FINANCIAL RATIOS AND FIRM PERFORMANCE OF NIGERIAN MANUFACTURING COMPANIES

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ABSTRACT

This research aims to examine the relationship between financial ratios and firm performance of Nigerian manufacturing companies. Past literature argued that among the challenges of the firms include management problem and financial constraint. Studies revealed that firms' success could be examined through liquidity efficiency, financial leverage, operating activities and management competency. Thus, this study aims to assess the financial ratios in relation to firms' financial performance. Using stakeholders' theory, agency theory and signalling theory, four hypotheses related to the financial ratios and financial performances are proposed. Return on assets and return on equity are the dependent variables, while liquidity efficiency, financial leverage, business operating activities and management competency are the independent variables. This research examines published financial statements of 66 listed Nigerian manufacturing firms covering a period of years 2011 to 2015, giving a total observation of 330. The data were analysed using descriptive statistics, correlation test and multiple linear regression via EVIEWS8 version. The overall findings of the study reveal that liquidity efficiency (cash gap), leverage efficiency (total debt to total assets) and firm size show a significant positive relationship with both return on assets and return on equity. Further, the findings show that leverage efficiency (long-term debt to total equity) has a significant positive relationship with return on equity. The study will add to the existing literature by applying the stakeholder theory concerns with stakeholder-oriented management to increase profitability. Agency theory will assist on an optimal debt financing decision to enhance profit maximization and signalling theory helps to reveal firm's success or failure through financial ratios. Practically, this study will benefit the management of the Nigerian manufacturing firms in financial performance improvement. Further, it will assist owners, investors, government and management consultants in relation to decision making related to the Nigerian manufacturing firms.

Keywords: Financial ratios, financial performance, Nigerian manufacturing firms, stakeholders

ABSTRAK

Penyelidikan ini bertujuan menyelidik hubungan antara nisbah kewangan dan prestasi firma syarikat perkilangan Nigeria. Kesusasteraan lepas membincangkan bahawa di antara cabaran firma termasuk masalah pengurusan dan kekangan kewangan. Kajian mendedahkan kejayaan firma boleh ditentukan melalui kecekapan kecairan, keberhutangan kewangan, aktiviti operasi dan kecekapan pengurusan. Oleh itu, kajian ini bertujuan menilai hubungan nisbah kewangan dengan prestasi kewangan firma. Menggunakan teori pihak berkepentingan, teori agensi dan teori isyarat, empat hipotesis yang berkaitan dengan nisbah kewangan dan prestasi kewangan dicadangkan. Pulangan ke atas aset dan pulangan ke atas ekuiti adalah pembolehubah bersandar, manakala kecekapan kecairan, keberhutangan kewangan, aktiviti operasi perniagaan dan kecekapan pengurusan adalah pembolehubah bebas. Penyelidikan ini mengkaji penyata kewangan yang diterbitkan daripada 66 firma perkilangan Nigeria yang disenaraikan yang meliputi tempoh tahun 2011 hingga 2015, memberikan jumlah pemerhatian sebanyak 330. Data tersebut dianalisis menggunakan statistik deskriptif, ujian korelasi dan regresi linear pelbagai melalui versi EVIEWS8. Penemuan keseluruhan kajian mendedahkan kecekapan kecairan (jurang tunai), kecekapan keberhutangan (jumlah hutang kepada jumlah aset) dan saiz firma menunjukkan hubungan positif yang signifikan dengan kedua-dua pulangan ke atas aset dan pulangan ke atas ekuiti. Selanjutnya, penemuan menunjukkan bahawa kecekapan keberhutangan (hutang jangka panjang kepada jumlah ekuiti) mempunyai hubungan positif yang signifikan dengan pulangan ke atas ekuiti. Kajian ini akan menambah kesusasteraan sedia ada dengan mengaplikasikan kebimbangan teori pihak berkepentingan dengan pengurusan berorientasikan pihak berkepentingan untuk meningkatkan keuntungan. Teori agensi akan membantu keputusan pembiayaan hutang yang optimum untuk meningkatkan keuntungan secara maksima dan teori isyarat membantu untuk mendedahkan kejayaan atau kegagalan firma melalui nisbah kewangan. Secara praktikal, kajian ini akan memberi manfaat kepada pengurusan syarikat perkilangan Nigeria dalam peningkatan prestasi kewangan. Selain itu, ia akan membantu pemilik, pelabur, kerajaan dan perunding pengurusan berhubung dengan pembuatan keputusan yang berkaitan dengan syarikat perkilangan Nigeria.

Kata kunci: Nisbah kewangan, prestasi kewangan, firma perkilangan Nigeria, pihak berkepentingan

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LIST OF ABBREVIATIONS

Abbreviations	Meanings
ARGR	Average Revenue Growth Rate
AROA	Average Return on Assets
AROE	Average Return on Equity
CBN	Central Bank of Nigeria
GDP	Gross Domestic Product
IFRS	International Financial Reporting Standards
MAN	Manufacturers Association of Nigeria
MDG	Millennium Development Goal
NBS	National Bureau of Statistics
NMF	Nigerian manufacturing firms
NSE	Nigerian Stock Exchange
PAYE	Pay As You Earn
SEC	Securities and Exchange Commission
TSA	Treasury Single Account

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Manufacturing is the production of merchandise or finished product by converting materials from their raw stage to its consumable stage for individual or industries use or sale, through an organised or proper coordination of factors of production. It is usually focused on production of larger quantity for customers with the aim of generating a reasonable return for the shareholders and other stakeholders. It is closely connected with industrial design and all the activities involved in the engineering process (Carr & Hasan, 2008).

