

**EFFECT OF AUDIT COMMITTEE CHARACTERISTICS ON FINANCIAL
PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA**

BY

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**BEING A DESERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE
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DECLARATION

I declare that this M.Sc dissertation entitled “Effect of Audit Committee Characteristics on Financial Performance of Listed Deposit Money Banks in Nigeria” has been carried out by me in the Department of Accounting, Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this or any other institution.

Abdulrafiu Taiwo, ADEPOJU

Signature

Date

CERTIFICATION

This dissertation entitled “EFFECT OF AUDIT COMMITTEE CHARACTERISTICS ON FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA” by Abdulrafiu Taiwo, ADEPOJU meets the regulations governing the award of the Master of Science degree (M.Sc) in Accounting and Finance of the Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This Dissertation is dedicated to the Almighty Allah (SWA), the Most Gracious and the Most Merciful.

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ABSTRACT

This study examined effect of audit committee characteristics on the financial performance of listed Deposit Money Banks (DMBs) in Nigeria. Secondary data were collected from the audited annual reports of selected DMBs within the period of 2009 to 2017. Audit committee independence, Audit Committee expertise, Audit Committee gender diversity and Audit Committee frequency of meeting were used to represent independent variable. While Tobin's Q was used to proxy financial performance as dependent variable. The hausman specification test and modified Wald test for heteroskedasticity favoured the use of panel corrected standard errors (PCSE). The result revealed that audit committee expertise has positive and significant effect on financial performance. While audit committee gender has significant but negative effect on Tobin's Q. On the other hand, audit committee independence has positive but insignificant effect on financial performance of listed DMBs in Nigeria. Lastly, it was also found that audit committee frequency of meeting has no significant influence on financial performance of listed Deposit Money Banks in Nigeria. The study therefore recommend that the regulatory authorities including the CBN, SEC and Financial reporting Council of Nigeria (FRCN) among other should intensify their effort towards having professional qualified accountant in audit committee. Moreover, the finding also suggested that attention should be given to the inclusion of more female into audit committee order to enhance their effectiveness as their inclusion is very significant to overall effectiveness of audit committee as suggested by this research findings.

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LIST OF ABBREVIATIONS

AC:	Audit Committee
CAMA:	Companies and Allied Matters Act
CAR:	Capital Adequacy Ratio
CBN:	Central Bank of Nigeria
DMBS:	Deposit Money Banks
FRCN:	Financial Reporting Council of Nigeria
IFRRS:	International Financial Reporting Standards
NCCG:	Nigerian Code of Corporate Governance
NED:	Non-Executive Directors
NDIC:	Nigerian Deposit Insurance Commission
NPL:	Non Performing Loans
NSE:	Nigerian Stock Exchange
ROE:	Return on Equity
PLC:	Public Limited Liability Companies
USA:	United States of America
SEC:	Security and Exchange Commission

CHAPTER ONE INTRODUCTION

1.1 Background to the Study

The shareholders as the real owners of corporate establishments are always interested in returns of their investment. The purpose of their investment is to maximize their wealth and earn a good return. Therefore, good return on their investment is a function of management commitment, efficiency and effectiveness that enhance good financial performance which on the other hand reward shareholders in form of dividend and capital appreciation. Thus, shareholders are interested in the performance of their firm viz-a-viz good dividend and continuous appreciation in their capital. However, achieving this objective is very challenging as the majority of real owners are not directly involved in the day to day management of their organization. This is attributed to the concept of separation of owners from the management being a consequential effect of historical antecedent of the corporate entity. In consequence, the overall performance of an organization is a function of management commitment and policies towards achieving the goal congruence of profit maximization while safeguarding the shareholders wealth.

According to Valenti, Luce, and Mayfield (2011), good governance policies regulating management activities are crucial to high performance. If an organization considers protecting the interest of the investors, such organization can channel its resources appropriately to reduce waste and boost profitability, resulting in a better return to the shareholders. An effective management will always strive to safeguard proprietary interest of shareholders by channeling the resources at its disposal appropriately with utmost good faith and improve profitability which can result in high returns to shareholders. Capriglione and Casalino (2014) also opined

that fiduciary duties of management is much more than business interest of the banks but also to make profit and maximise the wealth of shareholders.

However, selfishness and rat race for wealth and materialism has beclouded moral obligation and fiduciary duties of Nigerian banks managements from performing their primary role of intermediation. Rather, contemporary DMBs' managers take more interest in channeling the fund from surplus unit towards highly risky and unviable venture at the expense of shareholders, depositors and other stakeholders because of personal greed. The objectives of profitability and shareholders value maximization as a goal congruence has been overshadowed by sub-optimality interest of management and board of directors leading to abuse of power. Illegal granting of credit to directors and their cronies that led to high non-performing loan in Skye Bank Plc and Diamond Bank Plc is an instance that led to their prudential and adequacy ratio fallen below the minimum regulatory threshold (NDIC, 2017). This insider abuse has led to many banks folding up in Nigeria and some taken over by another banks in most cases as a result of weak internal control system (Ogunnubi, 2018, September).

Globally, incidents of corporate failure that led to bankruptcy of big multinational firms such as Enron incorporation, Lehman Brothers, WorldCom and many other have worsen the fear of investors all over the world because of undue increase of agency cost such as litigation cost, theft, fictitious expenses and mismanagement of fund. Different countries across the globe have been taken frantic efforts to safeguard interest of shareholders and improve the firms performance. In view of this agency problems, audit committee was adopted in United States of America (USA) emanated from Sarbanes Oxley Act (2002) with the responsibility to improve internal control system and financial reporting quality in order to checkmate insider abuse that are detrimental to the interest of companies, investors and other stakeholders. In this

regard, Nigeria also enshrined the establishment of audit committee in Companies and Allied Matters Act (CAMA, 1990). According to CAMA 1990, the auditor shall in case of a public company also make report to an audit committee which shall be established by the public company. The audit committee shall consist of an equal number of directors and representatives of the shareholders of the company subject to a maximum number of six members (Owolabi & Dada, 2011). Similarly, in the banking sectors, a case was also made for audit committee in corporate governance code of best practice for banks in 2006 and was revised in 2014. This becomes imperative aftermath of aforementioned financial scandal in order to mitigate the recurrence of such scandals and restore investor confidence in the financial markets (Tafara, 2006). .

The regulatory authorities presumed that if audit committee is well-structured and monitored for adequate compliance, it is expected to bring sanity into the banking system, increase investors confidence in making viable economic decision which will subsequently improve their market share and hence achieving the goal congruence of attaining optimum overall corporate performance. However, the effect of audit committee as one of the mechanisms under code of corporate governance to checkmate selfish interest of managers against that of shareholders is yet to be felt especially in Nigeria in view of banking failure within the period of 2005 to 2018 in which many banks including Intercontinental Bank Plc, Oceanic Bank Plc, Main street Bank, and the recent bridge of Skye Bank Plc and acquisition of Diamond Bank Plc among others become history in Nigerian banking system. In all the above mentioned banks, there was huge loss to shareholders value resulting from various mismanagement and misrepresentation of companies financial information (Teingo, 2016, July).

Therefore, Onipakodi (2010) opined that audit committee should provide an ideal atmosphere for high performance by ensuring quality Internal Control System (ICS) devoid of insider abuse which in consequence reduce agency cost and increase distributable earnings to shareholders and other stakeholders. This critical role of audit committee (AC) is believed to be a means of improving economic efficiency and stakeholders' confidence in the banks through financial standard compliance. In order to achieve this, audit committee should possess certain attributes including independence of the committee, frequency of meetings, gender diversity of the committee and financial knowledge of the committee members (Mohiuddin & Karbhari, 2010). Audit committee functions with these attributes are expected to ascertain a true and fair view of the financial performance and position of banks and also enhance the confidence of the investors and other stakeholders.

One of the most recognised attributes of audit committee as a corporate governance mechanism is their level of independence. This is because, objectivity and accountability are functions of level of independent given to an individual in decision making and control. Vast number of studies have posited that audit committee independence facilitates effective supervision on management activities as the independent members of the audit committee will likely make objective decisions (Aldamen, Duncan, Kelly, Mcnamara & Nagel, 2012). Therefore, this objective oversight function will improve internal control, reduce insider abuse especially on illegal granting of credit facilities to directors and reduce agency cost to shareholders which on the other hand increase overall performance.

Considering the rigorous and complex nature of contemporary financial reporting especially as a result of International Financial Reporting Standards (IFRS) adoption in the preparation and presentation of financial statements, it is deemed fit that financial and accounting expert

composition in audit committee will be in the best position to interpret and examine the reliability and validity of such financial report. This will give more credence to the financial report, reduce fraud and encourage management to concentrate on goal congruence that will enhance profit oriented investment and maximisation of the shareholders wealth. Moreover, high percentage of financial and accounting expert members on audit committee will reduce the likelihood of misappropriation of assets, reduce the need for financial manipulation and enhance management to be more concerned on maximising firm's value (Mustafa & Yousse, 2010).

Gender balance in audit committee has been another debate on corporate governance issues and its effect on corporate value and performance. Rene'e and Adams (2009) argued that inclusion of women in audit committee will enhance their effectiveness and at the same time improve the corporate value. Their argument stemmed from the fact that women by their nature can influence attitude of their male counterpart if incorporated into team work. On this note, the issue of insider trading might be well monitored by the audit committee which can mitigate the practise of over valuation and under valuation of corporate value against the interest of the shareholders. This can buttress the fact that the audit committee structure and their effectiveness can enhance accurate valuation of an entity and hence help investor in making reasonable investment decision that can guarantee fair returns.

Chidambaran and Brick, (2010) also opined that activity of the audit committee is important in determining the firm performance. In most cases, incessant frauds that have led to collapse of many corporate entities is as a result of very weak corporate governance mechanisms. The frequency of engaging the management and the external auditor may serve as a good signal to regularise internal control system as well as enhance the level of discipline within the

management and the employees. Since the investors are risk averse and also more concern on the safety of their investment, then more investors tend to patronise the entity where their proprietary interest is relatively secured. This is expected to ensure capital adequacy to finance their operation and opportunity to increase their operating performance.

Therefore, based on the above mentioned attributes of audit committee on ensuring quality internal control system and reduction of agency costs, this study examine the effect of audit committee characteristics on financial performance of listed Deposit Money Banks (DMBs) in Nigeria.

1.2 Statement of the Research Problem

According to financial stability report from Central Bank of Nigeria (CBN, 2016), the financial status of Deposit Money Banks (DMBs) in Nigeria is not very promising as their traditional functions of financial intermediation and money creation may be affected in view of their poor performance in almost major banking performance index and their present weak capitalization in relation to investment opportunity. According to the report, most of the performance metrics of Nigerian DMBs such as capital adequacy, asset quality, management efficiency (corporate governance) profitability and liquidity are not favourable (CBN, 2016). In line with this poor financial performance, it is argued that the DMBs in Nigeria might be declaring profit, but their long term strength and opportunities which depends largely on their ability to maximize shareholders wealth with reasonable level of financial performance metrics is very weak and this portends going concern threat. For an entity to avoid threat of going concern, it is imperative for management to utilize companies' asset profitably in order to achieve corporate objective.

Shareholders wealth is not only about profitability as even when banks are making profit, a large chunk of this profits are being spent on loan loss provision leaving shareholders with little or nothing as dividend. Apart from shareholders not getting dividends, huge bad loans have led to erosion of capital of some banks, especially mid-sized banks, necessitating the need to raise additional capital, (CBN, 2016). According to the report, some banks are already operating at the threshold of the capital adequacy ratio and such banks need to raise additional capital in order to stay within the required threshold of prudential and adequacy ratio prescribed by CBN. For instance, within the period of 2016 and 2017 according to Banking Sector Report, Union Bank of Nigeria Plc has a CAR of 13.3 per cent, as against 15 per cent required for banks with international operations, while Sterling Bank Plc is on the threshold with 10.7 per cent CAR (Collin, 2018, Nov). The same goes for First Bank of Nigeria plc being a systemically important banks (SIBs) with 17.8% CAR but with a very huge loan provision due to large bad loan portfolio. When a country financial system is facing this woeful performance in managing financial assets, it portends a great danger to not only the investors but also to economic growth of a country.

Even though this poor performance have been attributed to recession and macro-economic variables according to financial stability report from CBN(2017), a critical look at the situation shed light on insider abuse. According to NDIC report (2016), the ratio of NPL to shareholders fund for the sector increased to 12.79% in 2015 from 12.01% in 2014 and jumped to 43.84% in 2016. This affect their operating performance as their ROA remain unchanged in 2015 from 2.5% in 2014 but also reduced to 1.3% in 2016 (CBN, 2016). Moreover, the ratio of loans and advances to deposits increased to 73.76% in 2015 and 87.69% in 2016 from 68.11% in 2014. This reflects other side of the reason for their poor operating performance within the period.

Therefore, apart from economic recession and other macro-economic variables, the arbitrary violation of lending practice where the board of directors are granting loans to themselves and their cronies without paying back is another problem giving rise to NPL and consequential effect on shareholders fund (NDIC, 2017).

