines and procedures. Structural capital is the firm's organizational capabilities to meet market requirements. It involves the organization's routines and structures that support employees' quests for optimum intellectual performance and, therefore, overall business performance. An individual can have a high level of intellect, but if the organization has poor systems and procedures by which to track his or her actions, the overall intellectual capital will not reach its fullest potential.

In this study, structural capital are the supportive infrastructure that enables human capital to function in an organization.

Relational Capital

Relational capital represents external capital of the organization, which refers to the vital external relations established by the organization (Nwaiwu & Aliyu, 2018). Relational capital is defined by Prabowo (2017) as a set of relationships and values linking the organization with its customers through the achievement of their desires and meet their needs, and thereby the organization ensures customer satisfaction, and increase their loyalty and belonging to the organization through paying greater attention to customer views and comments and taking them into account. Hassan (2015) indicated that the relationship between the organization and all the parties that contribute to the development of ideas, and create new products and services. However, Altaweel and Sammak

(2014) described relational capital as the relationship between the organization and its customers that arise from meeting the needs and desires of customers, solve their problems and satisfy their needs. Relational capital is also called customer capital and Hussein and Jameel (2009) described the elements composing the relational capital namely: defined market channels, relationships with customers, suppliers and industry associations.

Market Value Added (MVA)

Market value added is used as a tool to attract investment and increase the number of investors in the company, because it is the point of decision by the investor existing or expected, and the most reliable indicator of the performance of the company, and helps the company to plan its management and achieve the highest level of competition in the market. Market value is therefore defined as the price of a stock traded in the financial markets during the interaction of supply and demand forces, which is affected by the surrounding economic, social and social environment (Anifowose et al, 2017). Anifowose et al, (2017) defined market value as the benchmark used to measure the performance of firms and their development at the end of the period after reaching their value by averaging their shares multiplied by the total number of shares listed, or the number of shares acquired multiplied by their prices.

Board Expertise

The affairs of an organisation are determined by the boards of directors (Butt, 2012). The daily operational activities of organisation are handled by the executive directors which is head by the CEO. Role of board for acting as advisor to the CEO is necessary to enhance value of the organization (Kirkpatrick, 2009). It then means that the presence of board directors with accounting and finance (i.e., have financial literacy) to perform effective monitoring of company's financial reporting process and its disclosure practices to ensure integrity. This also can help increase the value of an organisation and its performance (Bhasin, 2012). Directors who had reasonable financial backgrounds were more effective in providing internal control system mechanisms to control firm performance. The revised corporate governance code of 2018 suggested there is a need for the board to have people with requisite skill and knowledge on the board. Aledwan (2014) asserted that firms in which its board of director has at least one of its members that are financially literate are less likely to be sanctioned by the SEC for financial reporting problems. The Boards of directors which have financial experts on its board argued to be more diligent and monitor management more effectively (Kanagaretnam et al., 2007). According to Jensen (1993) board expertise are one of the most important corporate mechanisms to ensuring compliance, corporate discipline and also the effectiveness of corporate monitoring. Theoretically speaking, experience of the board in general and financial accounting expertise in particular, plays a vital role in mitigating agency costs. Resource's dependency theory ensures that the company is not only reliant on the abilities of the management of the company to efficiently manage the resources but also on the capacity of the members to save these resources. The strategic knowledge of the board allows it to perform oversight functions as regards risk management, corporate strategy, succession plans of CEO and the questions about meeting the targets for financial and strategic objectives (Dehaan, Hodge & Shevlin, 2013).

Intellectual Capital and Market Value Added (MVA)

Onyekwelu and Ubesie (2016) examined the effect intellectual capital (IC) on corporate valuation of firms quoted in Nigeria. The study adopted the panel research design as used time series and

cross-sectional data for the period 2004-2013. Intellectual capital was measured using human capital efficiency, structural capital efficiency and capital employed efficiency. Market to Book Value Ratio and earnings per share. Multiple regression correlation analysis was used for the analysis. The results revealed that human capital efficiency has a positive and significant effect on Market/Book Value. structural capital efficiency has a negative and insignificant effect on M/BV; capital employed efficiency has negative and significant effect on M/BV; positive and insignificant effect on Earnings per Share. The model of the study does explain only little variation on corporate value. Also, despite using time series and cross-sectional data, it is expected that the study should analysed the data from fixed and random effect model but however, the study was unable to do same. This could cause limitation in the result of the study.