The manufacturing sector is the engine of every economy (Herman, 2011). Therefore, to compete favourably in the world economy, the nation must put on her best at producing goods and services through vibrant manufacturing sector and reduce over dependence on imported goods in order to enhance economic growth and development (Onuoha, 2013). For the attainment of this objective, there is need to evaluate and assess from time to time the performance of these manufacturing firms to attest to their pace towards the achievement of the nation's goal (Khalifa & Shafii, 2013). The diversification of the economy from oil to agriculture, mining and manufacturing is the aim of the government of Nigeria. Efforts are being made to boost investment in the manufacturing sectors because studies suggested that one of the remedial action to address the financial constraint facing the firms is by investing more in the sector. Efforts are being put in place by the current administration through policy enactment

and the creation of enabling business environment for the earmarked sectors for economic diversification (Nigerian Vanguard, 2016).

The environment on which organisations exist consists of external and internal environments (Hagos & Pal, 2010). Firm's external environment constitutes its external factors that affect the performance of the firm. Ku, Mustapha and Goh (2010) and Simbo, Iwuji and Bagshaw (2012) studied the external factors that affect the performance of Nigerian manufacturing firms to include weak infrastructure, poor regulatory government policy, multiple taxation, rising cost of capital, over dependence on crude oil, lack of foreign investment, dearth of local skills and technology, and shortage of skilled labour. Among the external organizational factors that affects firm's performance is macroeconomic variables (Ongore & Kusa, 2013). The study revealed these macroeconomic variables as gross domestic product, inflation and interest rate. However, Ku et al. (2010) and Ongore and Kusa (2013) studied that apart from the external factors, firms' internal organizational factors have effect on their performance. The firms' internal affairs were examined through the financial ratios to determine their relationship with firm performance.

Financial ratio is a useful tool that can assist firm management in identifying organisational strengths and weaknesses (Turk, 2006; Agwor, 2014). Lewellen (2008) studied that financial ratios are useful in predicting firms returns. The firms' strengths and weaknesses could emanate from the management decision as regards to liquidity management, mode of financing, asset utilisation, assessment of expenditure/expenses worthwhileness, employee satisfaction, meeting customers' demands, stock holding

volume, among other decisions (Almazari, 2012; Owalabi & Obida, 2012; Mirza & Javed, 2013; John, 2014; Islam, 2014). The internal organisational factors of firm dictate its strengths and weaknesses (Hagos & Pal, 2010). The institute of professional financial managers, London (2009) revealed the strengths of firms to include the possession of variety of competencies, and making profit above the industrial average. The institute pointed that the decrease in sales revenue and excessive operation costs signals firm's weaknesses. However, the focal point of this research to examine the stewardship reports of Nigerian manufacturing firms to enable the evaluation of the management teams' efficacy over time. Because various studies have highlighted financial constraint and management problem as their challenges. These previous studies focused mainly on the external organizational factors with little attention to financial ratios. Therefore, complementing the previous research will be enhanced by the examination of the firms internal.

The internal organisational factors of every business enterprise comprise its internal environment variables that influence its performance (Ongore & Kusa, 2013). the efficacy of these could be evaluated through financial ratios (Agwor, 2014). The overall effects of the organisational internal factors determine how stakeholders' wealth are maximised (Zeckhauser & Pratt, 1985; Maria & Victoria, 2013; Khalifa & Shafii, 2013). Therefore, the organisational internal affairs have a serious impact on firms' financial performance compared to general economic factors (Soderbom & Teal, 2002). This is because stakeholders' wealth maximisation depends mainly on how well firms' affairs are controlled and managed by the management. The management decisions in respect of liquidity management, the optimal capital mix and asset utilisation constitute the overall wealth maximisation for the stakeholders

(Eljelly, 2004; Lahtinen, 2009; Bhunia, 2010). These are decisions in respect of managing firms' liquidity, financing decision, assets employment and utilisation, non-incurring of non-value-added costs. The effectiveness in the management of these variables helps organisations in attaining financial soundness (Rowe & Morrow, 1999; Bajkowski, 1999; Ongore & Kusa, 2013).

Firms' management are bound to work toward achieving the business strategic goals and profitability objectives (Lalith, 2011; Odunga et al., 2013; Mirza & Javed, 2013). Financial ratio is a vital tool for evaluating firms' stewardship report. This is because it serves as analytical tool, monitoring device and effective for business planning (Turk, 2006; Delen, et al., 2013; Agwor, 2014). The effectiveness of firms in generating profit from the resources at their disposal is measured via profitability ratios (Pandey, 2001; Horrigan, 2007). The need for stewardship report examination calls for profitability measures of financial performance. This is because the profitability measure is vital to firms' internal and external users of financial statements (Bodie, Robert & David, 2009; Ayad, 2014).