For instance, the CBN Governor, Emefiele claimed that the recession and the economic environment challenges and government policy in the past two years only exposed the deeper problems of governance failures, insider abuses and other unethical practices in the banking sector (Oyetunji, 2017, December). According to NDIC report (2017), bank directors are responsible for 40% of approximately N1.85tn bad loans in Nigerian banks as at the end of 2016 financial year. The same goes to microfinance and mortgage bank where directors are responsible for about 40% of the N139.45bn bad loans within the period (NDIC, 2017). According to the Managing Director and Chief Executive of NDIC, Alhaji Umaru Ibrahim, this rising tide of insider abuse in banking system suggests a strong fundamental regulatory assessment in order to reduce resulting agency cost to investors and pre-empt its consequence on the stability of the nation's banking system (News Agency of Nigeria, 2018, November).

Several mechanisms have been put in place in the corporate world to reduce agency problem and associated costs in order to safeguard the shareholders wealth and improve corporate performance. One of such corporate governance mechanisms is audit committee established to oversee internal control system, risk management and financial compliance in the preparation and presentation of financial report (SOX, 2002). However, the relevance of this audit committee need reassessment considering contemporary issues in Nigerian DMBs in view of the recent collapse of Skye Bank Plc and acquisition of Diamond Bank Plc by Access Bank in Nigeria as a consequence of insider abuse (Nelson, 2018). The audit committee of these

respective banks have been giving positive report on their financial report for years which later proved otherwise.

Several literatures have examined different performance metrics in relation to audit committee including Sarpal (2017); Bansal and Sharma (2016); Zabochnikova (2016); Ahmad, Ahmed & Abid (2016) and many others using return on assets(ROA), return on equity(ROE), share price and Tobin's q and other performance metrics. Almost fifteen (15) out of the literatures reviewed in this study used Tobin's q as a measure of performance including Sarpal, 2017; Bansal and Sharma (2016) among others. To the best of my knowledge, out of the studies reviewed, only Zubair, (2016) was conducted in Nigeria and used Tobin's q as a measure of performance while other studies are from other countries especially Europe, England and Asian countries. This creates a literature gap as different performance metrics in different countries are susceptible to different rules and regulation guiding the business conduct such as corporate governance code and tax policy. Moreover, this current study is relevant in order to confirm the Zubair's findings.

Moreover, the application of these different corporate governance structure and diverse regulatory institution makes it ambiguous to replicate the findings from those countries. For instance, the implementation and compliance level to rule and regulation in developed countries and other emerging economies cannot be compared to developing countries like Nigeria, (Salterio, Conrod, & Schmidt 2013). Therefore, this study will also help to extend the depth of literature with examination in Nigerian context.

Furthermore, this study used Tobin's q as a measure of financial performance because of its hybrid nature of having market value and book value components in its measurement. In

corporate finance, Tobin's Q is used to ascertain how stock market is measuring effectiveness of the management in utilising resources acquired with shareholders fund to generate profit and consequently increase the shareholders wealth. Using Tobin's Q is much better than conventional use of ROA and ROE in determining firms actual performance because not all the profit are distributable to shareholders. Therefore, insider abuse and mismanagement of assets and loan loss provision subjected to management discretion constitute deductions from profit which reduce the distributable earnings to shareholders.

In addition, prior studies paid little attention to audit committee gender in relation to performance especially in Nigeria. Few studies conducted in foreign countries used audit committee gender in relation to performance including Alqatamin (2018); Gune and Serkin (2016) and Wakaba (2014). While others concentrated on the effect of female gender on performance such as Green and Homroy (2016); Carter, Souza, Simkins and Simpson (2010). Apart from the fact that all these literatures are foreign studies, none of them use Tobin's q as a measure of performance. Therefore, this study also examined audit committee gender in relation to financial performance in Nigerian context.

Moreover, studies have shown that participants in stock market react to nomination of directors with accounting expertise on audit committee (DeFond, Hann & Hu, 2005). This suggest that the issue about whether member of audit committee should be professional qualified chartered accountant between the FRC and CAMA 1990 as amended need intervention of research scholars to proffer suggestions and frame of reference to subsequent corporate governance draft and suspended final draft of new corporate governance code of 2016 which is in contravention of many sections of CAMA 2004 as amended. For instance, Financial Reporting Council(FRC) of Nigeria, recommended in 2016 that only a professional

qualified chartered accountant can adequately understand and interpret complex financial statements because of the contemporary issues emanating from International Financial Reporting standard(IFRS), (Obazee, 2016). On the contrary, a careful look at the CAMA 1990, section 359 (3 and 4), members of audit committee should only have experience whether as an accountant, financial controller, treasurer, auditors without being specific about professional qualification.

This present study is motivated because of the current crisis that led to the extinction of Skye Bank Plc and Diamond Bank Plc in Nigerian banking system. If their performance are certified by the external auditor with clean bill of assurance on their performance, then the effectiveness of audit committee is questionable considering what actually cause their problem. DMBs as at the end of every financial year declared their performance and their financial position to convince numerous investors and other stakeholders about their going concern strength. And this strength is also confirmed by audit committee for years only for such banks to found itself in financial mess and eventual withdrawal of their license. This is enough to review the effectiveness of audit committee on the financial performance of Deposit Money Banks in Nigeria. Likewise, the mandatory professional qualification of audit committee members by FRCN in 2016 is not in line with some sections of CAMA 1990 as amended concerning the professional qualification of audit committee and this also informed this study.

1.3 Objectives of the Study

The main objective of this study is to examine the effect of audit committee characteristics on financial performance of listed DMBs in Nigeria while the specific objectives are to:

- i investigate the effect of audit committee independence on financial performance of listed DMBs in Nigeria;
- ii identify the influence of audit committee expertise on financial performance of listed DMBs in Nigeria;
- iii examine the effect of audit committee gender diversity on financial performance of listed DMBs in Nigeria; and
- iv evaluate the influence of audit committee frequency of meeting on financial performance of listed DMBs in Nigeria.

1.4 Research Hypotheses

In line with the above objectives, the following research hypotheses are formulated in null form as follow:

- Ho1 audit committee independence has no significant effect on financial performance of listed DMBs in Nigeria;
- Ho2 audit committee expertise has no significant influence on financial performance of listed DMBs in Nigeria;
- Ho3 audit committee gender diversity has no significant effect on financial performance of listed DMBs in Nigeria; and
- Ho4 audit committee meeting frequency has no significant effect on financial performance of listed DMBs in Nigerian.

1.5 Scope of the Study

The study focused on the effect of audit committee characteristics on performance of listed DMBs in Nigeria. The study concentrated more on actual returns to investors using Tobin's q as a hybrid of market information and financial report information. This is because, using Tobin's Q is much more better than conventional use of ROA and ROE in determining firms actual performance because not all the profit are distributable to shareholders. However, a critical look at the Tobin's Q reflect the book value as well as the market value of firms. Therefore, the value of company is more important to investors in complementary with other performance metrics.

The study covered the period of nine (9) years starting from 2009 to 2017. This marks the period of banking distress in Nigeria and eventual shake up in the equity market. The period witnessed assessable period for audit committee effectiveness in view of many happenings in banking sector leading to reduction in market capitalisation and demise of many strong Deposit Money Banks in Nigeria including Afribank, Main street bank, Skye Bank plc and now Diamond Banks all in Nigeria (Nelson, 2018).

The population of the study comprises of all 15 listed DMBs on NSE adjusted to twelve (12) banks. The variables of audit committee characteristics used are audit committee independence, expertise, gender diversity and frequency of meetings and dependent variable as corporate performance.

1.6 Significance of the Study

The study contributes to the depth of literature on importance of audit committee characteristics to seeking ways of improving corporate performance in Nigeria banking sector.

This is important in order to boost investors' confidence in DMBs in Nigeria which is expected to enhance high recognition in equity market. Browsing through the extant literature, there is paucity of studies that have examined the audit committee in relation to performance measured by Tobin's q in Nigerian context. Therefore, this study is expected to add flesh to scanty available studies on financial performance in Nigeria context. The regulatory authorities such as the CBN, SEC and the FRC will benefit from the findings as it will redirect and refocused their attention to the important role of audit committee in the financial industry and serve as additional reference point towards addressing issues that gave rise to suspension of 2016 code of corporate governance. Likewise, the investors will benefit as the agency cost can be reduced when the quality of internal control system is put in place. The study reflect a call attention to management to ensure quality internal control system and focus on value maximisation which will also increase their compensation.

The findings of this study therefore established a point of reference on the way forward to resolve would be divergence issues between the FRC and CAMA 2004 on audit committee expertise as to whether the member of audit committee and/or chairman should necessarily be a professional qualified chartered accountant. The study is also aimed at reposition the confidence of all potential and prospective investors against their investment in the sector which is expected to enhance their market capitalisation base. This is because, the potential and prospective investors make decisions based on the performance of the firm by relying more on the financial statement. However, it is not only the content, but also the quality of the information in the financial statement that is more important for decision making. Therefore, the findings from this study will enhance the level of assurance for investors on the safety of their investment which will reflect on the market value of their equity. Also, researchers can

benefit from the outcome of this research since it will contribute to the body of existing literatures by providing an empirical evidence on the relationship between audit committee characteristics and the corporate performance of listed Deposit Money Banks in Nigeria.

CHAPTER TWO LITERATURE REVIEW

2.1. Introduction

This chapter covers the conceptual review, empirical reviews and theoretical framework of all the variables used to represent audit committee characteristics and financial performance incorporated into the model of this study. The chapter started with the conceptualization of all variables followed by empirical reviews of related literature to variables under discussion and finally discussed the theory used to underpin the study.

2.2 Conceptualisations

This section of the chapter presented the definition of various related concepts of audit committee characteristics and financial performance incorporated to the study. The concepts on which the literature is reviewed are the financial performance, audit committee, audit committee independence, audit committee expertise, audit committee gender diversity and audit committee frequencies of meeting.

2.2.1 The Concept of Financial Performance

Financial performance is an assessment of how well an organization executes on its important financial parameters, typically financial, market and shareholders' wealth maximisation. Countless number of ways have been used in extant literature to measure financial performance such as Return on Assets (ROA), Return on Equity (ROE), Tobin's Q, Profit Margin (PM), Earnings Per Share (EPS), Divided per share (DPS) and many others (Al-matari, Hanim, Fadzil, & Al-swidi, 2014). These measures are normally computed from statement of financial position and statement of profit and loss account as well as well as the comprehensive income. Financial performance is a term used to represent different sets of monetary values which

reflects the financial health of an enterprise. In other words, it is a financial action that is used to generate sales, drives profit, and enhance business value for its shareholders through the management of current and non-current assets, financing, capital, revenue and expenses.

According to Barbuta-Misu (2013), financial performance in a modern corporate world may be defined as a state of competitiveness achieved through a high level of financial efficiency and productivity which enhance going concern concept and a long term existence in capital market. It can also be defined in relation to success, achievement, actions, and consistent efforts which protect the going concern of corporate entity and value maximization objective (Albu, Albu, Bunea & Girbina 2015). Therefore, financial performance is the creation of corporate entity through management of social, economic and environmental cost and benefit factored into financial report with the end product of monetary value creation.

2.2.1.1 Measures of Financial Performance

Browsing through the extant literature in corporate finance, many research scholars have used different surrogates to measure performance depends on the exigencies of their field of study and domain under consideration. In other words, some of the metrics that are commonly used in literature can also be subdivided according to their source and their usage such as profitability ratio, liquidity ratio, stock market performance indicators such as price earnings ratio, risk exposure and many others. Accounting based performance measurement are from financial reports such as ROA ROI, NIM, EPS, non-performing loan and many other. Moreover, many research scholars in corporate finance adopt the use of an acronym “CAMEL” to measure performance in financial industries especially in banking sector (Osadu & Ibenta 2018). The CAMEL is an abbreviation of many performance index in banking sector consisting

of capital adequacy, asset quality, management efficiency, earnings such as ROA, ROE, and liquidity.

Various literatures reviewed in this study measured performance by combining different metrics to represent corporate performance in their studies. Some of the researchers that have worked on performance in relation to audit committee include Al-matari, al-Swidi and Al-Matari (2012); Amer, Ragab and Shehata (2014); Chan & Li (2008) and many others. Majorities of these studies have used different parameters to measure performance such as ROA, ROE, price earnings ratio, earnings per share, market capitalization, net interest margin ratio and Tobin's Q in their model for examining the effect of audit committee characteristics on financial performance.

In the study conducted by Bansal and Sharmal (2016), different performance metrics including ROA, ROE and Tobin's Q were use as surrogate for performance in three separate models. In their study, Tobins Q is measured as the ratio of market value of firm to book value of assets. According to their study, market value of equity is used as a market value of firm on the basis that debt is non tradable instrument in India. The market value of equity was calculated using share price multiplied by number of outstanding share as numerator while the total asset is used as the book value of asset for denominator. While their study omitted the use of debt, Husaini and Saiful (2017) use addition of market value of equity and total debt divided by the book value of equity plus total debt.

