EFFECT OF BOARD MEMBERS' DYNAMICS ON FINANCIAL PERFORMANCE OF INSURANCE COMPANY IN NIGERIA USING CARAMELS FINANCIAL PERFORMANCE INDICATORS

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Abstract

This study examines the effect of board members' dynamics on financial performance of insurance company using CARAMELS financial performance indicators. Expost-facto research design was employed. Population of the study include all the 22 listed insurance companies in Nigeria from 2012 to 2018. Secondary data sourced from annual reports of insurance companies was analysed with descriptive and inferential statistics. The results of Serially Correlated Disturbance Random Effects revealed that all the board members' dynamics has a significant relationship with at least a component of CARAMELS indicator. The study concludes that board size, board gender diversity and board diligence increase the management efficiency of insurance companies in Nigeria. The study also concludes that presence of foreign board member and board compensation positively relates to earnings and profitability but negatively relates to reinsurance and actuarial of listed insurance companies in Nigeria. Board ownership negatively influences the asset quality and earnings and profitability of listed insurance companies in Nigeria. Therefore, the study recommends that required board size, board gender diversity and board diligence should be strengthening to enhance management efficiency of listed insurance company in Nigeria. A standing policy should be developed on the number of foreigners that must be included in the board of director of the insurance company in Nigeria among others.

1. INTRODUCTION

The insurance sub-sector of financial service aspires at flattening any forms of financial tragedy in the economy hence, strengthening the financial and economic system of the country

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(Shawar & Siddiqui, 2019). Insurance is an important financial and economic tool through which the financial tragedies of an individual and entity are shared by many to reduce the effects of problems. However, the overall financial performance of insurance sub-sectors is weak due to inappropriate retorts to economic challenges and insufficient resources (Physical and human) that would have smoothed the progress of their efficiency (International Monitoring Fund (IMF), 2013). Despite the contributions of insurance business in developed and Sub-Saharan African countries, the performance was the same in the less developed countries such as West Africa, Asia, Caribbean, and the Latin America where socio-economic systems are yet to crystallize.

This has been attributed to diminutive resources available to the companies in this sector. An important component of these resources is corporate governance structure put in place by the insurance companies. It is one of the main internal organizational mechanisms that silhouetting firm's operations thus influence its performance (Duompos, Gaganis, & Pasiouras, 2012). Corporate governance structure has recently received excessive attention in corporate environment as a result of corporate governance issues which have impinge on some blue chips from Britain and United States such as WorldCom, Enron, Rank Xerox, Parmalat among others. These have kept corporate governance structure on the lens of stakeholders in the world and Nigeria (Fernando, 2012; Arif, 2019).

Non-compliance with corporate governance structure such as lack of mastery of the board dynamics and composition system reveals the inability of insurance company to meet up with the demands and expectations of all stakeholders (Imade, 2019). This is highly deleterious to the efficiency of management in maximising optimum return on their investment and sustenance of high level of performance in the sector**.** This implies that the influence of boards' dynamics on firms' performance cannot be underestimated because the board composition in terms of board size, gender, independence, foreigners in the board encourages entrenchment (Garba & Abubakar, 2014). An insurance company with a large board size and more female would be able to provide more influences on sensitive matters and decisions that affect performance. This may hindered the ability of small size board member to convince other board members to make counter-sensitive decisions (Zakaria, Purhanudin & Palanimally, 2014). However, it was further argued that small sized board members accelerate decision making processes.

Absence of board independence usually made the board to be less effective. An ordinary executive of a company rarely criticize the policies of top managers because of reluctant to hold up discussion with top management level about corporate performance. Therefore, the entrenched manager takes control of the organisation regardless of whether performance is improved or diminished (Yermack, 1996). The combination of board members in terms of gender influences performance of insurance company. Presence of female in the board allows companies to have access to varied personal characteristics and physical differences. Therefore, they are assumed to be very good in exerting intensive monitoring and more effective in proffering wider range of solutions which may influence the performance of insurance company (Ujunwa, Nwakoby & Ugbam, 2012; Imade, 2019).

Other factors seem to be deleterious to performance of insurance companies in Nigeria is board ownership and remuneration. Ownership structure of the firm, especially with respect to

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concentration of ownership by majority shareholders, influences various managerial decision of the company. Some decisions may be taking to satisfy the interest of some stakeholder. However, management of the insurance company will not allow such domineering decision if they have investment in the share of the company (Arif, 2019). Besides, the performance of insurance company is also affected particularly if the remuneration of management is attached to performance. This performance based renumeration encourages the management to put in more efforts in the attainment of stated goal of the insurance companies. Lack of compliance with corporate governance structure and unfavorable arrangement regarding ownership and remuneration might affect the performance in the insurance companies generally.

Generally, the unequivocal interface between corporate governance mechanisms and performance of insurance company in term of deficiency in effective and efficient of corporate governance practices is indisputably resulted into sub-optimality (Gideon, Odunayo & Bamikole, 2019). These had hindered the ability of insurance companies to provide enough support to new economic initiatives and foster economic growth and stability of financial industry and the country at large. Therefore, the present study aims to ascertain the effect of board members' dynamics on financial performance of listed insurance company in Nigeria.

The financial performance measurement previously achieved with Return on Asset (ROA), Return on Equity (ROE) and TOBIN's Q in previous studies (Ujunwa *et al.*, 2012; Mehari & Aemiro, 2013; Garba & Abubakar, 2014). However, this study use CARAMELS (Capital adequacy, Asset quality, Reinsurance and Actuarial issues, Management soundness, Earnings/Profitability, Liquidity and Solvency) financial performance measurement identified by IMF (2003) for insurance company which is similar to financial performance measurement of banks called CAMELS framework. The study covers from 2012 to 2018. The choice of 2012 beset the time that all listed companies mandated to adopt IFRS while the choice of 2018 was based on the recently availability of data.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Performance of Insurance Companies

Performance is the capability of an entity to expand and deal with its available resources in several different ways to maintain competitive advantage. High performance implies that management are effective and efficient in utilization of the entity's resources which in turn improve the economy at large (Mazviona, Dube & Sakahuhwa, 2017). With these, it implies performance cannot be restricted to financial performance alone. The issue of performance of corporate organizations has been one of the major concerns of management, experts, investors and as well as researchers. The performance of a firm can be measured using different indices, financial or otherwise, through different methods. However, attention is usually place on the ability of the organization to lift up their income level (Ahmed, Ahmed & Usman, 2011). Generally, the financial performance can be estimated in term of profitability, which is a relative measure of success for a business because one of the objectives when managing insurance companies is to attain profit (Chen & Wong, 2004).