However, the poor performance of the Nigerian manufacturing firms has been source of concern by many scholars for years the poor performance of the Nigerian manufacturing sector has been an area of concern by many scholars over time since the discovery of oil. This is because the role of the manufacturing sector in foreign exchange earnings and in international trade cannot be overemphasised (Banjoko, Iwuji, & Bagshaw, 2012). The study emphasized the importance of manufacturing sector in import substitution, and exporting of finished products to other countries as

obtainable in advanced nations. It is an important sector that aids immensely in economic growth and development (Onuoha, 2013).

Manufacturing sector helps in jobs recovery and contributes greatly to economic development (Houseman, 2014). The fastest channel through which sustainable economic growth and development are attained is arguably through technological innovation, enterprise development and industrial capacity (Olamade, Oyebisi, & Olabode, 2014). Notwithstanding the challenges faced by Germany in 1920s due to chronic inflation, the country has effectively and efficiently exploited the benefits accruing to having a vibrant manufacturing sector. The sector has even risen China to be the country with the largest economy in Asia and the fourth largest economy in the whole world. In addition, the developed and emerging economies of Malaysia, India, China, North Korea and Singapore indicate that there is a positive relationship between the effective and efficient performance of the manufacturing sector and the economic growth and development. The major determinant of a nation's economy in the modern world is manufacturing sector (Banjoko, et al., 2012). This is attainable when it efficiently operates as enhanced by the conducive business environment (Banjoko, et al., 2012 & Amakom, 2012).

However, the unimpressive nature of the Nigerian manufacturing sector since her independence has called for the concern of many Nigerian scholars with the hope of providing solutions for the challenges facing the sector. Many jobs have been lost due to the closure of operations by many manufacturing firms and ailing of the existing ones (Ogbu, 2012; Onuaha, 2013). This posed a great threat to the county's security

situation because the closure of some firms resulted in the layoff of workers and the existing ones are not doing well to meet up with the employee's demands and entitlements. The manufacturing sector is the engine of an economy through which the sustainable development could be achieved (Sola, Obamuyi, Adekunjo, & Ogunleye, 2013). But in contrary, the stage of the sector's advancement in Nigeria has been a source of worry to many Nigerians in comparison to other developed and developing nations (Ku, et al., 2010). This is because of the role the sector could play in improving the country's economy growth and job recovery as revealed by Houseman (2014).

The reverse has been the case for Nigerian manufacturing sector right from the late 1950s, when the nation discovered crude and shifted substantially to oil sector (Onuoha, 2013). This led to the neglect of its prominent developing industrial production base, and hence moved the manufacturing sector to its early burier (Englama, Duke, Ogunleye,& Isma'il, 2010). This has in many ways affected the country's economy by increasing her level of unemployment, underutilization of the manufacturing sector's potential, low standard of living, high level of poverty and posing a security threat to the nation (Adesina, 2013). These problems could be addressed optimally by restructuring the manufacturing sector, which has the potential of providing way and opportunity for job creation and economic development. This is because of the potential of the manufacturing sector in developing an economy, providing quality employment and means of living, and reducing poverty level (Ogbu, 2012). The financial performances of the manufacturing firms have been unimpressive to both the local and foreign investors (Ku, et al., 2010). The study highlighted management incompetency and poor planning as among the factors affecting their

performance. The examination of the firms' stewardship reports was not the focus of the study but concentrated mainly on the political and economic perspectives.

With the commitment of the present administration stake in the economic diversification, there will be perhaps hope for the sector to prosper, for example, an infrastructural development that will aid convenient business operations in the country. However, given the hope and wish to attract more investors into the sector, both locally and internationally, and with the present weaknesses on the financial statements of the Nigerian manufacturing firms as found by many scholars. The weaknesses are due to incompetence in the management team and many other factors (Ku, et al., 2010). It is important to look at the variables that dictate their present financial performance fortune as such may go a long way to demonstrate their areas of strengths to exploit more. However, the weaknesses could be urgently addressed to reposition their strategies and operation activities to make the sector more attractive to the potential investors. This is because business failure could a by-product of bad management (Sharma & Mahajan, 1980). Bodie, Robert and David (2009), Majed, Said and Firas (2012) and Ayad (2014) emphasised the importance of firms' performance in meeting its obligations to creators and attaining shareholders required return on investment.

Performance measurement shows how things are being done whether the primary goal has been achieved and to provide a way out where improvements are necessary (Otley, 1999). Performance measurement helps to reveal the effectiveness and efficiency of the organisation's process as defined in its strategic goals by management, and helps

the company to assess value received from and provided to its stakeholders over the period (Atkinson, Waterhouse, & Wells, 1997). Performance measurement could be related to the three steps through which the responsibility of the organisation is translated into action and effect. These are strategic positioning, resource commitment, and assessment. One of the performance measures for the economic unit is a financial performance measurement. It is used to evaluate effectiveness and efficiency in material and human resource utilisation. These are normally used as the indicators to evaluate the firm's pace toward achieving the organisation's stated strategies, objectives and critical success factor of the organisation. The main objective of financial performance measurement is to examine the operational efficiency and effectiveness.