Ali (2018) examined the effect of the disclosure of intellectual capital (human, structural and relational capital) on the market value of shares in Jordanian commercial banks during the study period 2013–2016. The results showed that there was increase towards the level of disclosure of the components of intellectual capital. This indicates the continuous increase by the industrial companies at the level of disclosure, However, this level was below the required threshold, not exceeding in all years (56.0%). There is also a relative increase in the level of disclosure of structural capital and interest relative to the disclosure of human capital, which may be seen as a decline in the interest of companies in the development of their human resources compared to the structural aspect and relations with other parties. In the overall analysis, it was found that the human capital disclosure has positive significant effect on market value of shares while other components has no significant effect on market value of shares. The study does not conduct fixed and random model analysis despite the fact that the model is stated in a model regression form.

Hatane, Angeline, Wedysiage and Saputra (2019) assessed the impact of Intellectual Capital Disclosure (Human Capital Disclosure, Structural Capital Disclosure, and Relational Capital Disclosure), Firm Size and Leverage on firm value (Tobin's Q) of 36 Indonesia's listed companies from infrastructure, utility, and transportation industry from 2013 to 2017. The results found that none of the components from ICD has an influence on firm value during the pre-Jokowi's era. The negative effect of RCD on firm value is found without differentiating the presidential era. In addition, the negative response from firm value is found when the interaction of ICD and the time period is increasing.

Shubita (2019) applied the value-added intellectual coefficient (VAIC) model to test the impact of intellectual capital (IC) on market value of 73 Jordanian manufacturing companies during the period 2005–2017. Market value was measured using the market capitalization over the total assets. The IC and its components: capital employed (CEE), structural capital (SCE), and human capital (HCE) of industrial firms have been analyzed, and their impact on market value has been estimated using regression models. The results show that there is no relationship between IC and the market value; HCE is associated with the market value, and SCE and CEE are not associated with the market value. Difference in the sectoral analysis of the study hinder generalization of the findings to other sector like financial services companies in Nigeria.

Isola, Adeleye and Olohunlana (2019) ascertained the link between female board participation, intellectual capital and performances. The study adopted longitudinal panel analysis to analyze data obtained from the annual reports of selected listed commercial banks in Nigeria. The results revealed that female board participation has insignificant influence on bank performances, whereas

intellectual capital efficiencies positively contribute to bank performances. However, significant influences were exhibited upon the interactions of female board participation and components of intellectual capital efficiency on bank performances. The study concentrate on the traditional accounting measure which does not shows the addition to the shareholder or management to make forecast thus, this study shall looks at the market performance measures that reflect both the past and future element such as cost of capital from the market value added that is likely to affect the perfection of the investors towards financial companies in Nigeria.

Ousama, Al-mutairi and Fatima (2020) investigated the relationship between the intellectual capital (IC) information reported in the annual reports and market value of the companies listed on the Qatar Stock Exchange. The study is based on a panel data for six years from 2010-2012 and 2016-2018. The regression model is based on Ohlson's model, which has been modified by including IC information. The study found that there is a significant relationship between IC information and firm market value. This study is recent but however, intellectual capital was not examined based on the various component of human capital, structural capital and relational capital.

Knowledge-Based View Theory

Knowledge is the life-wire of any organisation such that it is unique, valuable, rare and not easy to replicate as it provides the firm with a capability and competence needed to achieve a competitive advantage via knowledge workers who are embodied in the human capital and structural capital of the firm. Drucker (1999b) states that the most important contribution management needs to make in the 21st century is similarly to increase the productivity of knowledge worker. The knowledge-based view of the firm identifies the primary rationale for the firm as the creation and application of knowledge (Demsetz, 1991; Nonaka, 1994; Grant, 1996; Pender, 1996).

The transition of society from the industrial era to the knowledge era has shifted the importance from tangible assets to intangible ones. Hall (1992) in a survey of CEOs found that employee know-how and reputation were viewed as the most critical intangible resources for the firm. Therefore, the ability of firms to generate and exploit new forms of knowledge is vitally important (Anand, 2007). The relevance of the theory to this study is that it considers cost of education, training, development and even workers' medical treatment as investments towards improved productivity of individual workers and also creates a sort of competitive advantage which ultimately results in improved organizations corporate value. Thus, if these are investments like other physical assets which are reflected on the statement of financial position, considerable effort must also be made to reflect such value of knowledge in human capital on the statement of financial position.