Chan and Li (2008) on the other hand include the preference shares in the computation of numerator for Tobin's Q and use total asset as the denominator. In their study, market value of equity is calculated as the closing price of the stock multiplied by the number of outstanding

common shares while the preference share is the liquidating value of preferred stock and debt is total current liabilities minus total current assets plus long term debt all divided by the total assets. While Ameret. al., (2014) and Zubair (2016) in their empirical studies measured Tobin's Q as the market value of equity capital plus book value of debt divided by the book value of total assets.

Therefore, Tobin's Q is used in this study to represent financial performance. Tobin's Q as a surrogate for financial performance is preferable in this study as it connotes element of financial reporting information and market related information which serve as an hybrid form of measuring corporate performance. It is very relevant to measure the effectiveness of audit committee in relation to insider abuse resulting from overvaluation and undervaluation of shares emanating from insider trading at the expense of shareholders.

Tobin's Q is being used as a measure of financial performance from investors perspective. It is propounded by the Nobel Laureate Economist James Tobin and William Brainards in 1968 as an economic theory of behavior. The Q represent the ratio of market value of firm's existing share to the replacement cost of the firms physical assets. 'Tobin's Q is built on the bases that a Q greater than one means that the firm is worth more than the cost of its assets which creates additional investment opportunity in the firm as the investment returns would exceed the cost of firm's assets (Stephen & Jason, 2004). It also suggests that a Q is in equilibrium if the ratio is equal to one. However, if the Q is less than one, then it will cost more to replace firm's assets than the firm is worth and in this case it would be better to dispose those assets than keeping them in operation.

Moreover, different dimensions have been used for interpreting Tobin's Q in the literature for years. It can be interpreted to define overvaluation and undervaluation of firms. Likewise, it can also be interpreted in relation to wealth maximisation. Therefore, a high Tobin's Q especially above one indicate that the market identified the value creation ability of the firm and increase the q value (Smithers & wright, 2002). However, due to challenges in calculating the original Q, different researchers in corporate finance have being using different dimensions of q as a measure of performance.

Therefore, to avoid the problem of ascertaining replacement cost of assets in the original Tobin's q, this study will adopt the measurement by Zubair (2016). Thus, Tobin's q is thereby measured as market value of equity plus total liabilities divide by total assets. The market value of equity is calculated as outstanding number of shares multiplied by the market share price.

2.2.2 Concept of Audit Committee

According to the Sarbane Oxley Act (2002), an audit committee refers to a committee established to oversee the accounting and financial reporting processes and audits of the financial statements to ensure the quality of financial information. In another definition given by Ayinde (2002), audit committee is a committee established to improve corporate accountability by working with the internal auditors and management to improve the financial reporting practices of an entity and ensure proper conduct of corporate affairs in accordance with generally accepted ethical and legal standards. All this effort is targeted towards safeguarding the shareholders and other stakeholders' interest.

In addition to the global push by regulators towards using a common accounting standard framework such as IFRS, the public is pushing for more accountability for financial reporting

by Audit Committees. For example, the USA Sarbanes-Oxley Act (2002) and the Audit Committee Guidance for European Companies as well as in Nigeria where we have CAMA 1990 as amended, financial Reporting Council of Nigeria (FRCN), Bank and Other Financial Institution Act (BOFIA) and Security and Exchange Council (SEC). All these efforts were targeted towards safeguarding the interest of shareholders and other stakeholders in corporate establishment. However, there is variance in the composition of audit committee in different countries. While majorities of governing bodies in other countries such as in Europe established it as audit committee of the board, Nigeria in addition to audit committee of board made it mandatory for all public companies to have statutory audit committee CAMA (1990).

Accountants International Study Group (1977) as cited in (Hossain and Khan, 2006) defined audit committee as a committee of directors of a corporation whose specific responsibility is to review the annual financial statements before submission to the board of directors. This definition is not distinct from statutory audit committee as stated by CAMA 1990 amended. The board audit committee generally acts as a liaison between the auditor and the board of directors and its activities may include the review of nomination of auditors, overall scope of the audit, results of the audit, internal financial controls system and other accounting and financial process. The audit committee considering in this study is having to do with the Nigerian statutory which is meant to safeguard the proprietary interest of the shareholders as enshrined in CAMA (1990).

According to Idigbe (2007), the audit committee conceptually provides a veritable basis for instilling good corporate governance in public companies as they act as check and balance on the external auditor on the one hand and the company management on the other hand. Mhagama (2013) presumed that audit committee is established with the aim of enhancing

confidence in the integrity of an organisation's processes and procedures relating to internal control and corporate reporting including financial reporting. Having given different conceptual explanation to audit committee as a disciplinary concept, we attempt to operationalise different mechanism that constitute audit committee for the effectiveness and achievement of its established objectives.

In Nigeria, the effective role of this committee is complicated by the fact that the 1990 CAMA specifies no qualification for audit committee members. This implies that those who have little understanding of financial reports could actually be elected into such an important committee. Giving the fact that this committee is also appointed during the annual general meeting turns the entire concept of audit committee into a charade to be manipulated by board. It is in recognition of such lapses in the law that regulators in charge of codes of corporate governance for best practices, which are not enforceable in law, have advised on some basic qualifications for audit committee membership (Ekumankama & Uche, 2009). Therefore, this study adopted the definition of (Almatari et al., 2012).

2.2.3 Audit Committee Independence

As explained by Sawyer and Dittenhofer (2003), audit committee composed of directors within the organization may be affected by their direct involvement with the matter reported. According to Braiotta (2004), audit committee should be a standing committee comprising mostly non-executive directors(NED). Braiotta (2004) contended that a non-executive director (NED) is an individual not involved in the day to day management and not a full time salary employee of the company or its subsidiaries. An individual in the full time employment of the holding company or of its subsidiaries, other than the company concerned would also be considered to be a non-executive director unless such an individual by virtue of his/her conduct

or executive authority could be construed to be directing the day to day management of the company or its subsidiaries.

According to CBN (2015), an independent director shall be a member of the board of directors who has no direct material relationship with the financial institution or any of its officers, major shareholders, subsidiaries and affiliates; a relationship which may impair the director's ability to make independent judgments or compromise the director's objectivity in line with Corporate Governance best practices. According to SEC code of corporate governance (2002), an independent director is not expect to have more than 0.1% shareholdings of the company's paid up capital. While according to section 7.1 of 2018 Nigerian Code of Corporate Governance(NCCG, 2018), the shareholding of independent director is reduce to 0.01% from 0.1% .This changes is targeted towards improving the independent of directors in order to enhance objective oversight function.

Al-matari et. al., (2012) measure the independence of the audit committee as the proportion of independent directors in the audit committee. Following this measurement, Wang and Huynh (2013) measure audit committee independent" with a dummy scale (a two-point scale), with dichotomous variable that the independence of the audit committee as 1, if independent members account for more than 50% of the committee, and as 0 otherwise. Therefore, this study measured audit committee independence as the ratio of audit committee member that are independent NED to total number of audit committee as adopted from (Zubair, 2016).

2.2.4 Audit Committee Expertise

While FRC (2016) draft rule submitted that audit committee, to audited annual report shall be a professional member of an accounting body established by Act of the National Assembly in

Nigeria. It is also noted that every subsequent audited annual report and other documents of a financial nature of the audit committee shall be attested to by a chairman who is a professional member of an accounting body established by Act of National Assembly in Nigeria in compliance with FRC Rule. This rule is in contravention of CAMA 1990 where the membership and chairmanship position of audit committee is not explicitly restricted to such qualification. Section 359 subsection 3, 4 and 6 of CAMA 1990 as amended that relates to qualification and experience of audit committee members, including the chairman provides that: The chairman of the audit committee should be a non-executive director, to be nominated by the members of the audit committee regardless of professional qualification.

SEC (2003) adopted a more neutral definition of financial expertise, in which it was defined as “*anyone with experience in accounting, supervising financial professionals and overseeing the performance of a company (for example, Chief Executive Officer (CEO) and board chairs)*”.

According to Zhang, Zhou, and Zhou (2007), audit committee expertise is classified as “*the directors who are predominantly experienced in accounting as certified public accountant (CPA), auditors, principal accounting officers, chief accounting officers, or any other major accounting position*”.

Husaini and Saiful (2017) in their empirical study measured expertise of audit committee by ratio scale based on total number of accounting qualification to total members of audit committee. While Chan and Li (2008) differed in their own measurement in which they use a binary value of 1 if an audit committee has at least one finance-trained director, and zero otherwise. Some studies also used either of this method to measure audit committee expertise,

finance industry experience or audit committee who is a membership of professional associations.

According to Abernathy, Beyer, Masli, & Stefaniak (2015), accounting expertise is defined as those who had an accounting based license such Certified Public Accountants (CPA) and Certified Management Accountants (CMA) and/or had experience in public accounting such as in auditing related practices. They also classified accounting expertise in terms of those having experience as chief financial officer, chief accounting officer and/or controller. Infact, their concept of expertise is more encompassing. in this current study, audit committee expertise is measured in line with the position of financial reporting council of Nigeria which argued that audit committee members will be more effective with more of qualified chartered Accountant (Obazee, 2016).

In this regard, considering the recent development especially as a result of introduction of International financial reporting Standard (IFRS) and persistence corporate fraud in DMBs in Nigeria, then this study attempt to examine the effectiveness of audit committee if the position of Financial Reporting Council of Nigeria (FRC) can strengthen the audit committee to execute their fiduciary duty of protecting the shareholders interest and reducing the agency cost. The position of FRC as explained earlier in this study is that having professional chartered accountant in audit committee especially as the Chairman will help the effectiveness of the committee.

Therefore, this current study adapted the study of Abernathy et al., (2015) as narrated above and measure the audit committee expertise as the proportion of qualified chartered Accountant

with either of ACA, ACCA and ANAN certification in audit committee to total number of audit committee within the financial years under study.

2.2.5 Audit Committee Gender Diversity

The concept of gender diversity is based on a distinction between sex (the physical characteristics that identify individuals as male or female) and gender (an individual's sense of being a man or a woman, or a combination of these). The roles of women and men around the world have been highly stereotyped since the beginning of the human race. Across nations, cultures and societies, there are evolved patterns and different characteristics that lead to preconceived ideas of what it means to be a man or a woman. Determined rights and duties of each gender are normally found and expected in the family, work and institutional levels (Romero, 2017).

This concept is meant to explain the different views as to the effect of female inclusion in audit committee to enhance its effectiveness in carrying out their oversight function. Some researchers are of opinion that female by their nature can serve as a check for their male counterpart in perpetrating illicit act capable of degrading their virtue. Therefore, a mere presence of female among the committee will deter them or minimize the issue of agency cost especially from would be litigation cost, pilferage and other fraudulent practices capable of affecting corporate performance and in some cases losing public confidence in protection of their investment. According to Marquis and Lee (2010), several studies have revealed that incorporating more women in leadership position can improve corporate governance and corporate behaviour. For the purpose of this study however, this study measured audit committee gender as the proportion of female's members on audit committee in any financial year.

2.2.6 Audit Committee Frequency of Meetings

The frequency of meetings by member of audit committee is relevant matter of consideration that need be clarified. The frequency of meeting is supposed to depend largely on the quantum of oversight activities the company is exposed to in a financial year. SEC code of 2011 prescribes a meeting frequency of at least 3 times annually. KPMG (2017) recommended that the committee frequency of meeting should better focus on: planning its meeting agenda towards improving auditor independence; pre-approving non-audit services; reviewing the employment of former employees of the external auditor; review and agree to the audit engagement letter; review any written representations by management or the board.; reviewing audit findings and ensure to communicate its expectations to the auditor, and that both parties understand and agree to those expectations.

Some countries such as USA, Canada, Australia, Saudi Arabia and other Europe countries have made attempt to regulate the minimum number of meeting the audit committee can hold to ensure effectiveness in their respective corporate business. Ontario Business Committee Corporation Act 1970 introduced legislation that made audit committees mandatory for all public companies (Vanasco, 1994). *One of the core meeting agenda is a meeting to consider matters the auditor feels should be brought to the attention of the board of directors or shareholders. The meeting according to Insurance Company Act 1992 in Canada is also targeted towards meeting with external auditors to discuss the financial statements or any matters that may affect the company as well as meeting the chief internal auditors and management to discuss the effectiveness of control procedures. It is assumed that audit committee meeting with board of directors and external auditor should not just be limited to the minimum requirement of four meeting in a year.*

One of the recommendations to enhance audit committee effectiveness is that audit committee should meet regularly with pre-arranged dates (Ramsay, 2001). While the minimum number of meeting is established in Saudi Arabian according to Saudi Organization of Certified Public Accountants (2003) that audit committee should meet at least four times per year, not much effort has been made in Nigeria to improve the effectiveness of audit committee. Most of the Nigerian regulatory authorities silent on many grey area of audit committee activities. Even in CAMA 1990 as amended, the minimum number of meeting of statutory audit committee is not emphasized and that is one of the lapses that need be addressed in any subsequent amendment of CAMA.