Therefore, the firms' stakeholders' major concern is the financial performance. The stakeholders' wealth maximisation objectives of firms depend on the efficient management of organisational internal affairs. These are internal environment variables that are controllable by management decisions and strategies. The need for financial performance evaluation in relation to these internal factors is due to decreasing trend of their performance over the period. The use of ratios is an importance measure of firms' financial performance. This will help in evaluating threshold of internal variables and the likelihood of their contribution to firm performance.

1.2 Research Problem

The manufacturing industries sector is one of the most important contemporary economic sectors (Banjoko, et al., 2012; Houseman, 2014). It serves as a mean for foreign exchange earnings, reduction on import consumption, provision of employment opportunity and a source of revenue to the government (Sola, et al., 2013). This sector also occupies an increasing importance in developing nations if necessary mechanisms are in place for it to prosper (Khalifa & Shafii, 2013).

Cavana, Delehaga and Sekeran (2001) opined that research problem does not always indicate the existence of wrongdoing, but also reveals an interest in a given issue to provide a way toward improving the existing scenario. Manufacturing firms' financial performance in Nigeria has declined over a period as evidence from their stewardship reports. For instance, the published annual reports of some selected Nigerian manufacturing firms revealed a decline in the firms' average return on equity from 23% to 2% between the years 2010 and 2014. This could be attributed to corporate failure, which can cause stakeholders significant trauma (Turk, 2006; Lewellen, 2008).

Therefore, the main issue for this research is to examine whether there is an association between financial ratios and firms' performance of Nigerian manufacturing firms. Their poor performance might have resulted from both internal and external factors (Ku, Mustapha & Goh, 2010). Past studies on the performance of Nigerian manufacturing firms by Malik, Teal and Baptist (2006), Ku et al. (2010), Ogbu (2012), Onuoha (2013), Adesina (2013) and Imeokparia (2014) focused mainly on the external factors that mitigate against firms' performance. Pandya and Rao (1998), Almazari

(2012), Khalifa and Shafii (2013), Mirza and Javed (2013), Islam (2014) and Mwangi and Murigu (2015) highlighted the financial ratios that could determine firms' performance to include liquidity management, operational activities, capital structure, management capability, assets structure.

The manufacturing firms in Nigeria are facing many challenges over years, which constitutes major hurdle to effective local and global competitiveness. Onuoha (2013) studied that there is no vibrant manufacturing sector which has the capacity to absorb unemployed youth in Nigeria. There are over 800 collapsed industries in Nigeria and over 37 factories shut down operations in 2009. About half of the remaining operating firms are termed ailing, a situation that poses a greater threat to the survival of manufacturing in the country in the next few years. Studies revealed that decline in their performance resulted in the financial constraint which occasioned non-frequent payment of workers' salaries and wages, and worker layoffs. The NBS statistics revealed that Nigerian manufacturing firms were unable to pay 17.2%, 15.7% and 20.5% of the employees in the year 2010, 2011 and 2012 respectively. Okafor (2011) and Ogbu (2012) itemised the closure of firms and poor performance of some of the firms as among the factors that increased unemployment rate and thereby elevating the poverty level in the country. Banjoko (2012) revealed that the increasing level of unemployment poses a security threat to the nation.

Manufacturing sector's contribution to a nation's Gross Domestic Product (GDP) has reduced drastically over time. The highest pick of this sector was achieved in the year 1982, where it contributed 7.83% of GDP, and ever since then, the sector has been on

downside contributing 4.3% to GDP in the year 2012 (NBS, 2014). According to the Central Bank of Nigeria (CBN), average capacity utilisation of the Nigerian manufacturing sector is 63.6% in the year 1982; 54.9% in the year 2003 and further reduced to 53.5% in the year 2007. However, non-payment of workers promptly and layoff because of the closure of some manufacturing firms and the ailing nature of the existing manufacturing firms might be one of the factors that contributed to the increasing rate of the poverty level in Nigeria (Okafor, 2011; Ogbu, 2012). The study revealed the poverty level in Nigeria at the rates of 28.17% in the year 1980; 65.6% in the year 1996 and 70.9% for the years 1999 and 2007 (UNDP Report on Nigeria, 2007). As a comparison with selected countries, Nigeria is facing a high rate of the population living below the poverty line, as illustrated in Table 1.1

Table 1. 1
Population Living Below the Poverty Line

Countries	**Population below poverty line**
Nigeria	70.00%
India	29.80%
Ghana	28.80%
Indonesia	11.70%
Malaysia	3.80%

Source: Central Intelligence Agency World Fact Book (2014)

As presented in Table 1.1, Nigeria is the country with highest rate of poverty level at 70% as compared to the other selected countries. While Malaysia is least country with poverty level at 3.8%.