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Profitability is one of the proxies of financial performance indicator that assists the entities to maximize the owner's wealth and profitability which in turn indicates better financial performance (Malik, 2011). Some of the financial performance indicator used to measure the performance of organization, specifically, insurance companies commonly use include return on assets (ROA) and return on equity (ROE), investment income, market share, new policies issued, premium income, claim settlement ratio, underwriting profit, EPS among others (Mazviona *et al*, 2017; Shawar & Sidiqqi, 2019). In an attempt to make an accurate representative picture and insights of the financial performance of insurance companies, Das, Davies and Podpiera (2003) proposed CARAMEL model to evaluate the financial soundness and performance of the companies in the insurance industry (Ansari & Fola, 2014).

i. **Capital Adequacy:** This is generally defined as the capital necessary to reduce the probability of insurer default to some target level (Ansari & Fola, 2014). Insurance companies are expected to maintain adequate capital to meet their financial obligations operate profitably and contribute to promoting a sound financial system.

ii. **Asset Quality:** The asset quality of the insurers is the measure of reliance on equity to build sound and quality asset portfolio of the company (Ali, Chanar, Ghauri & Obaid, 2019). It is one of the most critical areas in determining the overall condition of a financial (Ansari & Fola, 2014).

iii. **Reinsurance and Actuarial Issues**: The risk hedging strategy in an insurance industry has been indicated by prudent management of the reinsurance and actuarial issues. Reinsurance is insurance that is purchased by an insurance company, in which some part of its own insurance liabilities is passed on ("ceded") to another insurance company (Ansari & Fola, 2014). This is use to examine the financial health of its reinsurer, if the insurer relies on it to a considerable level.

iv. **Management Efficiency:** The efficiency concept is basically used to evaluate the performance of a firm. Financial sound operations management of financial institutions is crucial for financial performance and stability in the industry. It is very difficult; however, to find any direct quantitative gauge of management soundness (Ansari & Fola, 2014).

v. **Earnings and Profitability:** Earnings are the major parameter employed to access performance of an entity towards investment in long term project. Therefore, the business must be able to earn adequate profits in relation to the risk and capital invested in it (Anasri & Fola, 2014).

vi. **Liquidity:** The term liquidity is the ability of insurance companies to meet its short term obligations that mature within one accounting period. Inadequate level of liquidity shows interruptions in meeting commitments of companies with respects to the clearance of entitlements demand by the policy holders of insurance companies (Naveed, Zulfqar & Usman, 2011).

vii.   **Sensitivity or Solvency:** This is the ability of a company to pay its obligations when they become due and able to continue its business (Ansari & Fola, 2014). The term is used to measures the extent to which assets covers commitments for future payments and the liabilities.

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2.1.2   Corporate Governance and Board Members' Dynamic

According to Cadbury (1992), corporate governance is the system by which companies are directed and controlled. A good corporate governance practices enhance firm performance through better management and prudent allocation of firms' resources. The corporate governance allocates and assigns responsibilities among corporate participants and establishes systematic approach for making decisions on affairs of the companies (Gideon *et al.*, 2019). The board establishes an audit committee and delegates financial reporting responsibilities to ensure that the qualities of financial information to assess performance (Akinkoye & Olasanmi, 2014). Company's board of directors is the custodian of corporate governance in term of high quality, transparent reporting in annual reports.

However, Feng (2014) explained that the presence of board does not necessarily indicate their efficient or effectiveness but their efficiency and effectiveness is mainly determined by their characteristics which include the board size, independence, gender diversity, foreign board member among others. The board size simply terms as the total number of members in a board. Boards that meet the required size are more likely to perform their duties diligently and effectively. This implies that firms with larger board size are more likely to enhance the financial performance of the entity (Laksmana, 2008). However, larger boards can be less effective due potential for free-riding, poor communication and inefficient decision making. The presence of board members, who received training abroad, affects companies' financial performance especially if the training is conducted in countries with stricter accounting rules (Masulis, Wang & Xie, 2012).

Foreign board members are members of the board who are not indigene of the country. Presence of foreign members on the board signal the company's ability to deal with international markets based on foreign qualifications and experience of the foreign members over the indigenous board members (Ujunwa *et al*, 2012). This type of insurance companies possesses higher intercultural competence required to improve financial performance. Board independence is the quality of board member to act objectively without any influence within or outside the company which can only be established by outsiders. Existence of a fairly high percentage of outside directors will act as a substitute for corporate governance factors (Birjadin & Hakemi, 2015). The Company and Allied Matter Act (CAMA) (2004) stated that both executive and non-executive directors are in the company to question, examine and assess the executive directors' management of their company by providing objective, impartial views on the executive directors' decisions and strategies. Therefore, the presence of independent directors in the boardroom enhances the reliance of external auditors on client accounting systems to evaluate financial performance.

Diligent board is define as quality of board to have a greater dedication to the company in order to discover financial irregularity and resolve financial problems which is seen as a function of number of times the board meets (Mbobo & Umoren, 2016). Diligent boards are likely to enhance the level of oversight of the financial reporting process directly and indirectly. The difficulty in the measurement of diligence prompted previous study to use the number of meeting per annum (DeZoort, Hermanson, Archambeault & Reed, 2002). Gender diversity is described as

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proportion of female member presence on a board. Diversity with regards to gender is a pertinent heterogeneity factor which is considered for promoting good corporate governance in terms of cohesiveness and effectiveness (Adegbite & Fofah, 2016). The board shall be of sufficient size relative to the acceptable degree of proportion of women on the board to ensure best practices without compromising other quality. This allows the company to benefit more from excellent monitoring imposed by female board members than their counterpart (Zango, Kamardin & Ishak, 2015).