While Australian Securities Exchange (ASX), 2010, 2014) and United Kingdom's financial Reporting Council (FRC, 2008) recommend that audit committee should meet at least three or four times a year. The recent CCGN (2018) specified that statutory audit committee should meet at least once in every quarters. However, possibly because the Code of corporate governance is not that binding like statutory act such as CAMA, many DMBs are not complying with this minimum frequency of meeting. This is observed from the data collected for this study as there are some banks in which only two meeting was held by audit committee within a financial year.

Browsing through existing literature, most studies on audit committee measure frequency of meeting as the number of meeting held within a year. There is no much variance on how this meeting frequency is being measured in corporate finance research. Majority of reviewed studies used number of meeting such as Alqatamin, (2018); Appuhami, (2018); Naimah1 and Hamidah, (2017); Aanu, Odianonsen & Foyeke (2014); Amer et al., (2014) among others with

the exemption of few like Husaini and Saiful (2017) who measured audit committee meeting using dichotomous variables as value of one (1) if more than or equal to four times of meetings were held or, value of 0 if less than four times in a year. Therefore, this study also adopted the study of (Alqatamin., 2018) and therefore measured the audit committee meeting as the number of meeting audit committee held within the twelve months financial year as reported from financial report of listed DMBs in Nigeria.

2.2.7 Conceptual Framework

Considering the effectiveness of this committee as conceptualized above in reducing agency cost and information asymmetry and consequential effect on improving financial performance, the framework for this study is shown as follow:

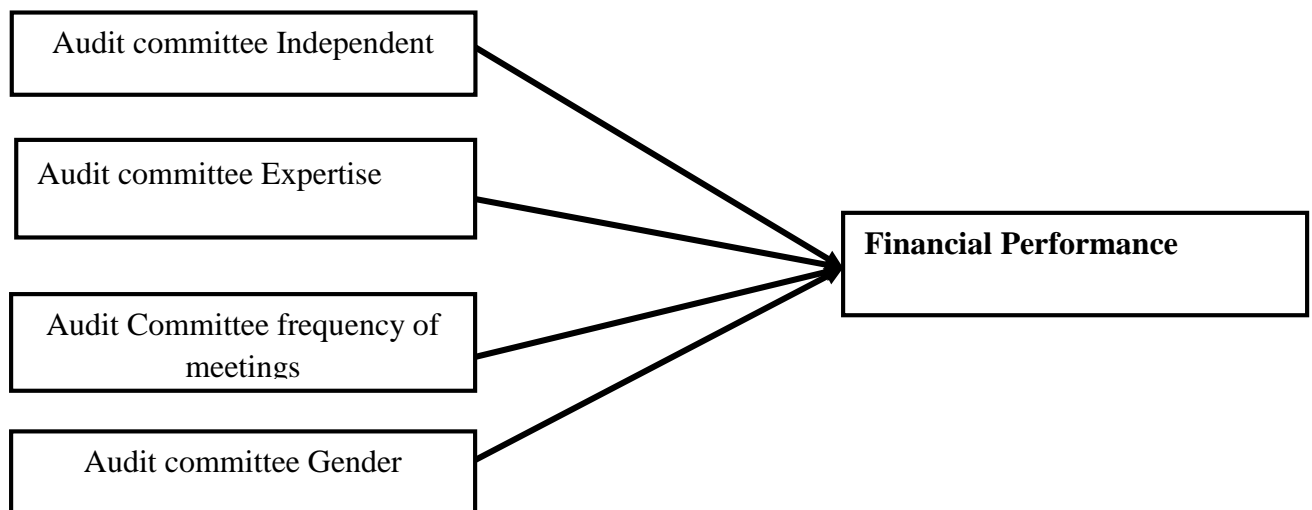


Figure 2.1: Adapted from Al-Matari et al., (2016)

The framework explained the relationship between the characteristics of audit committee represented by audit committee independence, audit committee expertise, audit committee gender diversity and audit committee frequency of meetings as well as their joint relationship with financial perform.

2.3 Review of Empirical Studies

A few number of studies have been conducted on the variables of interest that is having to do with audit committee as affecting corporate performance. Literature that are having to do with the effect of audit committee characteristics on financial performance are reviewed to know what has been done and what is left to be done. These characteristics to be reviewed include audit committee independence, audit committee expertise, audit committee gender diversity and audit committee frequency of meetings.

2.3.1 Audit Committee Independence and Financial Performance

Independent of audit committee in relation to reducing agency cost such as fraud, litigation costs, theft and wastages with consequential effect on financial performance of corporate establishment. Therefore, this section is concerned about reviewing the literature to know what has been done and what is left to be done in literature on the effect of audit committee independence on financial performance. Some of the literature reviewed in this studies are as follows;

Sarpal (2017) investigated the influence of selected audit committee characteristics on the performance of companies listed in India. Two models were built with ROA and Tobin's Q as a measure of financial and market performance respectively. The study used panel regression as a technique of data analysis. After testing for heteroskedasticity and autocorrelation, the final results shows that the independent directors on the audit committee has positive but insignificant effect on the market base performance measure represented by Tobin's Q. The study found that this variable of independency of audit committee only have significant effect on firm performance after they constitute more than the majority. However, the measurement

of dependent variable was not stated anywhere in the study and therefore the reliability of the variable to measure what is supposed to measure cannot be established.

Bansal and Sharma (2016) examined the role of audit committee characteristics on firm performance. The study used fixed effect regression panel data to analyse the data collected from 235 non-financial public limited companies listed on Nairobi Stock Exchange within the period year 2004 to 2014. ROA, ROE, Tobin Q and market capitalisation were used as dependent variable to proxy performance from three separate regression models. The result showed that audit committee independence has positive and negative significant effect on ROA and Tobins'Q respectively but the result revealed positive but insignificant effect on ROE and Market capitalis-ation.

Zabojnikova (2016) examined the effect of audit committee attributes on financial performance using data from non-financial UK quoted firms on the London Stock Exchange. Fixed effect panel regression model was used to analyse the data. The result of the study indicates that audit committee independence has significant but negative effect on both corporate performance indicator represented by Tobin's Q and ROE.

On the other hand, Ahmad, Ahmed, Abid and Aziz (2016) examined the difference in quality of firm level governance characteristics and its impact on firm performance for companies listed at Karachi Stock Exchange during the years from 2010 to 2013. Empirical analysis was made between firm's value as measured by Tobin's Q and Corporate Governance characteristics including audit committee independence. Natural logarithm of the ratio of the market value of assets to book value to proxy for Tobin's Q. The selected companies excluding financial firms cover more than 90% of the whole capitalization of the

DMBs listed on their stock market. Panel data regression model was used as a technique of data analysis. The results revealed significant and positive relationship between audit committee Independence and firm performance.

Hamdan, Sarea and Reyad (2013) investigated the effect of audit committee characteristics on performance represented using financial, operating and stock performance. The study sample contained 106 corporations from the financial sector listed in the Amman Stock Exchange Market with a total of 212 observations during the 2008-2009 sample years. Multiple panel ordinary least square regression was used as a technique of data analysis. The finding from the OLS regression revealed that the audit committee independence has positive but insignificant effect on the earning per share of Jordanian firms. However, the study is carried out in an environment with different policy and governance code guiding the establishment of audit committee compared to Nigeria where they have board audit committee as well as statutory audit committee. Based on level of compliance to relevant accounting standards Nigeria to, the work cannot be replicated to suit Nigerian context complementary with different measures of performance different from their own measurement of earning per share.

Al-matari et al., (2012) examined the relationship between the internal corporate governance mechanism related to the board of directors, the audit committee characteristics and the performance of the Saudi companies listed in the Saudi stock exchange in 2010, excluding financial companies. Audit Committee Independence was found to be as expected directions but insignificantly related to Tobin's Q. This is in line with the study of Amer et al., (2014) who also buttressed the above assertion when he revealed that AC independence has insignificant positive relationship with ROE, and significant with ROA and Tobin' Q. Their study was based on data collected only up to the 2010 financial year end and considering the

contemporary problems in Nigerian banking system, another study have to be conducted in Nigerian context. Their study cannot actually be applied to current situation in Nigerian due to passage of time and the fact that their data are subjected to different rules and regulation different from Nigeria context.

Arshad, Satar, Hussain and Naseem (2011), examined the effect of audit committee attributes on firm's profitability in Pakistan using audit committee independent as explanatory variable and firm profitability was proxied by profit margin and earning per share as dependent variable. The study is based on secondary data collected from annual audited reports of the Pakistan firms which was analysed using three (3) regression models. The finding of the study revealed that audit committee independent has positive and significant impact on EPS and at the same time has positive significant effect on profit margin. This current study is important as it used hybrid form of performance indicators combining market and accounting base measures of performance (market value of equity and book value of assets) which is more useful to investors than mere accounting ratios.

However, most of the extant literature that were reviewed in this study might not be suitable for replication in Nigerian context because of differences in our regulatory maturity, level of compliance as well as social, cultural, political and economical diversity different from their own clan. Also, Tobin's Q is being used in most of the studies as a measure of financial performance even though it is adjudged to be both financial and market performance indicators. Therefore, Tobin's Q is more preferable as it reflect the undervaluation and overvaluation of firm rather than measure of performance. This measurement helps prospective and potential investors to understand the actual worth of firms and sustainability of investment returns.

2.3.2 Audit Committee Expertise and Financial Performance

Muhammed and Bii (2018) examined the role of audit committee financial expertise on financial performance of banking and insurance firms in Nairobi Securities exchange. Their study used an explanatory research design and data was collected from the financial reports of banks and insurance companies listed on the Nairobi Securities Exchange within the period of 2011 to 2016. Result from multiple regression analysis revealed a significant and positive effect of audit committee financial expertise on financial performance of banking and insurance companies. However, the measurement of both the independent and dependent variables incorporated into the model of study were not stated anywhere in their study and therefore the reliability of the variables cannot be ascertained.

Husaini and Saiful (2017) investigated the effect of corporate enterprise risk management implementation on the shareholder value. They employed multiple regression to analyse the data collected from 110 non-financial companies listed on the Indonesian Stock Exchange covering the period of 2010 to 2013 financial years. Audit committee independent was measured as percentage of audit committee that are independent directors to total number of audit committee. The findings revealed that audit committee expertise has insignificant and negative effect on the firms value as represented by Tobin's Q. This study cannot be replicated in Nigeria because of diverse social, cultural and political and economic ideology.

Almaqoushi, and Powell (2017) investigated the relationship between audit committee quality and firm value using data generated from a sample of 12,301 firms over the period 2002 to 2012. The result from the fixed effects panel regressions of industry-adjusted Tobin's q revealed that audit committee financial expertise has negative and insignificant influence on the market value base performance of Tobin's Q. The study was conducted in a developed

world where the corporate governance code compliance is well established and the finding cannot be reasonably replicated to Nigerian stock market condition.

Kallamu and Saat (2015) examined audit committee attributes and firm performance of Malaysian finance companies. Multiple regression was used to analyse the data collected from the annual reports of firms listed on the main market of Bursa Malaysia as at the time of data collection (2012) of which 822, out of which 37 were finance firms. Firm performance represented by ROA and Tobin's Q were used as dependent variables on two model regression analysis. While ROA was measured as profit before tax at the year-end divided by total assets. The result from the regression effect model indicates that finance expertise of directors has positive but insignificant effect on the Tobin's Q. The data used for their study was collected in 2012 and due to passage of time and recent happenings in Nigerian banking system.

Amer et al., (2014) investigated the relationship between the audit committee characteristics and firm performance represented by the ROA, ROE and Tobin's Q. The study adopted GLS random effect regression to analyse proposed relationship between board characteristics and firm performance. Data was collected over the period of nine years drafted from the sample, based on the 50 most active Egyptian companies listed in the Egyptian stock market. The result showed that audit committee financial expertise has positive and significant effect on ROE, ROA, and Tobin's Q. However, the justification for interpreting the GLS was not proved in the study.

Similarly, in the study of Aanu et al., (2014), it was found that audit committee role is very important to the protection of shareholders and other stakeholders interests. The performance measures were ROE, ROA and Return on Capital Employed (ROCE). Twenty-five (25)

manufacturing firms were selected from which data were collected for the period (2004-2011). Empirical analysis was carried out using regression and correlation. The result of the analysis showed a positive significant relationship between financial expertise of the audit committee and ROA, ROE and ROCE. This study recommends that the audit committee should be made of more effective by ensuring that more members with financial expertise especially accounting expertise be drafted into the audit committee. Their study used accounting ratio which is more vulnerable to manipulation and therefore different from this study which used Tobin's Q as a measure of performance.

Chan and Li (2008) examine the relation between independence of audit committee and firm value with a sample of Fortune 200 companies. Secondary data was collected from first top 200 publicly traded Fortune 500 firms in the year 2000. The approximate Tobin' q is used to represent the firm value. Ordinary least square (Ols) regression is used as a technique of analysis to estimate the relation. The finding from the analysis revealed that audit committee with finance- Trained director as interactive variable is positively significant with firm value at one per cent level. However, the expertise in their study is used as interactive variable which might not really give the same result if it is used as independent variable. Therefore, in order to fill this gap, the present study deemed it fit to incorporate it in the model.