In addition, there is an increasing trend in the rate of unemployment in Nigeria. National unemployment rates for years 2000, 2003, 2006, 2009, and 2011 are 13.1%, 14.8%, 12.3%, 19.7%, and 23.9% respectively (NBS, 2014). The high rate of

unemployment in Nigeria can be attributed to the increasing security challenges, and the gradual collapse of the manufacturing sector as one of the exogenous factors for the high rate of unemployment in the country (Adesina, 2013).

Onuoha (2013) suggested among the challenges of Nigerian manufacturing firms relate to deteriorate and poor infrastructures, high production cost, inconsistent government policies in the sector, severe completion from imported goods, limited scope of operation and financial constraints. Ku, Mustapha and Goh (2010) identified the problems of the Nigerian manufacturing sector to include financial constraint, lack of proper management and planning. The study identified incompetency of the management team and the operational workers signify an exist conflict of interest. This is contrary to stakeholders' theory. The efficacy of liquidity ratios and financial leverage ratios could be vital tools for assessing financial constraints as a challenge to the Nigerian manufacturing firms. This is because Pandey (2001) and Agwor (2014) pointed the importance of liquidity ratios in assessing the ability of firms to meet their financial commitment. Also, the long-term solvency of firms is assessed through financial leverage. Therefore, if competence management exists, there may be efficient management of the firms' liquidity to address the trade-off between liquidity and profitability as studied by Eljelly (2004).

According to Alos (2000) gross underutilization of the manufacturing sector is as a result of a frequent power outage, lack of funds to procure inputs, fall in demand for manufactured goods and frequent strike and lockouts by workers and their employers. Assets underutilisation as identified by the study is an indication of asset management

problem. This is because Palmer (2003), Turk, (2006) and Agwor (2014) emphasised the use of asset management ratio/operating activity ratios in assessing the efficiency of a firm in generating sales from its assets.

A glance at the published five-year financial summary of some selected Nigerian manufacturing firms revealed their financial performance measured as average return on assets (AROA), average return on equity (AROE) and average revenue growth (ARGR) between accounting years 2010 to 2014 are presented in Figure 1.1. The graph shows the weak financial performance as the three indicators follows a downward trend over the year.

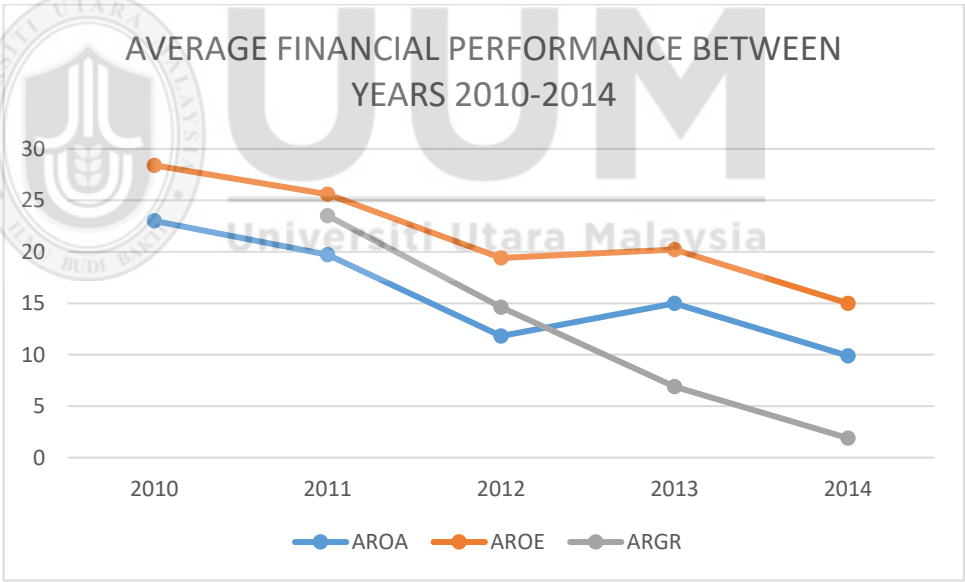


Figure 1.1
Financial Performance of Selected Nigerian Manufacturing Firms

Further, scholars such as Mazaheri and Mazumdar (2005) and Malik, Teal, and Baptist (2006), have carried out researches regarding the performance of manufacturing firms in Nigeria but their studies did not focus on the financial performance of these firms. The studies focused it assessment on the economic and political factors that affect the

firms' performance without recourse to the firms' financial ratios and performance. Otlay (1999) and Lahtinen (2009) emphasised the importance of firms' financial performance measurement. Activities in line with the global best practice that stressed the financial measures of firms' performance as the primary concern of the stakeholders (Horrigan, 2007; Olimpia & Annette, 2010). This underlines the importance of financial ratios in assessing financial performance. On the contrary, past studies on Nigerian manufacturing firms' performance focused on external challenges to the firms.

In addition, modern performance measurement theorists Beischel and Smith (1991) suggested that manufacturing measures should appreciate financial measures somewhere in the measurement system. A vital tool for financial measurement is financial ratios (Admister, 2002; Horrigan, 2007; Agwor, 2014). Therefore, the importance of liquidity ratios and financial leverage ratios in addressing firms' financial soundness could be of help in addressing the financial constraint of the firms. Also, business operating activity ratios and management competency to examine asset underutilisation and management problem. The efficacy of these ratios is important for firm survival (Pandey, 2001; Turk, 2006; Delen, et. Al., 2013; Agwor, 2014). And the major concern of stakeholders is firms' financial performance.