2.2 Theoretical Review

i. Resource Dependence Theory

The resource dependency theory (RDT) was developed in 1978 by Preffer and Salancik (Delke, 2015). The theory focuses on the effect of the external resources of organizations on the performance of the organization. It recognizes the fact that the success of an organization is hinged on the resources available to it and also quantifies its access to power and control. Resource dependence theory proposes that the board of directors is an essential link between the firm and the financial and non-financial resources that are crucial for the firm's growth. This is because "*Organizations are not self-contained or self-sufficient, they rely on their environment for existence, and the core of the [resource dependence] theory focuses on how organizations gain access to vital resources for survival and growth*" (Chen & Roberts, 2010).

Resources of a company can be in form of materials, workers and finance but resources dependency theory is influenced with the importance, abundance and control of the resources (Hillman, Canella & Paetzold, 2002). They further contend that resource dependency theory focuses on the role that directors play in providing or securing essential resources to an organization through their linkages to the external environment. The advocates of this theory provide focus on the appointment of representatives of independent organizations as a means of gaining access in resources crucial to performance of the company. For example, outside directors who are partners to a law firm provide legal advice, either in board meetings or in private communication with the firm executives that may otherwise be costlier for the firm to secure. It has been argued that the provision of resources enhances the functioning, performance and survival of the firm (Daly *et al,* 2003). Resource dependence theory rests on two fundamental assumptions.

The first assumption is that the board of directors offers essential and crucial resources which include business contacts and contracts, knowledge, experience and expertise couple with monitoring role that they perform which improves the financial performance and wealth maximization of shareholder (Hillman & Dalzel, 2003). The second assumption is that the board of directors has the ability to protect the interests of heterogeneous stakeholders who include local communities, government, employees, suppliers, customers, creditors, regulators and policy-makers (Hillman & Dalziel, 2003). Thus, the board of directors can help the firm to achieve competitive advantage by serving as a direct link between the firm and the environment within which it operates (Chen & Roberts, 2010).

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The board of directors plays an important role in securing financial resources. Most of the state ownership has helped to provide necessary funding from the government. Similarly, listed companies are controlled by families who typically seek to raise their own capital in order to maintain control. Although this ensures large financial sources with low costs, at the same time it may increase ownership concentration. In this regard, Baydoun *et al.* (2013) point out that companies deprive minority shareholders by issuing invitations to wealthy and influential families for the subscription of shares in new Initial Public Offering (IPOs). However, the market authority prevents direct foreign investment which may hinder the capability of companies to attract financial and non-financial resources, such as external financing, experience and transfer of knowledge from foreign investors.

2.3 Empirical Review

There have been several studies relating corporate governance mechanisms and financial performance from developed to developing countries particularly Nigeria. The most recent and relevant among these studies are reviewed as follows: Abdoush, Wolfe and Marshall (2016) assessed whether corporate governance influence performance of insurance companies in UK during the period 2004 to 2013 which incorporate the Euro-zone crisis periods. Based on the analysis of secondary data obtained from reports of 67 UK insurance firms, the study depicted that higher proportion of independent non-executive directors with short tenure length, higher board ownership and block shareholders' rations help to influence firm performance. Also, the study also showed that CEO quality, Independent NED ratio, and board remuneration have effect on firm performance during both the global financial crisis of 2007-2009 and the Euro-zone crisis of 2010-12.

Ibe, Ugwuanyi and and Okanya (2017) in 2017 incorporated other corporate governance mechanisms such as executive directors' remuneration, non-executive directors' remuneration, directors' ownership, institutional ownership, foreign ownership. Using ex-post facto data from 2011 to 2015 of twenty insurance companies in Nigeria, the study found that board size and non-executive directors' remuneration have negative and significant effect on financial performance while board independence and institutional ownership showed positive and significant impact on the financial performance. Using different parameter for corporate governance, Deev and Khazalia (2017) conducted a study on corporate governance, social responsibility and financial performance of European Insurers particularly in Bloomberg within the period of 2000 to 2015. The study found that corporate governance and social responsibility factors significantly influence financial performance in the European insurance sector. Board independence proxied by the percentage of independent directors is a strong determinant of improved market performance. The study also showed that the increased number of board members on average associated with improved market performance.

Delima and Ragel (2017) approaches to corporate governance differed. They employed board size, corporate governance mechanism, communication strategies, and code of conduct as the measurement variables of corporate governance while customer satisfaction, employee commitment and corporate reputation are considered as the measurement variable of organizational performance. The secondary data gathered through questionnaire from 115

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Management Respondents and 115 Customers was analyzed and evaluated by Univariate and Bivariate techniques. The study showed that corporate governance and organizational performance are at high level with a strong positive relationship. Datta (2018) studied the impact of corporate governance on financial performance of 10 listed insurance companies in Bangladesh using board size, board composition, board meetings and board audit committee from 2010 to 2016. The secondary data which was analyzed using descriptive analysis, multiple linear regression, Pearson correlation and collinearity statistics found that board size, board composition, board meetings and board audit committee determined 38.20 percent of the performance (ROE) variance. The result further revealed that a negative relationship between ROE and board composition.

However, the finding was different in Kenya based on the study of Munga (2018). He examined the effect of board's ownership, committees, dependency, and size on financial performance of all insurance firms in Kenya. The results of correlations and hierarchical multiple regression analysis depicted a weak connection exist between the Corporate Governance practices and the firms' financial performance. Recently, Arif (2019) examined the effect of corporate governance on financial performance of insurance industry of Pakistan. The study used all the 32 insurance companies in Pakistan from 2005 to 2017. The secondary data obtained was analysed with OLS which revealed that institutional shareholding ratio, board size, independent directors' ratio, and leverage affect return on assets and return on equity positively whereas, CEO duality and firm size affect the same inversely.

The positive aspect of this conclusion was confirmed by Qawariri (2019) who conducted a comparative study on corporate governance practices in banking and insurance companies listed on Tadawul Stock Exchange. Using mean, standard deviation and ANOVA statistical method to analyse data which was collected through Survey Questionnaire and secondary data from annual reports from 2013 to 2017, the study concluded that the corporate governance practices help companies in gaining highest position in the markets, increasing their strength and enhancing the performance levels which reflect on the strong economy and wellbeing of the companies.