2.3.3 Audit Committee Gender Diversity and Financial Performance

Adagye (2019) examined the impact of audit committee membership Gender Diversity on financial reporting quality of quoted deposit money banks in Nigeria. The study adopted an ex-post facto research by design. The population of the study comprised of all the Fifteen (15) quoted deposit money banks on the Nigerian Stock Exchange as at 31st December, 2016 which was narrowed down through a judgmental sampling technique ten. Data relating to financial

reporting quality were sourced from the annual reports and accounts of the sampled banks. For analysis, the study adopted the Multivariate Regression Techniques (Fixed and random test regression) to establish that the independent variables (Gender Diversity) on one hand explains a proportion in the dependent variable (earning Quality) on the other hand, Pearson correlation coefficient was used to test hypothesis 1 which examined the relationship between gender diversity and financial reporting quality. The study found that, gender diversity does not relate to financial reporting quality of Banks in Nigeria.

Alqatamin (2018) investigated the effect of audit committee characteristics on the company's performance. Data were extracted from the sample of 165 non-financial companies listed on the Amman Stock Exchange (ASE) from year 2014 to 2016 and panel regression random effect model was used as a technique of data analysis. ROA as a proxy for company's performance, measured as profit before tax at the year-end divided by total assets. The results of the study show gender diversity has a significant and positive effect on firm's performance. However, the researcher failed to indicate whether all the assumptions and criteria of using random effect model is conducted which would have shown the element of unbiasedness of estimators and the fitness of the model of the study. Therefore, this cast a doubt on the reliability of their findings.

Moreover, Ammer& Ahmad-Zaluki, (2017) investigated the impact of audit committee gender on the accuracy of management earnings forecasts disclosure in IPO prospectuses. The study sample comprises 190 Malaysian companies issuing IPOs that transformed into public companies during the period 2002-2012. Earnings forecasts accuracy (quality) is proxied by absolute forecast error and the study model is developed based on the frameworks of the

signaling theory, the agency theory and the resource dependence theory. The study found that audit committee gender has positive but insignificant impact on absolute forecast error.

Güne and Serkan (2016) conducted study on the effect of audit committee effectiveness on bank performance. The dependent variable was proxied by return on asset (ROA), return on equity (ROE) and net interest margin (NIM). Data were collected from the audit financial statement of the two popular foreign countries namely: the Turkish and the UK banks covering 2006-2010. The study revealed that gender diversity in audit committee is positive but insignificant on the three proxies of performance indicators. This explained that even though the relationship is not significant, the proportion of female members in audit committee has direct effect on the performance of banks in both Turkey and United Kingdom. This means that the higher the proportion of female inclusion in audit committee, the higher the performance. Therefore, replicating this work might not really reflect the true nature of our local economy because of social, political and economy diversity different from those of developed economy like UK and turkey.

Wakaba (2014) conducted study on the effect of audit committee characteristics on firm performance among listed firms in Nairobi securities exchange, Kenya. The study adopted an explanatory design using agency theory and institutional theory to underpin the study. The data was collected in firms listed on the Nairobi Securities Exchange for the period ranging from 2006 to 2011. The result from the multiple regression showed that audit committee gender diversity has a positive and significant effect on ROA as a firm performance indicator. The proxy of ROA used in this study is very useful but their findings cannot be generalised to the expected outcome of using the hybrid performance indicator such as Tobin's Q as used in this current study.

Huang, Yan, Fornaro and Elshahat (2011).investigates whether the appointment of a female to the audit committee of a foreign issuer in the US is positively associated with subsequent market price reaction. We hypothesize that female members on the audit committee can strengthen corporate governance by their conservative and ethical qualities. Accordingly, such appointments deliver a positive message to capital market participants. In order to observe the impact of audit committee gender diversity on foreign firms, we include all audit committee appointments for US traded foreign firms from 2002 to 2009. The study found that the appointment of female audit committee members has significant positive cumulative abnormal returns compared to the appointment of male audit committee members.

Carter, Souza, Simkins and Simpson (2010) investigated the relationship between the number of women directors and the number of ethnic minority directors on the board and important board committees and financial performance measured as ROA and Tobin's Q. Finding from the study revealed a significant relationship between the gender or ethnic diversity of the board, or important board committees, and financial performance for a sample of major US corporations. Their evidence also suggests that the gender and ethnic minority diversity of the board and firm financial performance appear to be endogenous. However, the inclusion of female was used in the study but not in audit committee which might prove or disprove their relevancy in audit committee composition. Therefore, the findings may not be the same if females are incorporated into audit committee in the same environmental setting.

2.3.4 Audit Committee Frequency of Meeting and Financial Performance

Muhammed (2018) examined the impact of audit committee characteristics on firm performance. The study employed panel data methodology and fixed effect model on a sample of seventy-four non-financial firms listed on the Jordanian stock exchange for the period of

2010 to 2016 is used to investigate the said relationship. The result of this study supported the assumptions of agency theory. However, the study failed to reveal the measurement of Tobin's Q.

Husaini and Saiful (2017) examined the effect of corporate enterprise risk management ERM implementation on the shareholder value. They employed multiple regression to analyse the data collected from 110 non-financial companies listed on the Indonesian Stock Exchange covering the period of 2010 to 2013 financial years. The findings revealed that audit committee frequency of meeting has negative effect on the firms value as represented by Tobin's Q. Due to different social, cultural, political and economic ideology complementary with regulatory maturity, the study cannot be said to represent that of Nigerian economic situation.

Naimah (2017) examine the role of corporate governance to increase firm performance. Audit committee meeting is one of the proxies used to proxy corporate governance. Data was collected for the financial period covering 10 years (2005 to 2014) from the samples of all companies registered for the Corporate Governance Perception Index (CGPI) as secondary data. Profitability is proxied by ROA. The findings of the study revealed that audit committee meeting positively influence profitability. However, the study failed to reveal technique of data analysis and the post estimation test that helps in arriving at the interpreted result. Therefore, the study is in short of methodological procedures and cannot be reliable.

Zubair (2016) examined the effect of Audit Committees characteristics on performance of listed DMBs in Nigeria. The population of the study includes all the listed DMBs. The secondary data was analysed using sample size of 16 through census sampling technique. The study employs qualitative and quantitative research methods using correlation and survey

research designs. The result from panel regression technique of data analysis revealed significant and positive relationship between components of audit committee meetings and the performance proxied by Tobin's q and Return on assets of listed DMBs in Nigeria. Even when the study was conducted in Nigeria and the measurement of Tobin's Q without considering debts which is still in used in corporate finance research but the inclusion of total liabilities in this current study makes it more worthwhile in Nigerian context as it takes care of creditors interests in the banking sector.

However, in another study conducted by Al-Matar et. al., (2012), audit committee meeting were found to be as expected directions but insignificantly related to firm performance. This diverse opinion from the two research scholars might be attributed to regional differences. Therefore, there is need to study this variable in Nigerian context. Similarly, in the same study conducted by Sarpal (2017), the audit committee frequency of meeting is found to have positive and significant influence on Tobin's q. This means that higher frequency of audit committee meetings shows improved functioning of the committee which turns into better market valuation of firms. In line with these studies, Bansal and Sharma (2016) established from their empirical study that audit committee frequency of meeting is having positive and significant effect on Tobin's Q and market capitalization while it has negative significant effect on ROE. The same finding was established by Zabochnikova (2016) that audit committee frequency of meeting have positive and significant influenced on performance represented by Tobin's Q.

Afza and Nazir (2014) explored the influence of audit committee characteristics on a firm's value. The sample of the study consists of 124 companies in Pakistan. The collected secondary data used in this study consisted of 8 years from the period of 2004 to 2011, thus making the

992 observations of 124 sample companies. The finding from panel regression revealed that audit committee frequency of meeting have negative and insignificant effect on the market measure of performance as represented by Tobin's Q. However, the study failed to report as to whether all the robustness test were conduct to acknowledge the choice of interpretation between the random and Ordinary least square(Ols) regression analysis.

Al-matari, Fadzil and Al-swidi (2014) in their study examined the association between the board of director's characteristics, audit committee characteristics and the executive committee characteristics and the performance of the Oman companies. Secondary data were collected from sample of 81 non-financial firms out of the total population of 162 non-financial firms listed on Muscat Security Market within the financial period of 2011 to 2012. The findings indicated audit committee frequency of meeting have a positive but insignificant association with firm performance represented by ROA. Due to the nature of the study in relation to safety of shareholders proprietary interest, Tobin's Q is more for this this study because of its hybrid nature of combining market and accounting based measure of performance.

2.4 Theoretical Framework

This section reviewed the agency and the signaling theories to underpin this study and the conceptual framework is shown in section 2.4.2 of this chapter.

2.4.1 Agency Theory

Agency theory propounded by Fama & Jensen (1976) has been the dominant paradigm to address agency conflict in corporate establishment and it is being widely used especially in corporate governance literature (Dedman, 2004). Theory was targeted towards solving the agency problems that often arise in corporate establishment where the principal employs the

agent to perform a number of duties on their behalf for an agreed reward. In corporate world of business, the principal is the owner or shareholders of corporate entity and the agent is the management who own fiduciary duty of care and diligent to run the entity in the best interests of the owners for a stipulated reward. However, according to Ismail (2010), the theory assumes a model of man (manager) that is self-serving, individualistic and opportunistic in nature, who prefers to maximise his own utility functions at the expense of the owners. As a result, the theory is built on the assumption that there is always a divergence of objectives between the goals of the management and those of the shareholders.

According to Larcker, David and Tayan (2007), corporate governance as the set of mechanisms should be targeted towards minimizing agency problem and its associated cost arising from the discretionary powers possessed by management to expropriate the company's wealth to themselves. This means that the natural tendency of managers being human, acting in his own personal interest against the goal congruence of the entity that ought to satisfy interest of all stakeholders will be minimized when the corporate governance mechanism such as audit committee is well established.

The audit committee is established with the responsibility to reduce or minimize the possibility of this selfish tendency of managers which results to agency cost. This unavoidable agency cost can be at least be minimised with effective structure of the contractual relation between the principal and agents. In this case, the principal can monitor and provide reasonable incentives for the agent to make choices which will maximize the shareholders wealth (Jensen & Meckling, 1976). Therefore, the effectiveness of audit committee as the member charged with

oversight function to monitor the activities of managers in relation to achieving organisational objectives will contribute to overall performance of an organization.

Rutherford, Buchholtz and Brown (2007) posited that these agency problems usually occur as a result of information asymmetry which affords the managers as insiders, having privilege in possession of information to make economic decisions for their own selfish interest as against the interest of other stakeholders. Since the interests of the shareholders and managers are usually inconsistent, audit committee as one of the mechanisms of corporate governance is used to minimize the agency conflicts and ensure quality of financial information to various users (Lee, 2011). This explains the fact that the main responsibility of audit committee is to protect infringement on shareholders' interests and to guarantee fair returns to their investment.

According to Lee (2011), argument from agency theory states that high ratios of independent audit committee definitely improve firm performance since agency theory always assume that managers are usually selfish and act with individualistic actions. Thus, effective independence of audit committee who does not have substantive personal or monetary relationship with company can protect shareholders' interests by monitoring the activities of management. The agency theory opined that the audit committee acts as a monitoring mechanism on the preparers of financial statements (Shapiro, 2005). He also presumed that the presence of independent directors with specific financial training and experience will reduce the fraudulent practices of management and consequently reduce the fraud related costs and increase corporate investment returns.

2.4.2 Signalling Theory

Chrisman, Chua, and Litz (2004) explained that one of the main reason behind agency problem explained earlier on is the information asymmetry between owners and managers emanating from a knowledge gap about the company's internal operations. This connotes the fact that there is information gap between the insiders and the numerous investors including the shareholders, creditors, depositors in case of banks and the general public as well as other stakeholders including government. The signalling theory therefore was propounded based on the fact that the information on the various performance indicators that can otherwise be used by insiders against the interest of the investors will reflect on the market price of the entity subject to the efficiency of the stock market. This theory attempts to explain the information linkage that tends to bridge that information asymmetry in the stock market. The notion is that intensity of market competition and public pressure on the financial exigencies of the corporate entity force the management to either be forced or voluntary to divulge quality information for public consumptions.

Therefore, the model of this study is built from the fact that the investors reaction from the stock market to nomination of audit committee and their effectiveness on monitoring function will reflect from the company's market capitalization. Therefore, most of the studies probably because of their concentration on pure accounting figure are prone to using agency theory, resource dependency theory, stakeholder theory and behavioral theory while this study will be conducted using agency theory and signaling theory, to underpin the variables of interest.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the methods and procedures adopted for this study. Emphasis is laid on the research design, the population and sample size of the study, method of data collection, the technique of data analysis, research variables and their respective measurement as well model specification.