1.3 Research Questions

This research work was carried out to address the following questions:

1. Does firms' liquidity efficiency associate with the financial performance of Nigerian manufacturing firms?
2. Does firms' financial leverage associate with the financial performance of Nigerian manufacturing firms?
3. Does firms' business operating efficiency associate with the financial performance of Nigerian manufacturing firms?
4. Does management competency associate with the financial performance of Nigerian manufacturing firms?

1.4 Research Objective

The broad objective of this research was to examine the association between the internal organisational factors and the financial performance of Nigerian manufacturing firms. This is to provide an insight on how these factors could properly be managed and controlled to enhance improved financial performance. This may help in increasing capacity utilisation as assets underutilization has been one of the issues from previous studies

Other specific objectives are:

1. To examine the association between liquidity efficiency and the financial performance of Nigerian manufacturing firms.
2. To examine the association between financial leverage and the financial performance of Nigerian manufacturing firms.

3. To examine the association between business operating efficiency and the financial performance of Nigerian manufacturing firms.
4. To examine the association between management competency and the financial performance of Nigerian manufacturing firms.

1.5 Scope of the Study

This research examined the stewardship reports of manufacturing firms in Nigeria about their internal organisational factors associated with financial performance. This work focused on the listed manufacturing firms in Nigerian Stock Exchange (NSE) using their published annual financial statements between periods of 2011 to 2015 accounting years. These periods were chosen because the listed firms in Nigeria are mandated to prepare their financial statement for 2012 in accordance with IFRS, alongside with 2011 as a comparative report (Madawaki, 2012). Mandawaki (2012) noted the ease of firms' annual reports comparison as one of the advantages of the adoption of IFRS. Further, this study period covers until 2015 due to the availability of recent annual reports.

1.7 Summary of the Chapter

This research is carried out to address the prolong challenges that have been facing the Nigeria manufacturing sector over periods, resulting in weak financial performance. The research is relevant because the previous researchers either did not focus on the quantification of their findings and a comprehensive assessment of financial performance of these firms. The approach is through the examination of their financial performance by looking at the internal organisational factors to evaluate the nature and the degree of correlation to channel a way out for enhancing improvements on capacity

utilisation of the firms. The examination was done through financial ratios analysis as they help in assessing the financial health of organisations and help in predicting their prospects. The extent to which financial performance responds to the level of firms' liquidity, financial leverage, business operational efficiency, management competence, sizes and ages of the firms was critically examined using the appropriate analytical tool. It is hoped that this research will help in addressing the problems faced by the Nigerian economy by enhancing the higher rate of contribution to Gross Domestic Product of the manufacturing sector, increasing employment rate and encouraging more investment from local and foreign investors. It contributes to the existing theories such as stakeholders' theory, agency theory and signalling theory as theoretical basis for assessing business financial performance and serves as a reference work for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the related literature to the factors affecting the financial performance of Nigerian manufacturing firms. A review is made on the scholarly articles and journals regarding Nigerian economic conditions and position. Further views and evaluation of the Nigerian manufacturing sector by various scholars are reviewed and examined to know the areas of strength and weaknesses of the sector. In addition, the performance and financial performance positions, models and ideology are critically reviewed to pinpoint the gaps in the literature. The supporting and the underpinning theories is highlighted and justified. The rest of this chapter is arranged into subsections as 2.1 histories of the Nigerian economy, 2.2 firms' performance, 2.3 internal organisational factors and firms' financial performance, 2.4 underpinning and supporting theories and 2.5 limitations and gaps from the reviewed literature and 2.6 summaries of the chapter.

2.2 History of Nigerian Economy

Nigerian economy has been oil dependent as the major player in the economy (i.e. mono-economy), in which highly depends on oil since her independence in 1960. The negligence of the other sectors due to over-reliance on oil sector has perhaps contributed to its present economic dispensation as a result of the global fall in crude oil price (Uwakonye, Osho, & Anucha, 2011). This decline in oil price has significantly affected the economy of Nigeria considerably resulting in the closure of many firms and loss of jobs across the country. This is evidenced in Table 2.1 below

showing the unemployment rate in the country between the years 2000 to 2011. The table revealed that the unemployment rate in Nigeria increased from 13.1% in year 2000 to almost double (23.9%) in year 2011.

Table 2. 1
Unemployment Rate in Nigeria

Year	Unemployment Rate
2000	13.10%
2001	13.60%
2002	12.6%
2003	14.80%
2004	13.40%
2005	11.90%
2006	12.30%
2007	12.70%
2008	14.70%
2009	19.70%
2010	21.10%
2011	23.90%

Source: NBS (2011)

Many scholars have attributed this increasing trend of the unemployment rate to the system economy the country operates. The main economic sectors of Nigeria as presented NBS (2014), which include agriculture, mining and quarrying, manufacturing, waste management and remediation, electricity, gas steam and air conditioning supply, water supply, sewerage, trade, accommodation and food services, information and communication, transportation and storage, arts entertainment and recreation, construction, finance and insurance service, real estate, public administration, professional scientific and technical services, education, administrative and support services, human health and social services, and other services activities.