Most of the previous empirical studies on financial performance of insurance companies such as Ibe *et al* (2017); Datta (2018); Arif (2019); among others on the performance of insurance company have employed different performance parameters like ROA, ROE, Gross premium etc. Therefore, the use of CARAMELS framework as a measure of performance is very scanty and unpopular in the previous studies except for Ali *et al* (2019) that employed some components of CARAMELS framework. Hence, this study will distinctively employ the key performance indicators of CARAMELS as a measure of financial performance to bridge the gap in indentified regarding performance measurement.

3. METHODOLOGY

3.1 Research Design, Population and Sampling Techniques

This study adopts an expost-facto research design which involves investigation of fact that has occurred with already existed data. The population for the study include all the listed

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insurance companies from 2012 to 2018. As at 31st December 2018, there are twenty two (22) numbers of insurance companies in Nigeria (Riche, 2019). The secondary data was sourced from all the twenty two listed annual reports of insurance companies. The sample size for the study was determined on the basis of convenience sampling techniques that the company must be listed on the Nigerian stock exchange from January, 2012 up to December, 2018 and must have continuous data for these periods.

The secondary data was analysed using descriptive and inferential statistics. The descriptive statistics include the use of percentage analysis, mean, range of scores (Minimum & Maximum), standard deviation and normality test. Preliminary robustness test such as multicollinearity, model miss-specification test was conducted in order to identify and solve the common problems that may affect inferential statistics. The inferential statistics employed in this study was serially correlated disturbance random effect estimator because the data is a two-dimensional (typically cross-sectional and longitudinal) (Maddala, 2001).

3.2 Operational Definition and Measurement of Variables

The operational variables include the dependents and independent variables. The dependents variable is CARAMELS components while the independents are the board's dynamic. Table 1 and 2 shows the acronyms for each variable, definitions, variable type; measurements approach and construct validity sources for all the variables.

Table 1 Operational Definition and Measurement of Dependent Variables

S/N	DEFINITION	TYPE OF VARIABLES	SYMBOL	MEASUREMENT	CONSTRUCT VALIDITY SOURCE
1	Capital Adequacy	Dependent variable	C	Capital/Total Assets	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)
2	Asset Quality	Dependent variable	A	Gross premium + re-insurance recoveries	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)
3	Reinsurance and Actuarial	Dependent variable	RA	Net Premium/Gross Premium	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)
4	Management Efficiency	Dependent variable	M	Operating Expenses/ Gross Premiums	Das, et al. (2003); IMF (2003); Ali et al (2019)
5	Earnings and Profitability	Dependent variable	E	Investment income /Net premium	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)
6	Liquidity	Dependent variable	L	Current Asset to Current Liability	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)
7	Sensitivity/ Solvency	Dependent variable	S	Net open foreign exchange position/Capital	Das, et al. (2003); IMF (2003); Ali (2018); Ali et al (2019)

Source: Author's conceptualization (2020)

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Table 2 Operational Definition and Measurement of Independent Variables

S/N	DEFINITION	TYPE OF VARIABLES	SYMBOL	MEASUREMENT	CONSTRUCT VALIDITY SOURCE
1	Board Size	Independent variable	BDSZ	Numbers of Board Members	Laksmana, 2008); Deev and Khazalia (2017); Najjar and Salman (2013); Masulis *et al* (2012); Maxwell *et al* (2015)
2	Board Independence	Independent variable	BDINDP	Proportion of independent directors on the board	Deev and Khazalia (2017); Birjadin & Hakemi (2015); Demeke (2015); Fekadu (2015)
3	Foreign Board Members	Independent variable	FBM	The proportion of Women in the board to total board members.	Ujunwa *et al* (2012); Garba and Abubakar (2014)
4	Board Member Gender Diversity	Independent variable	BDGD	The proportion of number of Women in the board to total board members.	Adegbite & Fofah (2016); Zango *et al* (2015); Getachew (2014); Maxwell *et al* (2015); Garba and Abubakar (2014)
5	Board Diligence	Independent variable	BDDEL	Absolute number of meeting held in a year	(Mbobo & Umoren, 2016); DeZoort *et al* (2002); Yemane *et al* (2015)
6	Board's ownership	Independent variable	BOW	Total number of shares owned by the directors of the firm as a proportion of outstanding shares of the firm.	Garba and Abubakar (2014); Abdoush *et al* (2016); Najjar and Salman (2013); Demeke (2015); Arif (2019)
7	Board Compensation	Independent variable	BCC	Log of total compensation of all directors on the board plus 1 to control for non-payment	Abdoush *et al* (2016); Ibe, Ugwuanyi and and Okanya (2017);

Source: Author's Conceptualization (2020)

3.3 Model Specification

Previous studies such as Deev and Khazalia (2017); Abdoush *et al* (2016); Arif (2019); Qawariri (2019) examined the influence of corporate governance structure on financial performance of insurance companies but used different financial performance measurement for insurance companies. However, the present study accesses the performance of insurance companies using CARAMELS framework in line with Ali *et al* (2019). The level of performance using CARAMELS framework is a function of an entity's resources may be physical, human

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organizational capital resources as stated in resource dependency theory. Consequently, the present study adopt and modify model from previous studies (Ali *et al,* 2019; Arif, 2019; Qawariri, 2019) to incorporate CARAMELS financial performance indicator to develop a new model as follows:

Financial Performance = f (Corporate Governance Mechanisms)………………….… (1)

Therefore, equation 1 will be transformed as follow:

CARAMELS = f (Board Members' Dynamics)……………………………………….… (2)

Equation 2 was further expanded with regards to each components of CARAMELS framework and the components of Board Member Dynamics.