3.2 Research Design

This study adopts correlational research design. One of the greatest strengths of correlational research design according to (Stangor, 2011, as cited in Crawford & Tillbrook, 2014) is that it can be used when experimental research is not possible because the predictor variables cannot be manipulated. This research design is more reliable as it measures phenomenon in their original existent without controlling them (Beins & McCarthy, 2012). Moreover, Beins and McCarthy (2012) also posited that correlational research design makes it easier to observe predictable behavior patterns in natural situation. Considering the nature of this study in which the existing data were collected from audited financial report, therefore the correlational research design is thereby adopted to understand and analyse the effect of audit committee characteristics on performance of listed DMBs in Nigeria.

3.3 Population of the Study

The population of this study comprised of the 15 listed DMBs in Nigeria as at 31st of December 2017 according to (NDIC, 2017). The population is filtered with the following criteria: The first criteria is that selected DMBs must be listed on the Nigeria Stock Exchange (NSE). Secondly, audited annual financial report must be accessible. Thirdly, figures needed to compute the variables of interest to this study must be reported in their respective audited annual reports. Therefore, the following DMBs were filtered out to arrive at adjusted population of twelve DMBs. Firstly, Eco Bank PLC and the WEMA Bank were excluded because of non-disclosure of necessary audit committee attributes necessary for this research. Skye Bank PLC was also filtered on the basis of unavailability of their full annual financial report for 2016 and 2017. In this case, the adjusted population after filtering is twelve (12) listed DMBs in Nigeria.

3.4 Sources and Method of Data Collection

The data for the study were collected from the secondary sources. The data for independence variable (audit committee characteristics) were extracted from the annual reports and accounts of the sampled listed DMBs on Nigeria Stock Exchange (NSE) within the study period covering 2009 to 2017. These annual reports were retrieved from the official websites of listed DMBs in Nigeria under study. Also, data for dependent variable including outstanding number of equity shares and share price is sourced from both the annual reports of the selected banks as well as from stock price index as usually published on the www.capitalassets.com respectively. This is because, we use the official market price of equity capital which is easily accessible from the website and the number of shares of the selected DMBs can be obtained from their individual audited report.

3.5 Technique of Data Analysis

Panel multiple regression analysis is used as technique of analysis for this study. This tool of analysis is the best for this study as it allows testing of observations that span both time and individual entities in a cross-section. It also enhances the empirical tests of a wide range of hypotheses and therefore a best tool to control for unobserved sources of individual heterogeneity that vary across individuals but do not vary over time, (Fingleton, n.d.).

3.6 Variable Measurement

The measurement of respective dependent and independent variables are in table 3.1 as

Table 3.1 Variable Measurement

VAR TYPE	Variables	Proxies	Measurement
Dependent	Performance	Tobin's Q	(MVE+TL)/TA (Al-Matari et. al., 2014)
Independent	Audit Committee Characteristic	Audit Committee Independent	Ratio of independent director(s) on audit committee to total number of audit committee member (Al-matari et al., 2012)

Independent	AC Accounting and Financial Expertise:	Ratio of directors on audit committee with accounting-based license and qualification (ACA, ACCA and ANAN) to total number of audit committee members. Adapted from (Abernathy <i>et al.</i> , 2015)
Independent	AC Gender	Proportion of female member to members of audit committee. (Güne& Serkan, 2016)
Independent	AC Frequency of meeting	number of meeting held within a financial year. Adopted from (Bansal & Sharma, 2016)

Sources: Researcher's Review

3.7 Model Specification and Formulation

The variables incorporated into the models include: audit committee independent, audit committee expertise, audit committee gender and audit committee frequency of meeting to examine their respective impact on the corporate performance represented by Tobin's Q of listed DMBs in Nigeria. Therefore, the multiple linear regression function is built for the model as follow:

Performance = f (Audit Committee Characteristics)

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 \text{ACIND}_{it} + \beta_2 \text{ACEXP}_{it} + \beta_3 \text{ACGD}_{it} + \beta_4 \text{ACFM}_{it} + \mu_{it}$$

Where;

β_0 to β_5 represent the coefficient of the respective variables in the model

ACIND = Ratio of independent director to total member of audit committee

ACEXP= Ratio of directors in audit committee with accounting based license and qualification (ACA, ACCA and ANAN) to total number of NEDs in audit committee.

ACGD = Proportion of female to total number of audit committee member

ACFM = Log of number of meeting held within a financial year

Tobin's Q = (Market value of Equity + Total Liabilities)/ Total Assets

Market value of equity= Market Share price multiply by the numbers of outstanding
ordinary shares at the reporting day

MVE = Market value of equity

TL = Total liabilities

TA = Total Assets

it = entities i in time t

μ = Error term

3.8 Robustness Test

The variables were also subjected to multicollinearity test using variance inflation factor (VIF) to confirm if there is any harmful relationship among independent variables. And then heteroscedasticity test was also conducted to examine the panel effect across the entities. Thereafter, Hausman specification test was conducted to choose between the fixed and random effect model.

3.8.1 Hausman Specification Test

In panel data analysis, the Hausman test helps to choose between fixed effects model or a random effects model. The null hypothesis is that the preferred model is random effects, while the alternate hypothesis is that the model is fixed effects. This is conducted with the aim of detecting the possible violation of the random effects modeling assumption that there is a correlation between the unique errors and the regressors in the model (Chmelarova, (2007). A significant p-value is always considered evidence that at conventional level of significance, the

two models are different enough to allow rejection of null hypothesis and thus reject the random effect model in favour of the fixed effect

3.8.2 Modified White Test for Group wise Heteroscedasticity

Breusch Pagan Test was introduced by Trevor Breusch and Adrian Pagan in 1979. It is used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It tests whether the variance of the errors from a regression is dependent on the values of the independent variables. Lagrange Multiplier (LM) statistic is normally used by several studies to further strengthen the recommendation of Hausman Test (HT), which was proposed by Breusch & Pagan (1980) as a way of further validating the Random Effect (RE) regression result. The test helps to choose between the OLS and random effect model. The result for this test is also presented in appendix 1 and interpreted in the following chapter.

3.8.4 Multicollinearity Test

This was conducted to confirm whether there is harmful relationship among the independent variable which may affect the validity of the result interpreted for the study. The possible absence of harmful multicollinearity among the independent variables can be observed from the correlation matrix shown in table 4.2. Notwithstanding, Variance Inflation Factor (VIF) was estimated to confirm absence of harmful multicollinearity. If the VIF of the variables fall between 1 and 10 or Tolerance Coefficients fall between 10% to less than 100%, it is anticipated that the variables suffer no multicollinearity because a statistical research model of tolerance coefficients that are not so close to zero, is deemed not to have a problem of multicollinearity (Gujarati, 1995). The result for this test is presented in appendix 1 and interpreted in chapter four of this study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this chapter, the result obtained from various test conducted on the collected data are presented, analysed and interpreted. The chapter starts with the descriptive statistics, which show the summary of the data used for the study. This was followed by the correlation matrix showing the relationship among the variables in the study and then, the discussion of the regression results and other robustness test conducted. The chapter ended with the discussions of the major findings from the analysis and policy implications of the findings.

4.2 Descriptive Statistics

The descriptive statistic table shows information on the mean, standard deviation, maximum and minimum for each of the dependent and independent variables. Table 4.1 contains the summary of descriptive statistics.

Table 4.1 Descriptive Statistics

Variables	Obs	Mean	StdDev	Min	Max
Tobin's Q	108	1.008	0.216	0.720	2.587
ACIND	108	0.199	0.103	0	0.333
ACEXP	108	0.227	0.108	0	0.333
ACGND	108	0.198	0.160	0	0.667
ACFRM	108	4.213	1.033	2	7

Source: Output from STATA 13

Table 4.1 shows the result of descriptive statistics which provides the number of observations, mean, standard deviations, minimum and maximum used in this study. The dependent variable represented by Tobin's Q has a minimum and a maximum value of approximately 0.720 and 2.587 respectively with the mean and standard deviation of 1.008 and 0.217 respectively. The mean value of 1.008 signifies that on average, the Tobin's Q across the listed DMBs in Nigeria within the period of 2009 to 2017 is approximately 1.008. Notwithstanding, the high 2.587 Tobin's Q of FCMB in 2014 reflect the FCMB having highest market value above its book value of assets. This may be interpreted to mean that the bank is in better financial shape to use their assets to generate more profit and increase the shareholders worth. On the other hand, the investors have to analyse other critical areas of their finance as it may also mean that the company is being overvalued in the market which might result from insider trading. While the lowest 0.7195 Tobin's Q for Fidelity Bank PLC within the period means that the financial

capacity of the bank is very low and therefore will affect the effective use of the assets to generate more profit. The market value of the bank is lower than its book value of assets.

The average audit committee independence (ACIND) across the sampled DMBs in Nigeria within the period of the study is approximately 0.199 when the standard deviation is 0.103. This suggests that the level of independent among audit committee of the selected banks is not widely dispersed among the listed DMBs in Nigeria as confirmed from the smaller standard deviation compare to mean. On average, the composition of independent director to total directors in audit committee is 0.199 which reflects that on average most of the banks that have at least one independent director in audit committee are far higher than those with no any independent director. The minimum and maximum independent director's composition in audit committee range between 0 and 0.333 respectively. This indicates that out of six members in audit committee, the maximum number of independent directors composition is two (2), while on the other hand the minimum of zero(0) composition means that there are some DMBs that do not have independent directors in audit committee composition among the sampled listed DMBs in Nigeria. This is traceable to Access bank plc and Zenith bank plc

Similarly, the composition of audit committee expertise (ACEXP) shows mean across the listed DMBs as approximately 0.227 with standard deviation of 0.108 which indicates that on average, the listed DMBs that have approximately 22.7% professional qualification in accounting and finance as director in audit committee within the period of this study. This implies that on average, there is always more than one professional accountant in audit committee of DMBs in Nigeria within the period of this study. And the standard deviation also revealed deviation of 0.108 from the mean. The level of dispersion is not that high across the

banks in nominating expert directors as audit committee member. While the minimum of zero (0) also shows the absence of professional qualified accountant directors in audit committee of some of the sampled listed DMBs in Nigeria within the study period.

Moreover, the audit committee gender diversity (ACGD) has mean value of approximately 0.198 and standard deviation of 0.160 across the sampled listed DMBs in Nigeria. This explained that the composition of female in audit committee by listed DMBs in Nigeria is averagely more than one (1) and the level of dispersion across the companies is very relatively low as can be confirmed from their standard deviation of 0.160 relatively lower than the mean. This implies that with growing pressure on regulatory authorities across the world even in Nigeria for gender balance, the DMBs in Nigeria seems relatively adjusting to compliance on gender diversity. The maximum number of female in audit committee is approximately 0.667 indicating that some listed DMBs in Nigeria even have about four out of six members of audit committee as females. Nevertheless, some listed Deposit Money Banks in Nigeria still have no female in their audit committee composition as confirmed from the minimum number of zero (0). This shows that while there is progress on gender equality in audit committee of listed DMBs in Nigeria, more still need to be done to gender inclusion in audit committee in Nigerian setting.

The average audit committee frequency of meeting (ACFM) across the sampled listed DMBs in Nigeria within the period of study is approximately 4.213 with the standard deviation of 1.033. This implies that there is no much dispersion on the number of meeting frequency by the audit committee of the listed DMBs in Nigeria. The maximum number of meeting is seven (7) while the minimum is two (2).

4.3 Normality Test

Table 4.2 Shapiro-Wilk Test for Normality Distribution

Variable	Obs	W	V	Z	Prob>z
TOBIN'S Q	108	0.618	33.675	7.834	0.000
ACINDD	108	0.993	0.651	-0.955	0.830
ACEXPT	108	0.979	1.869	1.393	0.082
ACGND	108	0.958	3.711	2.921	0.002
ACMEET	108	0.924	6.723	4.245	0.000

Source: Output from Stata 13

Table 4.2 revealed that only the audit committee independence and audit committee expertise are normally distributed as can be observed from the their respective p-value of 0.830 and 0.082 respectively. While other variables including the dependent variables were not normally distributed. However, this abnormal distribution of data does not in any way impair the result of the study. This is confirmed by Ghasemi and Zahediasl (2012) that normality of data can be ignored in a sample of at least hundred observations. This study has one hundred and eight observation which is already more than hundred, then the reliability of the result from the data is not impaired.

4.4 Correlation Matrix

The correlation matrix below reveals the relationship between the dependent variable and each of the independent variables as well as the relationship among the independent variables

Table 4.3 Correlation Matrix of Dependent and Independent Variables

VAR	TOBIN'S Q	ACIND	ACEXP	ACGD	ACFM
TOBIN'S Q	1.000				
ACIND	0.067	1.0000			

ACEXP	0.234**	0.164*	1.0000		
ACGD	-0.417***	0.071	0.037	1.0000	
ACFM	-0.028 *	-0.187**	0.002	-0.148	1.0000

Source: Output of correlation matrix obtained from STATA 13.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

From the table 4.2 above, the correlation matrix table shows that the coefficient of correlation of audit committee independence (ACIND) and the corporate performance is 0.067. The result implies that audit committee independent have a positive but insignificant relationship with corporate performance of listed DMBs in Nigeria. This means that for every increase in independent directors composition in audit committee, there will also be increase in Tobin's q. However, the level of relationship is not statistically significant.