The sectoral growth rate on contribution to gross domestic product (GDP) in the year 2015 is presented in Table 2.2. As presented in Table 2.2, manufacturing sector is having the least GDP growth rate as compared to other sectors. From the table, it shows that manufacturing is the only sector that recorded negative GDP growth rate in year 2015.

Table 2. 2
Contribution of Major Economic Sectors in Nigeria to GDP

Sectors	**GDP Growth Rate**
Others	21.60%
Finance and Business Service	7.50%
Telecommunication and Post	6.25%
Wholesale and Retail Trade	5.20%
Construction	4.75%
Solid Material	4.31%
Agriculture	3.83%
Hotel and Restaurant	3.51%
Crude Petroleum and Natural Gas	2.14%
Manufacturing	-1.75%

Source: NBS (2015)

In 2016 Index of Economic Freedom, Nigeria economy is ranked 16th with a regional ranking of 20th (World Economic Ranking, 2016). Nigeria has put on the necessary strategies in place to pursue economic reform to enhance management of public finance and make business regulations more efficient, but in contrast, the oil sector continues to dominate the economy and limited privatisation progress. However, the general overview of Nigerian economy shows that it has attained economic growth with a real GDP of 7% in 2015 against 6.3% in 2014 (Barungi, Ogunleye, & Zamba, 2015). The main driver of the economy for the period are services contributing 57%, manufacturing 9% and 21% agriculture of GDP; which indicate that non-oil sector has played a commendable role over the period. This situation shows an indication of

economic diversification, but majorly through service oriented like retail and wholesale trade, real estate, information and communication.

Non-oil sectors are expected to be the major driver of the economy because of oil-price instability and global financial development that has led to a sharp decline in fiscal revenue accruing to the government. Many strategies have been put in place by the government through proper and efficient control of government expenditures and reviving non-oil revenue generating sectors. This is to compensate for dwindling oil revenue of which manufacturing sector is earmarked to play a major role. The government also is aware of the security issues as key challenges to industrial development and thus contributes to low economic growth and development. The need to overcome geographical and socioeconomic barriers is also important as they are detrimental to achieving inclusive economic growth and sustainable development.

Based on NBS 2014, manufacturing sector's GDP contribution increased from 2.5% in the year 2009 to 9.0% in the year 2013 which is an indication of hope for the future prospect of manufacturing industry. However, Barungi et al. (2015) identified the Nigerian economic system strengths and weaknesses as follows:

Private sector

The World Bank's report (2015) ranking of Nigeria has increased from 175th to 170th out of 189 on its report doing business in Nigeria. This improvement was credited to the overall performance of starting a business and getting creditor as two of the ten

indicators, but the challenges are still posed by the increase in the cost of regulatory processes top most which are physical infrastructure and regulation.

Financial sector

Various reforms in the financial sector have strengthened the sector which paves way for strong and large banks, thereby leading to effective and efficient payment system and financial infrastructure well improved. The improvement in the banking sector has been witnessed over time with a decrease in the incidence of non-performing loans. In addition, Nigeria is second to South Africa as having one of the most liquid capital markets in the Africa region. Nigerian Stock Exchange (NSE) has over 200 listed companies and putting more efforts through business-enabling environment for more or to attract more companies in no distant time. However, the aggregate market capitalization has reduced drastically by a drop of 26.6% at the end of 2014. This was occasioned through disposal of investment by foreign investors because of currency fluctuation and steady decline in Nigerian external reserves due fall in global oil price and economic down-tune

Public sector management, institution and reform

To enhance an enabling environment for business to prosper amid fall in oil price, many reforms have been put in place to generate sustainable and inclusive economic growth and development, the reforms provide a way for transparency and accountability in public sector management which witness and the introduction of Treasury Single Account (TSA) by the Nigerian government.

Natural resource management and environment

There is no doubt that Nigeria is blessed with natural resource abundance of which crude oil is the foremost because it accounts for over 70% of government revenue and over 90% of her exports earnings. But due to fall in the oil price, Nigeria has been adversely affected by the trend which negatively affected her economy for both years 2014 and 2015, in addition to the lower level of a domestic product of the crude oil due to oil theft, pipeline vandalism and political instability.

Political context

The peaceful transition from one administration to the other via opposition party has gained world commendation as it was accorded free and fair in the history of the country political system. This will enhance the conducive business environment for both local and foreign investors.

Social context and human development

The year 2013 human development index of Nigeria witness an increase from a rank of 0.471 in 2012 to 0.504 in the year 2013 but remains a low human-developed country. The achievement has been made through Millennium Development Goals (MDG) with little challenges. Several policies have been put in place by the government aimed at improving access to education and health, most importantly female education.