CARAMELS = f (BSZ, BDGD, BDIND, FBM, BDDEL, BOW, BCC,)……………….... (3)

This will be transformed into the following linear equation:

$$CARAMELS_{it} = \alpha_{0it} + \alpha_1 BSZ_{it} + \alpha_2 BDGD_{it} + \alpha_3 BDIND_{it} + \alpha_4 FBM_{it} + \alpha_5 BDDEL_{it} + \alpha_6 BOW_{it} + \alpha_7 BCC_{it} + e_{jt}……………………………………………………………………… (4)$$

Where:

Table 3 Empirical A priori Expectation

VARIABLES	DEFINTIONS OF SECONDARY DATA	a-prior expectation
C_{it}	Capital adequacy of firm i in year t	+
A_{it}	Asset quality of firm i in year t	+
RA_{it}	Reinsurance and actuarial of firm i in year t	+
M_{it}	Management efficiency of firm i in year t	+
E_{it}	Investment income /Net premium	+
L_{it}	Liquidity of firm i in year t	+
S_{it}	Solvency of firm i in year t	+
BSZ_{it}	Board Member of firm i in year t	+
$BDGD_{it}$	Board gender diversity of firm i in year t	+
$BDINDP_{it}$	Board independence of firm i in year t	+
FBM_{it}	Foreign board members of firm i in year t	+
$BDDEL_{it}$	Board meeting of firm i in year t	+
BOW_{it}	Board ownership of firm i in year t	+
BCC_{it}	Board compensation and remuneration of firm i in year t	+

Source: Author's conceptualization (2020)

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4.   DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Descriptive Statistics

4.1.1 Descriptive Statistics for CARAMELS Indicators (Dependent Variables)

The result of descriptive statistics are presented for the data obtained from all the 22 listed insurance companies that meet up with the criteria set in methodology. Therefore, there are One hundred and fifty four (154) observations arising from 22 listed insurance companies from 2012 to 2018.

Table 4: Summary of Descriptive Statistics Results for CARAMELS Indicators

Variable	N	Mean	Std. Dev.	Min	Max	Normality	p-value
C	154	0.62279	0.567617	0.011663	3.630031	8.173	0.000
A	154	0.055205	0.080063	0.000121	0.622827	8.487	0.000
RA	154	0.511643	0.183267	0.11325	0.903424	4.397	0.000
M	154	0.36679	0.216537	0.022853	1.009325	4.558	0.000
E	154	0.214588	0.300553	-2.08044	1.875289	7.98	0.000
L	154	0.22455	0.82597	0.123552	1.026706	9.698	0.000
S	154	0.62279	0.567617	0.011663	3.630031	8.173	0.000

Source: Author's Computation (2020)

Summary of descriptive statistics conducted for CARAMELS performance indicators are presented in Table 4. These are conducted to reveal the average performance of listed insurance firms, the dispersion of performance around this average, the lowest performance and highest performance, respectively. Capital adequacy (C) has a mean of 0.62279, standard deviation of 0.567617, minimum of 0.011663 and maximum of 3.630031. This indicates that average capital adequacy in the insurance sector is about 62.3 percent of capital in total assets of the firms and this has a dispersion of about 56.8 percent. This interpretation is also applicable to other components of CARAMELS employed in this study. Meanwhile, examining the normality nature of CARAMELS indicators reveals that all of them are not normally distributed. This is shown by their respective high z-statistic value and very low p-value which suggest rejection of the test hypothesis that they are normally distributed.

4.1.2 Descriptive Statistics of Board Members' Dynamics (Independent Variables)

Board members' dynamics are the independent variables employed in this study. The summary of descriptive statistics of these variables are presented in Table 5

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Table 5: Summary of Descriptive Statistics Results for Board Members' Dynamics

Variable	Mean	Std. Dev.	Min	Max	Normality	p-value
BDSZ	8.94	2.18	4.00	15.00	-1.50	0.93
BDGD	0.17	0.13	0.00	0.50	2.85	0.00
BDINDP	0.74	0.10	0.40	0.90	3.08	0.00
FBM	0.09	0.19	0.00	0.78	5.71	0.00
BDDEL	4.82	1.48	3.00	15.00	6.53	0.00
BOW	0.28	0.24	0.00	0.74	5.93	0.00
BCC	75.5mln	69.5mln	8.17mln	348.0mln	8.18	0.00

Source: Author's Computation, (2020).

The result in Table 5 reveals the summary of descriptive statistics. The board size (BDSZ) has a mean of 8.94, standard deviation of 2.18, minimum of 4.0 and maximum of 15.0. This indicates that average number of directors serving on the board in the insurance sector is about 9 individuals, with a dispersion of about 2 individual. The least number of directors serving on the board experienced among these firms during the period under consideration was 4 individuals while the highest was 9 individuals. This interpretation is also applicable to other components of CARAMELS employed in this study. Meanwhile, it was also observed that all the independent variables are not normally distributed except board size based on their respective high z-statistic value and very low p-value. Therefore, this suggests rejection of the test hypothesis that the data from independent variables are normally distributed.

4.2 Result of Inter-Item Correlation Matrix

The results of correlation analysis are presented in Table 6 and 7 for each of the variable.

Table 6: Results of Correlation Analysis of CARAMELS Indicators

	C	A	RA	M	E	L	S
C	1.00						
A	-0.02	1.00					
	(0.82)						
RA	0.02	0.13	1.00				
	(0.77)	(0.09)					
M	0.21	0.45	0.08	1.00			
	(0.01)	(0.00)	(0.32)				
E	0.02	0.16	-0.06	0.12	1.00		
	(0.77)	(0.04)	(0.43)	(0.13)			
L	-0.10	-0.12	-0.04	-0.02	-0.06	1.00	
	(0.22)	(0.12)	(0.65)	(0.83)	(0.47)		
S	0.22	-0.02	0.02	0.21	0.02	-0.10	1.00
	(0.01)	(0.82)	(0.77)	(0.01)	(0.77)	(0.22)	

Source: Author's Computation, (2020).

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Table 6 presents the results of the correlation analysis of the relationship that exist among the set of dependent variables (CARAMELS) employed in this study. The result shows that Capital Adequacy is only significantly related to Management Efficiency and Solvency and its relationship with them is positive. Capital Adequacy is however, not significantly related to other performance indicators. Asset quality is only significantly related to Reinsurance and Actuarial, Management Efficiency and Earnings and Profitability and its relationship with them is positive but not significantly related to liquidity and solvency. The result reveals that Reinsurance and Actuarial is not significantly related to Management Efficiency, Earnings and Profitability, Liquidity and Solvency. Management Efficiency has positive significant relationship with only Solvency. Finally, Earnings and Profitability is not significantly related to both Liquidity and Solvency, and Liquidity is not also significantly related to Solvency.