Methodology

The study adopts ex-post facto research design. The population of the study comprised of the entire listed deposit money banks on the Nigeria stock exchange from 2011-2020. The data on intellectual capital components and corporate market value is sourced from audited annual reports of the companies. Panel multiple regression is used to determine the moderating effect of board financial expertise on the relationship between intellectual capital and corporate market value of deposit money banks in Nigeria. The study also conducts descriptive statistics of the variables,

correlation matrix, multicollinearity test using variance inflation factor, heteroskedasticity test and normality test of the variables. The linear model for the study is specified as:

$$MVA_{it} = \beta_0 + \beta_1 HCD_{it} + \beta_2 SCD_{it} + \beta_3 RCD_{it} + \beta_4 BFE_{it} + \beta_5 BFE * HCD_{it} + \beta_6 BFE * SCD_{it} + \beta_7 BFE * RCD_{it} + \varepsilon_{it}$$

Where;

MVA_{it} = Market Value Added of firm I at time t
BFE_{it} = Board Financial Expertise of firm I at time t
HCD_{it} = Human capital disclosure of firm I at time t
SCD_{it} = Structural capital disclosure of firm I at time t
RCD_{it} = Relational capital disclosure of firm I at time t
βo = constant
β_1- β_7 = coefficients of estimates
$\mathcal{E}$ = error term

Table 1: Measurements of Variables

VARIABLES	***MEASURES***	***VALIDITY CONSTRUCT***
Market Value (MV)	*Market Value Added (MVA) = Market Capitalization - Shareholders' Funds*	*Thenmozhi (2000); Stern (1991)*
Board Financial Expertise (BFE)	*Proportion of board with financial expertise to the total board size*	*Anifowose, Rashid and Annuar (2017)*
Human capital disclosure (HCD)	*Aggregate of human capital disclosure in the annual report*	*Mehralian, Reza, Akhavan and Sadeh (2012); Ali (2018)*
Structural capital disclosure (SCD)	*Aggregate of structural capital disclosure in the annual report*	*Jihene (2013); Umar (2017)*
Relational capital disclosure (RCD)	*Aggregate of relational capital disclosure in the annual report*	*Altal (2016); Anuonye (2014).*

Source: Compiled by the Researcher

Result and Discussion

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
mva	130	.3922153	.6172949	-1.071343	2.674372
hcd	130	8.593113	1.517427	6.347749	10.49307
scd	130	9.217431	1.027663	6.704897	11.80582
rcd	130	8.588488	.8253024	6.540705	10.81976
bfe	130	.1991538	.1125672	0	.67
bfehcd	130	1.6844	.9509402	0	5.333
bfescd	130	1.826052	1.029932	0	5.823462
rcdbfe	130	1.710076	.9954392	0	6.027588

Source: Generated from Stata, 2021

The descriptive of the variables indicates that banks had a maximum market value added value of 2.674372. This therefore means that there is an addition on the value of the asset to the companies while the minimum of -1.071343 indicates a loss on the asset of the companies. Averagely the sector had market value added of .3922. Human capital efficiency which shows knowledge, skills, and abilities of employees has a maximum of 10.49 while the minimum is 6.347. Averagely the sector had human capital efficiency of 8.59.

Structural capital efficiency which is the supportive infrastructure that enables human capital to function has a mean of 9.217431 while the maximum and minimum is 11.80582 and 6.704897 respectively. In the same way, relational capital efficiency has a mean disclosure of 8.59 while the maximum and minimum is 10.82 and 6.54 respectively. The board financial expertise shows the proportion of directors with financial expertise on the board. It was found that the maximum proportion of directors with financial expertise is 67% while the minimum is 0%. With the minimum of 0%, it therefore means that at a point in time, there is no board expertise representative.

Furthermore, the moderated human capital efficiency shows a maximum of 5.333000 while the minimum of 0 indicates absence of interaction between the board expertise and human capital efficiency. Also, the minimum of 0 in the structural capital efficiency indicates absence of interaction between director's expertise and structural capital efficiency however, the maximum interaction between the board expertise and structural capital efficiency is 5.823462. The study found that moderated relational capital disclosure has a maxim of 6.027588 while the minimum of 0 indicates that there is no interaction between relational capital and board expertise. This is as a result that there is no board expertise within the board.

Table 3: Correlation Matrix

	mva	hcd	scd	rcd	bfe	bfehcd	bfescd	rcdbfe
mva	1.0000							
hcd	-0.1283	1.0000						
scd	-0.2392	0.7293	1.0000					
rcd	-0.3140	0.3426	0.4417	1.0000				
bfd	0.1529	-0.1590	-0.0839	-0.0038	1.0000			
bfehcd	0.0961	0.1732	0.1540	0.0734	0.9323	1.0000		
bfescd	0.0985	-0.0105	0.1315	0.0596	0.9703	0.9654	1.0000	
rcdbfe	0.1136	-0.1143	-0.0288	0.1331	0.9867	0.9317	0.9673	1.0000

Source: Generated from Stata, 2021

The relationship between the variables is check with the correlation result above. It was found that human capital efficiency has negative relationship with market value added to the extent of 12.8%. Also, structural capital efficiency is negatively correlated with market value added to the extent of 23.9% and relational capital efficiency is also correlated with market value added to the extent of 31.4% while board financial expertise is positively correlated to market value added. Furthermore, moderated human capital efficiency, moderated structural capital efficiency and moderated relational capital efficiency are all positively correlated to market value added respectively.