Likewise, the coefficient of audit committee expertise (ACEXP) shows 0.243 which is statistically significant at 5%. This implies that there is positive and statistically significant relationship between the audit committee expertise and the corporate performance of listed DMBs in Nigeria. This suggests that the higher the number of Chartered Accountant in audit committee, the higher the tendency of increase financial performance.

Moreover, the correlation coefficient of audit committee gender (ACGD) shows -0.417 which is statistically significant at 1%. This means that there is negative relationship between numbers of female composition in audit committee to the tune of -42%. The result suggests that the higher the number of women composition in audit committee, the lower the tendency of improvement of corporate performance. Similarly, the correlation coefficient of audit committee frequency of meeting is -0.028. This means that there is significant but negative relationship between the audit committee frequency of meetings and the corporate performance

of listed DMBs in Nigeria. This portends that the higher the frequency of audit committee, the lower the tendency of improving corporate performance of listed DMBs in Nigeria.

Also, it is also confirmed from the correlation matrix that the correlation coefficient among the independent variables of audit committee are all below the threshold of 80%. This suggest the possible absence of harmful multicollinearity among the independent variables (Gujarati 1995). However, the VIF was also conducted to confirm the assertion as analysed in the subsequent subsection.

4.5 Robustness Tests

Robustness tests are conducted to test the validity and the reliability of the statistical inference of a regression model. The robustness tests conducted for this study include: multicollinearity test using variance inflation factor (VIF), Modified White test of Group wise Heteroskedasticity, and Hausman specification test.

4.5.1 Multicollinearity Test

This was conducted to confirm whether there is harmful relationship among the independent variable which may affect the validity of the result to be interpreted for the study.

Table 4.4 Variance Inflation Factor and Tolerance Value

	VIF	1/VIF
Acindd	1.068	0.937
Acmeet	1.058	0.945
Acexpt	1.03	0.971
Acgnd	1.025	0.975

Mean vif	1.045	.
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Source: Output from STATA 13

From Table 4.4, the tolerance and VIF were used as an advance measure to confirm the possible presence of multicollinearity among the independent variables of a study were found to be concurrently less than 1 and 10 respectively which by implication signifies absence of harmful multicollinearity among the independent variables of audit committee.

4.5.2 Hausman Specification Test

Fixed and random effect tests were carried out and the result is displayed in appendix 1. The Hausman specification test is conducted with the aim to take care of the individual differences within units. A significant p-value is always considered evidence that at conventional level of significance, the two models are different enough to allow rejection of null hypothesis and thus reject the random effect model in favour of the fixed effect model. Where the Hausman specification test does not depict a clear difference (i.e P-value >0.05), however, it does not necessarily emphasize that random effect estimator is “safe” free from bias and thus to be preferred over the fixed effect estimator. Therefore, the result of Hausman specification test for this study as shown in the appendix 1 revealed a p-value of 0.0009 which is statistically significant at 1% with the chi-square of 18.59 which is in favour of fixed effect model.

4.5.3 Modified Wald Test for Group wise Heteroskedasticity

In order to confirm the presence of heteroskedasticity in fixed effect model, modified wald test for group wise heteroskedasticity was conducted. The result shows a significant p-value of χ^2 0.000 which is significant at 1% with the corresponding χ^2 . The null hypothesis is that there is no homoskedasticity. However, the result shows the presence of heteroskedasticity which is

significant at 1%. In order to correct this heteroskedasticity and possible autocorrelation, the feasible generalized least square (FGLS) proposed by Packs (1967) and panel corrected standard errors (PCSE) are the two most common solution used to correct both heteroskepticity and autocorrelation in fixed effect model. However the use of FGLS is faulty especially when the time series is smaller than the cross-sectional dimension as well the fact that the method tends to produce unacceptable small standard error estimates (Beck & Katz, 1995). In this regard, it was suggested by Beck and Katz (1995) to use OLS coefficient estimates with panel corrected standard errors (PCSE)

4.6 Presentation and Interpretation of Regression Result

The result obtained from the panel corrected standard error is presented here in Table 4.5 as shown below:

Table 4.5 Summary of Panel Corrected Standard Errors Regression Result

TOBIN'S Q	Coef.	St.Err.	t-value	p-value
ACIND	0.5091	1.1478	0.44	0.657
ACEXP	2.8909	0.7562	3.87	0.000***
ACGND	-3.1517	0.6933	-4.55	0.000***
ACMEET	-0.4861	0.5845	0.83	0.406
Constant	-3.2878	1.0486	-3.14	0.002***
Panel:	Corrected			
Autocorrelation	No autocorrelation			
R-square	25.13%			
Wald Chi ² (4)	30.31			
Prob> Chi ²	0.000			
NO of obs	108			

Source: Output from Stata 13

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

From the Table 4.5, the R-square (R^2) is 0.2513 indicates that the sum of the independent variables selected explain the changes in the dependent variable by 25.13%. This indicates that the audit committee characteristics variables incorporated into this study explain the variation of the dependent variable of corporate performance of listed sampled DMBs in Nigeria by 25.13%. Moreover, Wald χ^2 is 30.31 and its associated p-value is 0.000 which by implication is statistically significant at 1%. This small p-value less than 0.05 is small enough and it confirmed the fitness of the model for this study. It was also revealed from the Table 4.5 that the heteroskedasticity problem in the panel fixed effect model is corrected and the autocorrelation are corrected with the PCSE estimates.

4.6.1 Audit Committee Independence and Financial Performance

The first null hypothesis formulated in this study states that audit committee independent has no significant effect on performance of listed DMBs in Nigeria. In testing the hypothesis, the result from table 4.5 shows that the audit committee independent (ACIND) has coefficient of 0.5091 with the corresponding p-value of 0.657. This shows that audit committee has positive but insignificant effect on performance of listed DMBs in Nigeria.

On this basis, the study failed to reject the first null hypothesis which presumed that audit committee independent has no significant effect on performance of listed DMBs in Nigeria. This may be as a result of the fact that the independent director does not have large shareholdings and as such may not be more concerned with the value maximisation proposition of the company unlike other directors with large share holdings. The finding is in line with the study of Sarpa (2017) and Reyadet. al, (2013) which also established that independent of audit

committee member has positive but significant effect on Tobin's q as a measure of performance.

4.6.2 Audit Committee Expertise and Financial Performance

This second hypothesis assumes that the audit committee expertise has no significant effect on the corporate performance of listed DMBs in Nigeria. The result in Table 4.3 revealed that audit committee expertise has positive coefficient of 2.8909 and p-value of 0.000 which is statistically significant at one percent. This indicates that the audit committee expertise has significant and positive influence on the financial performance of the listed DMBs in Nigeria.

Then, considering the significant level of this p-value, the study therefore reject the null hypothesis which states that there is no significant effect of audit committee expertise on the corporate performance of the listed DMBs in Nigeria. This implies that the study accept the alternate hypothesis that there is audit committee expertise has significant effect on financial performance of listed DMBs in Nigeria. This is in line with the findings of Aanu et al., (2014) and Amer et al., (2014) that also established significant and positive influence between the audit committee expertise and Tobin's Q.

4.6.3 Audit Committee Gender Diversity and Financial Performance

The third hypothesis states that audit committee gender has no significant influence on performance of listed DMBs in Nigeria. The result from table 4.5 above revealed that the coefficient of audit committee gender is -3.1517 with the corresponding p-value of 0.000 which by implication is statistically significant at one percent. This indicates that audit committee gender has significant but negative effect on performance of listed DMBs in Nigeria.

Therefore, the study rejects the null hypothesis which states that audit committee gender has no significant effect on performance of listed DMBs in Nigeria. This corroborates the findings of Green and Homroy (2016) which also revealed that AC gender has significant effect on the performance. However, their direction of result is different from this study as their study shows positive relationship.

The basis of this negative relationship of female composition might be related to the fact that women by their nature have more matrimonial responsibilities which might deprive them of devoting much time to managerial role unlike their male counterparts. Maternal leave and other home challenges may affect the team function where they are given responsibilities. The overall performance of the team will be affected and cause lapses in monitoring the internal control system when they are appointed to audit committee. This will give room for insider abuse and governance lapses which can increase agency problems and consequently adverse effect on performance.

4.6.4 Audit Committee Frequency of Meeting and Financial Performance

This hypothesis four states that audit committee frequency of meeting has no significant effect on financial performance of listed DMBs in Nigeria. The result from Table 4.5 shows that the coefficient of audit committee frequency of meeting is -0.4861 and the corresponding significant p-value of 0.406 which is statistically insignificant. This shows that the audit committee frequency of meeting has negative and statistically insignificant effect on financial performance of the listed DMBs in Nigeria.

Therefore, the study failed to reject the null hypothesis which assumed inter alia that audit committee frequency of meeting has no significant effect on performance of the listed DMBs

in Nigeria. The result corroborate the findings of Afza and Nasir (2014) and Muhammad (2018) which also found that audit committee meeting has negative and insignificant effect on financial performance.

4.7 Policy Implication of the Research Findings

Findings obtained from this study have several policy implications for investors and the management in banking sector as well as the regulatory authorities in Nigerian banking and other industries.

The regression result revealed that audit committee expertise has significant and positive effect on financial performance of listed DMBs in Nigeria. This indicates the importance of professional qualification for audit committee member in affecting the corporate performance of DMBs in Nigeria. Moreover, the positive coefficient indicates that more professional qualified accountant and financial expert on audit committee will enhance effectiveness of audit committee, reduce agency problem and its associated costs, increase the profitability and hence more returns to shareholders.

This goes along with apriori knowledge that professional qualified accountant will be more knowledgeable to oversee internal control system and financial reporting process especially in scrutinising the contemporary financial report in compliance with the International financial reporting standards(IFRS). Their profession ethics also will mandate them to carry out their fiduciary duties diligently. This is more in support of the FRC position on mandatory professional qualification for audit committee member. The implication of this finding for the policy makers especially the FRC, management and the government is that nominating professional qualified accountant in audit committee should be reconsidered as suggested by

FRCN in 2016 suspended CCGN. This is very important according to this study's finding for effectiveness of audit committee if it is expected to reduce agency problems and its associated costs and improving financial performance.

Concerning the gender diversity of audit committee, the result reported significant but negative effect on financial performance in Nigeria. This implies that additional increase in the inclusion of more women on audit committee add no value but negative effect on performance of listed DMBs. This corroborates different financial literatures that women by their nature are risk averse and cannot afford taking high risk unlike their male counterpart. And it is known fact in corporate finance that the higher the risk the higher the return to investment. Moreover, it also means that increasing the number of women in audit committee because of public pressure on gender equality will only reduce the effectiveness of audit committee and the financial performance of listed DMBs in Nigeria. That is the market value of banking sector relative to their operating capacity (total assets) will reduce with increase in the female composition in audit committee in DMBs in Nigeria as may increase the participation of women in stock market.

However, finding revealed that audit committee independence has positive but insignificant effect on performance of listed DMBs in Nigeria. The positive coefficient implies that every changes in the number of independent directors' composition in audit committee is expected to increase performance represented by Tobin's Q of the selected listed DMBs in Nigeria. Therefore, the higher p-value above 0.05 level of significant implies that even an increase in independent directors in audit committee cannot translate to significant increase in Tobin's Q of listed DMBs in Nigeria and as such no significant effect on financial performance.

This may also implies that directors without substantial managerial shareholdings in audit committee composition do not ultimately lead to enhance value maximisation and overall performance in listed DMBs in Nigeria. This is in line with Rosenstein and Wyatt, (1990), who posit that non-independent directors are more effective than independent directors because they have superior knowledge about the company and the industry. Moreover, the independent directors may not really care for long term survival of the firm because of lack of sense of belonging. They may only have interest in their present earnings rather than long term performance of the entity. By implication, their lack of commitment will increase the agency problem resulting from conniving with management in fraud related practices as well as insider abuse that is rampant in contemporary banking system. Therefore, the increase in independent directors in audit committee composition according to this study does not have significant influence on increasing Tobin's q in selected DMBs in Nigeria.

Finally, an audit committee frequency of meeting has negative and insignificant effect on performance of listed DMBs in Nigeria. This implies that the higher the meeting frequency of the audit committee, the lower the corporate performance. The implication of this study is that market component of the Tobin's q which is also numerator may be affected if the investors's confidence in the industries is very low. Considering the present situation in Nigerian DMBs in which even the so called systemically important banks failed the stress test and their eventual extinction in banking system, then the prospective and potential investors' loss of confidence may have negative implication on their share price as the market share price of equity depends on the intensive competition to subscribe for highly priced shares in equity market that determine the market share price. Therefore, if as a result of the loss of confidence, then investors might perceive the high frequency meeting as a mere routine to misrepresent

accounting information and as result leading to low patronage of shares and eventual reduction in market value of their equity and as such reduce Tobin's q.

Therefore, it is now expedient for the regulatory authority to consider various attribute of audit committee member as they are not exclusive of each other but that they have complementary function to ensure effectiveness and efficiency that will give more credence to financial report, improve investors' confidence, reduce agency problem and its associated costs and hence improve financial performance. Each of the attribute has complementary role for good corporate governance best practice that can enhance the DMBs having strong and effective and quality internal control system that will reduce agency problems, increase the profitability and enhance overall financial performance.