Table 7: Results of Correlation Analysis of Board Members' Dynamics

	BDSZ	**BDGD**	**BDINDP**	**FBM**	**BDDEL**	**BOW**	**logBCC**
BDSZ	1.00						
BDGD	-0.26	1.00					
	(0.00)						
BDINDP	0.26	-0.13	1.00				
	(0.00)	(0.11)					
FBM	0.12	-0.15	0.11	1.00			
	(0.13)	(0.06)	(0.15)				
BDDEL	0.23	0.08	0.03	-0.07	1.00		
	(0.00)	(0.34)	(0.72)	(0.39)			
BOW	-0.13	-0.03	0.00	-0.06	0.03	1.00	
	(0.11)	(0.75)	(0.99)	(0.46)	(0.75)		
logBCC	0.07	0.20	0.02	-0.14	-0.07	0.01	1.00
	(0.41)	(0.01)	(0.78)	(0.09)	(0.38)	(0.92)	

Source: Author's Computation, (2020). (*Note: p-values in parenthesis*)

Presented in Table 7 is the correlation analysis result that examines the relationship that exists among explanatory (independent) variables. The result shows that none of these relationships have correlation coefficients greater than 0.8. The strongest relationships exist among the macro economic variables. The strength of relationship surrounds 0.6 which are well below 0.8. This implies that these variables can be included in the same model without any fear of severe multicollinearity.

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Table 8: Results of Serially Correlated Disturbance Random Effects of the Impact of Board Dynamics on the Performance of Insurance Companies

VARIABLES	(1) C	p-val	(2) A	p-val	(3) RA	p-val	(4) M	p-val	(5) E	p-val	(6) L	p-val	(7) S	p-val
BDSZ	-0.0118	0.592	-0.00166	0.417	-0.00132	0.884	-0.0154**	0.046	-0.0188	0.266	-1.655	0.205	-0.0118	0.592
	(0.0220)		(0.00210)		(0.00904)		(0.00769)		(0.0169)		(1.305)		(0.0220)	
BDGD	0.0678	0.869	0.0357	0.254	0.0916	0.525	0.224*	0.078	0.297	0.275	-23.91	0.247	0.0678	0.869
	(0.411)		(0.0333)		(0.144)		(0.127)		(0.272)		(20.65)		(0.411)	
BDINDP	0.402	0.426	0.0787*	0.086	-0.0661	0.728	0.518***	0.002	0.569*	0.090	32.73	0.210	0.402	0.426
	(0.505)		(0.0457)		(0.190)		(0.167)		(0.336)		(26.09)		(0.505)	
FBM	-0.0645	0.868	-0.0398	0.254	-0.236*	0.051	-0.0270	0.827	0.485***	0.007	-0.986	0.944	-0.0645	0.868
	(0.387)		(0.0379)		(0.121)		(0.124)		(0.181)		(14.16)		(0.387)	
BDDEL	0.0192	0.323	0.00246	0.183	-0.00330	0.722	0.0220***	0.003	0.0248	0.193	0.438	0.773	0.0192	0.323
	(0.0194)		(0.00196)		(0.00928)		(0.00730)		(0.0191)		(1.518)		(0.0194)	
BOW	-0.0268	0.854	-0.034**	0.018	0.00586	0.928	-0.0241	0.643	-0.242*	0.055	4.077	0.684	-0.0268	0.854
	(0.145)		(0.0141)		(0.0645)		(0.0520)		(0.126)		(10.01)		(0.145)	
logBCC	-0.0130	0.227	0.000015	0.823	-0.00566	0.105	0.00348	0.316	0.00964*	0.076	0.513	0.224	-0.0130	0.227
	(0.0108)		(0.00108)		(0.00349)		(0.00348)		(0.00544)		(0.422)		(0.0108)	
Constant	0.543	0.221	-0.00296	0.870	0.870***	0.000	-0.0896	0.550	-0.332	0.236	1.363	0.951	0.543	0.221
	(0.443)		(0.0428)		(0.166)		(0.150)		(0.280)		(22.04)		(0.443)	
R-squared	0.135		0.104		0.265		0.324		0.566		0.152		0.135	
Wald Chi-sq.	3.48		17.17**		6.63		22.14***		16.59**		5.19		3.48	
F-test	5.19***	0.000	10.93***	0.000	5.20***	0.000	12.05***	0.000	2.06**	0.011	2.20***	0.000	5.19***	0.000
Hausman test	8.48	0.292	4.67	0.700	9.23	0.236	4.77	0.659	7.49	0.379	1.53	0.902	8.48	0.292

Source: Author's Computation, (2020).

*Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1*

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4.3   Impact of Board Members Dynamics on the CARAMELS Indicators

The results presented in Table 8 are those conducted to examine the impact of board members' dynamics on each of the CARAMELS performance indicators respectively, with models for Capital Adequacy, Asset Quality, Reinsurance and Actuarial, Management Efficiency, Earnings and Profitability, Liquidity and Solvency presented on the columns labeled 1, 2, 3, 4, 5, 6 and 7. The model diagnostics are in form of R-squared and Wald Chi-squared. The R-squared values for the models are 0.135, 0.104, 0.265, 0.324, 0.566, 0.152 and 0.135 respectively, indicating that 13.5 percent, 10.4 percent, 26.5 percent, 32.4 percent, 56.6 percent, 15.2 percent and 13.5 percent of variations in Capital Adequacy, Asset Quality, Reinsurance and Actuarial, Management Efficiency, Earnings and Profitability, Liquidity and Solvency are explained by board dynamics respectively. The Wald Chi-squared statistic indicates that only the Asset Quality, Management Efficiency and Earnings and Profitability models are in good fit and the board dynamics indicators are jointly significant in affecting them. This is shown by their respective statistic values of 17.17 (with $p<0.05$), 22.14 (with $p<0.01$) and16.59 (with $p<0.05$). The models for Capital Adequacy, Reinsurance and Actuarial, Liquidity and Solvency are not well fitted given that their statistic values of 3.48, 6.63, 5.19 and 3.48 have p-values greater than 0.1.