Table 4: Hausman Specification

	fixed	random	Difference	S.E.
hcd	.1055207	.0725003	.0330204	.0113411
scd	.0388403	.0303525	.0084878	.
rcd	-.0496597	-.0178018	-.0318579	.0103274
bfe	1.919477	3.489285	-1.569808	.3890078
bfehcd	.2662134	.2679182	-.0017048	.
bfescd	-.5634201	-.6225979	.0591779	.
rcdbfe	.139688	.0217984	.1178896	.

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(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 5.85

Prob>chi2 = 0.5573

(V_b-V_B is not positive definite)

Source: Generated from Stata, 2021

The Hausman result above indicates the model that is appropriate for the study. It was found that random model regression is appropriate because the p-value of Hausman specification is greater than 5% level of significance.

Table 5: Breusch and Pagan Lagrangian multiplier test for random effects

```
                        |       Var     sd = sqrt(Var)
                ---------+-----------------------------
                     mva |    .381053       .6172949
                       e |   .0434237       .2083836
                       u |   .1910452       .4370872

        Test:   Var(u) = 0     chibar2(01) =   256.30
                             Prob > chibar2 =   0.0000
```

Source: Generated from Stata, 2021

The Lagrangian result is used to choose between random model and the pooled regression but the result support the choice of random model because the prob. value is less than 5% level of significance.

Table 6: Regression Result

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Random-effects GLS regression                   Number of obs      =       130
Group variable: id                              Number of groups   =        13
R-sq:  within  = 0.7703                         Obs per group: min =        10
       between = 0.0627                                        avg =      10.0
       overall = 0.2522                                        max =        10
                                                Wald chi2(7)       =    338.80
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
------------------------------------------------------------------------------
         mva |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         hcd |   .0725003   .0410154     1.77   0.077    -.0078885    .1528891
         scd |   .0303525   .0149972     2.02   0.043     .0009585    .0597465
         rcd |  -.0178018    .044723    -0.40   0.691    -.1054572    .0698536
         bfe |   3.489285   1.886176     1.85   0.064    -.2075526    7.186122
      bfehcd |   .2679182   .0293571     9.13   0.000     .2103793    .3254571
      bfescd |  -.6225979    .155314    -4.01   0.000    -.9270078    -.318188
      rcdbfe |   .0217984   .1955564     0.11   0.911    -.3614852    .4050819
       _cons |  -.1566934   .1557255    -1.01   0.314    -.4619098     .148523
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Source: Generated from Stata, 2021

The result shows that human capital efficiency has positive but insignificant effect on market value added. Despite the insignificant effect, the positive relationship shows that increase in skills, knowledge and abilities of the employees will enable them to perform better. This will increase the market value added of the companies. However, structural capital efficiency has positive significant effect on market value added. This indicates that when the companies spend more on the supportive infrastructure such as: buildings, hardware, software, processes, patents and trademarks, it will improve the market value added because the support the operations of the business. However, relational capital efficiency has negative but insignificant effect on market value added with p-value greater than 5% level of signifies while, the result shows that board expertise has a positive but insignificant effect on market value added with p-value greater than 5% level of significance.

Furthermore, moderated human capital efficiency has positive significant effect on market value added. This indicates that the higher the board expertise the higher the market value of the companies. The result also shows that moderated structural capital efficiency has a negative significant effect on market value added. However, moderated relational capital efficiency has positive but insignificant effect on market value added.

The coefficient of determination indicates that the independent variables used in this study explained 25% variation on market value added while the remaining variation is explained by other variables not included in the model.

Conclusion and Recommendations

The study concludes that intellectual capital is a significant factor that affect the market value added of the companies. Hence, moderated human capital has a significant effect on market value, therefore, increase in human capital efficiency will increase market value added because human capital indicates skills, knowledge and abilities of the employees. However, moderated structural capital has a negative significant effect on market value of listed deposit money banks. This signifies that increase in moderated structural capital efficiency will decrease market value added. Furthermore, moderated relational capital efficiency has positive but insignificant effect on market value added. It therefore means that less board expertise on the board is necessary to increase market value added. Based on the conclusion, the study recommends that banks should pay sufficient attention to the human capital since it is considered as the most significant asset to the company by implementing policies that will enhance and upgrade their employees' skills and competence in the area of training and development.

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