CHAPTER FIVE SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study was conducted to examine the effect of audit committee characteristics on performance of listed DMBs in Nigeria. The study was divided into five chapters. The first chapter discussed the background issues relating to audit committee characteristics in relation to performance of listed DMBs in Nigeria, The objectives of the study, research hypotheses, significant of the study and scope of the study. This led to the development of four objectives using four explanatory variables including: audit committee independent, audit committee expertise, audit committee gender and audit committee frequency of meeting. In line with the four objectives, the study also formulated four hypotheses all in null form. All the variables were well conceptualised in chapter two and also the existing literature on the entire selected

explanatory variable in relation to the dependent variable were reviewed. Agency theory was used to underpin the study.

Moreover, the study used correlational research design. Data for analysis were collected from the audited financial reports of the twelve listed DMBs in Nigeria after excluding three out of the population. The share price used for computing market value of equity were collected from www.capitalassets.com covering the period of 2009 to 2017. The population of the study consisted of the 15 listed DMBs in Nigeria and adjusted population of twelve (12) were used based on the availability of data within the periods of study. The selection is based on the following filtering criteria: firstly, The Wema bankplc and Eco bank plc were filtered out because of non-disclosure of important information of audit committees attributes that is very important for this analysis. Secondly, Skye bank plc was also filtered out because of inaccessibility to their financial report of 2016 and 2017 in order to avoid out layer. Therefore, in order to reduce element of biasness, this study only used adjusted population of 12 of the listed DMBs within the period of study.

Panel corrected standard errors was used as a technique of data analysis having taken care of all the post estimation test. The result of the descriptive statistics, correlation matrix, and panel corrected standard errors were presented, analysed and discussed in chapter four. From the regression result, the study reject the hypothesis two and three. While on the other hand the study failed to reject the hypothesis one and four.

5.2 Conclusion

In view of the finding of this study, the conclusions are drawn from the findings as follows:

It is concluded from the finding that independent of audit committee does not have significant effect on financial performance of listed DMBs in Nigeria. This therefore provided evidence that NEDs without substantial shareholdings might be independent of management but their interest on maximization objective of firms may be impaired possibly because of lack of sense of belonging.

The study also concluded that audit committee expertise and audit committee gender diversity have significant effect on the financial performance. Thus the higher the number of expertise in audit committee composition, the higher the Tobin's Q. However, it is confirmed that audit committee gender diversity has significant but negative influence on financial performance. The study therefore concluded that having professional accountant in audit committee has positive influence on the financial performance of listed DMBs in Nigeria.

Hence, it is concluded from the study that the independent of audit committee member and audit committee frequency of meeting have no significant effect on performance of the listed DMBs in Nigeria. This suggests that there is no evidence that independent of audit committee member without substantial shareholdings in the company will have effect on performance of listed DMBs. Their commitment may be very low towards attaining organisational objectives of maximising shareholders worth perhaps because of their little or no sense of belonging.

Secondly, it is also concluded that company with more professional qualified accountant members in audit committee may establish quality internal control system which will reduce insider abuse and reduce agency cost, hence improve their profitability. And a company with high level of profitability will enhance maximisation of shareholders' wealth.

Thirdly, concerning the audit committee gender diversity, it was concluded that inclusion of more women in audit committee of the contemporary banking system will have negative effect their financial performance as suggested by the findings of this study. Possibly, their negative influence might still be addressed if their inclusion is based on their qualification, competency and level of experience in accounting and finance rather than satisfying only the public pressure on gender equality

Finally, it is was concluded from the research findings that changes in frequency of meeting by audit committee does not lead to significant decrease in performance of listed DMBs in Nigeria.

5.3 Recommendations

Based on the conclusion and the findings of this study, the following recommendations are proffered on this study in general and specifically on major findings as follow:

In order to help in the overall performance of listed DMBs in Nigeria, then the following specific recommendations were made based on major findings of this current study as follow:

Firstly, investors, management, researchers and the policy makers of DMBs are encouraged to support the proposition of having more Professionals Qualified Chartered Accountant (NEDs) in audit committee as proposed by FRC (Obazee, 2016). However, there is need to call for review of CAMA (2004) concerning the neutral position on the qualification of members of the committee in order to make it easy for FRC to enforce the mandatory professional qualification of members of audit committee in Nigeria.

Secondly, the regulatory and the policy makers should refocus their attention on the nomination of more female into the committee by look inward more to their skills, diligence and competency rather than just to satisfy the pressure on gender equality. The quality of this female members nominating into audit committee is very important considering the significant influence they exercise on their male counterpart in decision making as even confirmed from the result. This research is directing the attention of the policy makers into rethink that the quality and competency of gender diversity should be more prioritise in their policy debate and research outcome.

On the final analysis, the overall effect of this research finding revealed a significant influence on the corporate performance of listed DMBs in Nigeria. Therefore, the regulatory authorities of DMBs are thereby encouraged to enshrined the specific threshold on the composition of audit committee when making rule and regulation on audit committee composition. The corporate governance code of best practice being released so far even the just issued code in 2018 left much to be desired. The code is yet to be specific on professional qualification as well as the minimum number of female composition. That is why it is observed from the data for this study that some banks have no female representative on their audit committee such as Zenith bank plc. Therefore, this need to be resolved in the subsequent review of CAMA and corporate governance code of best practice.

5.4 Area of Further Study

The study examined the effect of audit committee characteristics on the corporate performance of listed DMBs in Nigeria. Considering the fact that explanatory power of this research outcome is 22.5%, then other factors constitute 77.5% explanatory power are not captured in

this study that will also have influence on the corporate performance of listed DMBs in Nigeria. For the virtue of this therefore, further research is recommended in the following areas:

The study explored only four audit committee characteristics namely on their: independency, expertise, gender diversity and meeting frequency. Therefore, more research can be done to explore mediating role of these attributes such as independent directors with professional accounting qualification and inclusion of women with professional accounting qualification on financial performance of listed DMBs in Nigeria.

1. Secondly, given the impression that these variables are complementary to each other's, then future studies can done on the moderating effect of audit committee independent on the relationship between the board structure and the financial performance of listed DMBs in Nigeria.

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APPENDICES

Appendix 1: Tables of Results

Table 4.1

```
. sum tobinsq acindd acexpt acgnd acfm
```

Variable	Obs	Mean	Std. Dev.	Min	Max
tobinsq	108	1.008389	.2167059	.72	2.587
acindd	108	.200713	.1010865	0	.333
acexpt	108	.2268426	.1101323	0	.333
acgnd	108	.2361944	.1766374	0	.667
acfm	108	4.342593	.8771453	2	7

```
. asdoc sktest t acindd acexpt acgnd ACFRM bs
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```

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
t	108	0.0014	0.2853	9.77	0.0076
acindd	108	0.5412	0.3057	1.45	0.4836
acexpt	108	0.0187	0.0522	8.29	0.0159
acgnd	108	0.0006	0.2173	11.27	0.0036
ACFRM	108	0.0000	0.0001	29.87	0.0000
bs	108	0.0102	0.6644	6.38	0.0412

Table 4.2

```
. swilk t acindd acexpt acgnd ACMEET
```

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
t	108	0.94483	4.858	3.521	0.00021
acindd	108	0.99260	0.651	-0.955	0.83011
acexpt	108	0.97878	1.869	1.393	0.08187
acgnd	108	0.95785	3.711	2.921	0.00174
ACMEET	108	0.92365	6.723	4.245	0.00001

Table 4.3

```
. asdoc pwcorr t acindd acexpt acgnd acmeet, sig
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```

	t	acindd	acexpt	acgnd	acmeet
t	1.0000				
acindd	0.0672 0.4896	1.0000			
acexpt	0.2432 0.0112	0.1635 0.0908	1.0000		
acgnd	-0.4172 0.0000	0.0708 0.4668	0.0366 0.7068	1.0000	
acmeet	-0.0285 0.7698	-0.1870 0.0526	0.0023 0.9815	-0.1480 0.1265	1.0000

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```
. asdoc reg t acindd acexpt acgnd acmeet
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```

Source	SS	df	MS	Number of obs =	108
Model	42.6037832	4	10.6509458	F(4, 103) =	8.64
Residual	126.959255	103	1.23261412	Prob > F =	0.0000
				R-squared =	0.2513
				Adj R-squared =	0.2222
Total	169.563038	107	1.58470129	Root MSE =	1.1102

t	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
acindd	.5091345	1.097028	0.46	0.644	-1.666563	2.684832
acexpt	2.890946	.9888778	2.92	0.004	.9297404	4.852152
acgnd	-3.151736	.615282	-5.12	0.000	-4.372002	-1.931469
acmeet	-.4861005	.4908146	-0.99	0.324	-1.459515	.4873144
_cons	-3.287828	.8291837	-3.97	0.000	-4.932318	-1.643337

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Table 4.4

```
. asdoc vif
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```

Variable	VIF	1/VIF
acindd	1.07	0.936744
acmeet	1.06	0.945432
acexpt	1.03	0.971245
acgnd	1.03	0.975281

```
Mean VIF      1.05
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```

```
. asdoc hettest
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```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of t

chi2(1) = 2.03

Prob > chi2 = 0.1538

```
. asdoc xtset id yrs
```

```
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```

panel variable: id (strongly balanced)

time variable: yrs, 2009 to 2017

delta: 1 unit

```
. asdoc xtreg t acindd acexpt acgnd acmeet, fe
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```

```
Fixed-effects (within) regression      Number of obs      =      108
Group variable: id                    Number of groups   =       12

R-sq:  within  = 0.2253                Obs per group: min =        9
      between  = 0.1542                avg   =       9.0
      overall  = 0.1579                max   =        9

                                         F(4,92)            =       6.69
corr(u_i, Xb)  = 0.1062                Prob > F           =      0.0001
```

t	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
acindd	-.2654687	.7138544	-0.37	0.711	-1.683245	1.152308
acexpt	2.648027	.6834642	3.87	0.000	1.290608	4.005446
acgnd	-1.257035	.4470579	-2.81	0.006	-2.14493	-.3691391
acmeet	.6079342	.3461939	1.76	0.082	-.0796369	1.295505
_cons	-5.106301	.5831585	-8.76	0.000	-6.264504	-3.948098
sigma_u	1.0076894					
sigma_e	.68677645					
rho	.68283103	(fraction of variance due to u_i)				

```
F test that all u_i=0:      F(11, 92) =      16.11          Prob > F = 0.0000
Click to Open File:  Myfile.doc
```

```
. est store fe
```

```
. asdoc xtreg t acindd acexpt acgnd acmeet, re
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```

```
Random-effects GLS regression      Number of obs      =      108
Group variable: id                Number of groups   =       12

R-sq:  within  = 0.2194                Obs per group: min =        9
      between  = 0.2569                avg   =       9.0
      overall  = 0.1944                max   =        9

                                         Wald chi2(4)       =      26.83
corr(u_i, X)    = 0 (assumed)         Prob > chi2        =      0.0000
```

t	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
acindd	-.1532552	.7670265	-0.20	0.842	-1.6566	1.350089
acexpt	2.681075	.7273155	3.69	0.000	1.255562	4.106587
acgnd	-1.59337	.4717131	-3.38	0.001	-2.517911	-.6688296
acmeet	.4183851	.367175	1.14	0.255	-.3012648	1.138035
_cons	-4.782868	.6438419	-7.43	0.000	-6.044775	-3.520961
sigma_u	.56924718					
sigma_e	.68677645					
rho	.40723969	(fraction of variance due to u_i)				

```
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```

```
. hausman fe re, sigmamore
```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
acindd	-.2654702	-.1532568	-.1122135	.0965358
acexpt	2.648029	2.681077	-.0330478	.1373243
acgnd	-1.257036	-1.59337	.3363347	.1090183
FMEET	.6079341	.4183851	.1895489	.0757877

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(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 18.59
 Prob>chi2 = 0.0009

Modified Wald test for groupwise heteroskedasticity
 in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (12) = 212.43
 Prob>chi2 = 0.0000

Table 4.5

```
. xtpcse t acindd acexpt acgnd ACMEET
```

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:   id                      Number of obs      =       108
Time variable:   yrs                      Number of groups   =        12
Panels:          correlated (balanced)    Obs per group: min =         9
Autocorrelation: no autocorrelation      avg               =         9
                                           max               =         9

Estimated covariances      =        78      R-squared          =       0.2513
Estimated autocorrelations =         0      Wald chi2(4)         =       30.31
Estimated coefficients     =         5      Prob > chi2          =       0.0000

```

t	Panel-corrected					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
acindd	.5091346	1.147778	0.44	0.657	-1.740469	2.758738
acexpt	2.890946	.7561744	3.82	0.000	1.408872	4.373021
acgnd	-3.151735	.6933095	-4.55	0.000	-4.510597	-1.792874
ACMEET	-.4861002	.5845338	-0.83	0.406	-1.631765	.659565
_cons	-3.287828	1.04864	-3.14	0.002	-5.343125	-1.232531