The results show that board size is only statistically significant in the model for management efficiency while insignificant in the models for other performance indicators. The coefficient of board size in the model for management efficiency (-0.0154) is negative with p-value being less than 0.05 level of significance, indicating that increase in the number of directors serving on the board of insurance companies by an individual will lead to a decline in the performance of these companies via management efficiency by approximately 0.015 percentage points. Board gender diversity is only statistically significant in the model for management efficiency but insignificant in the models for other performance indicators. The positive coefficient of board gender diversity in the model for management efficiency is (0.224) with p-value being less than 0.05 level of significance, indicating that a percent point increase in the proportion of female directors in total directors serving on the board of insurance companies will lead to a rise in the performance of these companies via management efficiency by approximately 0.224 percentage points.

Board independence is only statistically significant in the models for asset quality, management efficiency and earnings and profitability but insignificant in the models for other performance indicators. The coefficient of board independence in the model for asset quality (0.0787) is positive, for management efficiency (0.518) is positive and for earnings and profitability (0.569) is positive, with p-value being less than 0.01, 0.05 and 0.1 levels of significance respectively indicating that a percent point increase in the proportion of independent directors in total directors serving on the board of insurance companies will lead to a rise in the performance of these companies via asset quality, management efficiency and earnings and profitability by approximately 0.08, 0.52 and 0.57 percentage points respectively.

Foreign board member is only statistically significant in the models for reinsurance and actuarial and earnings and profitability. It is insignificant in the models for other performance

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indicators. The coefficient of foreign board member in the model for reinsurance and actuarial (-0.236) is negative with p-value being less than 0.1 but for earnings and profitability (0.485) is positive with p-value being less 0.01 levels of significance, indicating that a percent point increase in the proportion of foreign directors in total directors serving on the board of insurance companies will lead to a decline in the performance of these companies via reinsurance and actuarial by approximately 0.24 percentage points. It also indicates that a percent point increase in the proportion of foreign directors in total directors serving on the board of insurance companies will lead to a rise in the performance of these companies via earnings and profitability by approximately 0.24 percentage points.

Board diligence is only statistically significant in the model for management efficiency. It is insignificant in the models for other performance indicators. The coefficient of board diligence in the model for management efficiency (0.0220) is positive with p-value being less than 0.01 level of significance which indicating that a percent point increase in the number of meetings held by the board of directors of insurance companies will lead to a rise in the performance of these companies via management efficiency by approximately 0.02 percentage points. Board ownership is only statistically significant in the models for asset quality and earnings and profitability. The coefficient of board ownership in the model for asset quality (-0.034) is negative and for earnings and profitability (-0.242) is positive, indicating that a percent point increase in the proportion of shares owned by the board of directors of insurance companies will lead to a decline in the performance of these companies via asset quality and earnings and profitability by approximately 0.03 and 0.24 percentage points respectively.

Board compensation is only statistically significant in the model for earnings and profitability. It is insignificant in the models for other performance indicators. This is indicated by its p-value being less than 0.1 level of significance in the model for earnings and profitability, but greater than 0.1 in other models. The coefficient of board diligence in the model for earnings and profitability (0.00964) is positive, indicating that a percent increase in the average compensation paid to the board of directors of insurance companies will lead to a rise in the performance of these companies via earnings and profitability by approximately 0.96 (i.e. 0.00964 x 100) percentage points.

4.5 Discussion of Findings on Board Dynamics on the Performance of Insurance Companies

This study examines the impact of board members' dynamics of insurance companies on their performance based on CARAMELS financial performance indicator. The results of Serially Correlated Disturbance Random Effects reveals that all the board dynamics employed in this study has a significant relationship with at least a component of CARAMELS financial performance indicator. Starting with board size, the results Serially Correlated Disturbance Random Effects depict that board size is statistically significant only with management efficiency. A negative coefficient of (α=-0.0154, p<0.046) was reported. This indicates that an increase in the number of directors serving on the board of insurance companies by an individual will lead to a decline in the performance of insurance companies via management efficiency by approximately 0.015 percentage points. This is contrary to a prior expectation of the study.

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Meanwhile, the finding of this study concur with Demeke (2015); Ibe *et al* (2017); Dandago and Gugong (2013). This implies that board size of listed insurance companies negatively affect the level of performance regarding management efficiency. This conclusion is contrary with the conclusion of Deev and Khazalia (2017); Maxwell *et al* (2015); Datta (2018); Arif (2019) who claimed that performance of insurance companies is positively influence by board size.

For board gender diversity, the result of the analysis reveal that Board gender diversity is also statistically significant only with management efficiency like board size. Unlike the board size, the analysis reported a positive coefficient of (α=0.224, p<0.078)**.** This implies that a percent point increase in the proportion of female directors in total directors serving on the board of insurance companies in Nigeria will lead to a rise in the performance of these companies via management efficiency by approximately 0.224 percentage points. This actually concurs with a prior expectation of the study and was also supported by numbers of previous studies such as Dandago and Gugong (2013); Garba and Abubakar (2014); Akeem *et al* (2014); Maxwell *et al* (2015); Ebere *et al* (2016). However, Datta (2018) conclusion negates the finding of this study that board gender diversity influences the performance of insurance companies in Nigeria particularly their management efficiency.

The result of analysis reveals that board independence is positively significant with asset quality, management efficiency and earnings and profitability of CARAMELS financial performance indicator. Other components of the indicator have insignificant relationship with board independence. The coefficient of board independence in the model for asset quality (α=0.0787, p<0.086) is positive, for management efficiency (α=0.518, p<0.002) is positive and for earnings and profitability (α=0.569, p<0.090) is positive. The implication of these results is that a percent point increase in the proportion of independent directors in total directors serving on the board of insurance companies will lead to a rise in the performance of these companies via asset quality, management efficiency and earnings and profitability by approximately 0.08, 0.52 and 0.57 percentage points respectively. The result of these findings was in line with a prior expectation of this study. The conclusion that board independence positively influences the performance of insurance companies in Nigeria via asset quality, management efficiency and earnings and profitability is supported with previous studies like Demeke (2015); Abdoush *et al* (2016); Deev and Khazalia (2017); Arif (2019) but negatively supported by Munga (2018).

The result analysis indicates that foreign board member is statistically significant to reinsurance and actuarial and earnings and profitability among the CARAMELS components. A negative significant relationship exit between foreign board member and reinsurance and actuarial (α=-236, p<0.051) while a positive significant relationship is reported with earning and profitability (α=0.485, p<0.007). This is an indication that a percent point increase in the proportion of foreign directors in total directors serving on the board of insurance companies will lead to a decline in the performance of these companies via reinsurance and actuarial by approximately 0.24 percentage points. While a percent point increase in the proportion of foreign directors in total directors serving on the board of insurance companies will lead to a rise in the performance of these companies via earnings and profitability by approximately 0.49 percentage points.

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The negative relationship that existed between foreign board member and reinsurance and actuarial proxied for performance is supported by previous research conducted by Datta (2018); Ibe *et al* (2017) and Akeem *et al* (2014). However, this was contrary with a prior expectation of the study. The positive positive significant relationship is reported with earning and profitability is also supported with conclusion of previous studies like Garba and Abubakar (2014) and Qawariri (2019); Getachew (2014); Ebere *et al* (2016); Maxwell, Nigel and Roy (2015) who opined that corporate governance practices help companies in gaining highest position in the markets, increasing their strength and enhancing the performance levels which reflect on the strong economy and wellbeing of the companies. This conclusion also concurred with a prior expectation of this study.

Board diligence is statistically significant related with management efficiency of CARAMELS financial performance indicator. The result reported a positive coefficient of (α=0.022, p<0.003) for relationship between board diligence and management efficiency. The implication of the result is that a percent point increase in the number of meetings held by the board of directors of insurance companies will lead to a rise in the performance of these companies via management efficiency by approximately 0.02 percentage points. This tally with a prior expectation of this study and supported by previous studies like Yemane *et al* (2015); Demeke (2015); Datta (2018) but Fekadu (2015) report an insignificant relationship.

Board ownership reveals a negative significant relationship with asset quality and earnings and profitability of CARAMELS financial performance measure. Other components of CARAMELS financial performance measure depicted an insignificant relationship with board ownership. The negative significant coefficient of (α=-0.034, p<0.018)) reported for asset quality and (α=-0.242, p<0.055) for earning and profitability indicates that a percent point increase in the proportion of shares owned by the board of directors of insurance companies in Nigeria will lead to a decline in the performance of these companies via asset quality and earnings and profitability by approximately 0.03 and 0.24 percentage points respectively. These findings concurred with a prior expectation of this study. The findings is also in line with the conclusion of Najjar and Salman (2013); Gugong *et al* (2014): Abdoush *et al* (2016); Delima and Ragel (2017); Munga (2018). However, the findings against the conclusion of Demeke (2015) who conclude that board ownership negatively affect the performance of insurance companies.

In term of board compensation and performance of insurance companies in Nigeria, the result of inferential statistics reveal a positive significant relationship with earnings and profitability of CARAMELS financial performance indicator. The coefficient of board compensation for earnings and profitability (α=0.00964, p<0.076) is positive and this implies that as average compensation paid to the board of director of insurance companies increase by a percent will result to a rise in the performance of these companies via earnings and profitability by approximately 0.00964 percentage points. This is in line with a prior expectation and conclusion of some previous studies. The studies of Yemane, Raju and Raju (2015); Abdoush *et al* (2016) supported the findings of this study.

The finding of the study is in line with resource view based theory. Board dynamics is one of the corporate governance mechanisms employed an entity to direct and control the operation of the board. The board dynamics employed in this study such as board size, board

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independence, board gender diversity, board diligence, board ownership and board compensation are specific attributes of the entity to achieve better performance. This attributes are the defining features that the theory emphasised and building on these stocks of strategically valuable resources is the key to obtain competitive victory of insurance companies in Nigeria.

5.   CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study from the analysis of data, the study made the following conclusions.

i.   The study concludes that corporate governance mechanisms in term of board size increase the management efficiency of insurance companies in Nigeria

ii. The study concludes that corporate governance mechanisms in term of board gender diversity influence the management efficiency of insurance companies in Nigeria

iii. Presence of foreign board member among the board members positively influences earnings and profitability of insurance companies in Nigeria but negatively influence reinsurance and actuarial of listed insurance companies.

iv. The study concludes that number of meetings held by the board of directors of listed insurance companies in Nigeria enhance their management efficiency.

v.   With regards to board ownership of listed insurance companies, the study concludes that board ownership negatively affects the asset quality and earnings and profitability of listed insurance companies in Nigeria.

vi. As part of conclusion of the study, compensation paid to the board of director of insurance companies increase the level of earnings and profitability of listed insurance companies in Nigeria.

Taking the conclusion of this study into consideration, the study proposes the following recommendations.

i.   Since board size positively influence management efficiency of insurance companies, the study recommends that corporate governance mechanisms on board size should be strengthen by the regulatory body.

ii. The study recommends that listed insurance companies should have more female members represented in the board structure in order to enhance management efficiency of the company.

iii. The study also recommends that listed insurance companies should have a standing policy on appropriate number of foreigners that must be in the board of director in order to smack steadiness between earnings and profitability and reinsurance and actuarial of insurance company.

iv. The board members of listed insurance companies in Nigeria are expected to meet often so as to promote their management efficiency the sector.

v.   The study also recommends that board members should be encourage to acquire larger proportions of shares of listed in insurance companies in Nigeria in order to posses more

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strength to enhance asset quality and earnings and profitability of listed insurance companies in Nigeria.

vi. Finally, proper attention should be paid to board members remunerations of listed insurance company in Nigeria based on the positive relationship established with earnings and profitability.

Conceptually, the study contributes by exposing readers to a concept of CARAMELS developed by IMF and World Bank for assessment of financial soundness of insurance sub-sector of financial sector. Listed insurance companies in Nigeria are the main target of the study but the findings and contribution from Nigeria context, being the giant of Africa, provides a good benchmark for other African countries. It will also be worthwhile to conduct comparative analysis of CARAMELS measure of insurance companies in Sub-Sahara Africa.

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