Nigerian economic policy for the year 2016

According to Nigerian Vanguard (2016), as reported by Levinus Nwabughiogu "President Muhammadu Buhari said his administration would pass new policies for economic diversification from oil to other sectors such as Agriculture, Manufacturing and Mining". It was noted by Chris, Amujiri, and Nwuba (2015) that it is known globally that economic growth and development could only be attained through economic diversification. However, the preferable way to attain the diversification is by developing a serious paradigm shift in economic policies and complementary, whereby the political will affects such changes in policies. The argument was supported by emphasising on the non-renewable nature of oil on which it over dependent is very risky. Chris et al. (2015) recommended the economic diversification of agriculture, manufacturing and industrial sectors, and that these sectors should be well funded and equipped to ensure good output and contribution toward economic growth and development of the nation. There is a positive correlation between economic diversification from oil to other sectors and the Nigerian economic growth and development, and this could be achieved through investment in agriculture and manufacturing according to Maria (2015).

However, the performance of the manufacturing sector is still not encouraging as the growth rate of GDP in first-half 2014 and 2015 are negative, evidenced in Table 2.3. Table 2.3 reveals that all sectors recorded improvement from first half of 2014 to first half of 2015 with the exception of manufacturing and mining and quarrying sectors. Both sectors experienced negative growth in the first half of 2015. This is an indication of poor performance of the sectors.

Table 2. 3
GDP Contribution of Sectors for First Half of 2014 and 2015

Sectors	First Half 2014	First Half 2015
Manufacturing	23.40%	-6.80%
Trade	15.00%	31.60%
Agriculture	14.90%	27.40%
Information and Communication	14.10%	31.20%
Construction	9.50%	12.40%
Real Estate	5.00%	7.50%
Finance and Insurance	4.00%	8.20%
Accommodation and Food Service	2.90%	2.40%
Mining and Quarrying	-1.80%	-23.10%

Source: NBS (2015)

2.2.1 Overview of Nigeria Manufacturing Sector

Nigerian manufacturing sector performed with satisfactory growth potential between periods of 1970 to 1980. However, the recorded growth and profitability declined significantly from these periods as demonstrated by Adenikinji (2002) and Anyanwu (2000). The studies evident that after 1983, the inverse impact of the fall in oil prices that drastically reduced government revenue and foreign exchange earnings, thus forced the government to initiate several policies to regulate her economy. This involved restriction on importation that affected the manufacturing sector in sourcing raw materials. It resulted in the closure of operations by many firms and declined capital utilisation of the existing firms in the industry. The real output of the sector reduced by 25% between the years 1982 to 1986 as the consequence of trade restriction (Dipak & Ata, 2003). However, certain measures were put in place like reduction of the tariff, trade policy on the manufacturing sector and export promotion were later put in place by the government to arrest to the problems of the sector (Adejugbe, 1995). Anyanwu (2000) noted that the Structural Adjustment Programme (SAP) was initiated in 1985 to address the challenges of manufacturing sector but proved

ineffective in addressing the problems. Thus, Nigeria is one of the world poverty-driven nations.

Ukaegbu (1998) observed that there is complexity in conducting a complete assessment of Nigerian manufacturing sector productivity due to the inadequacy of data. However, the macroeconomic data of the sector does not portray a good image of the sector in term of contribution to gross domestic product of Nigeria (Ayanwale, 2007). He suggested that though foreign investment in the industry is advantageous to the economy in general, but financial resources could be effectively and efficiently utilised when human resources issues are well addressed. Manufacturing sector engaged mostly unqualified and unskilled labour due to inability to skilled labour well (Malik et al., 2006). In addition, the capacity utilisation of the sector declined to 35% as a result of diminishing in numbers of major players in the sector (Ayanwale, 2007). This was occasioned by unfavourable government policies as noted by Alli (2008). Hence, there is a short supply of foreign investment and skilled manpower in the sector.

However, Alli (2008) appraised the performance of the Nigerian manufacturing sector from the Manufacturers Association of Nigeria (MAN) survey of 2007. The result showed that only 10% of the sector is operating at a sustainable level and about 60% of the sector shut down operations or facing a financial crisis. The study noted that manufacturing is the backbone of a nation's economic advancement. The manufacturing sector has a fundamental influence on the economy of any nation from which a substantial positive impact is achieved on the economies of developed nations

like China, United State of America, Germany and others. However, Nigeria in the contribution of the sector to the country's gross domestic product (GDP) is below 10% annually despite many initiatives put in place by the various administrations to boost the performance of the sector over several periods since her independence since 1960 (Banjoko et al., 2012).

The activities of the Nigerian manufacturing sector are grouped into sub-sectors as presented in Table 2.4.

Table 2. 4
Sub-sectors of Nigerian Manufacturing Sector

1	Food, Beverages and Tobacco	7	Textile, Apparel and Footwear
2	Wood and Wood Product	8	Pulp, Paper and Paper Product
3	Chemical and Pharmaceutical Product	9	Non-Metallic Products
4	Plastic and Rubber Product	10	Electrical and Electronics
5	Basic Metal, Iron and Steel	11	Other manufacturing
6	Motor Vehicle & Assembly		

Source: NBS (2014)

The manufacturing has contributed approximately 10% of Nigerian Gross Domestic Product before the oil boom in 1970's, which since then the sector has been under-performing due to over-reliance on oil in part of the government and mismanagement by the management team in charge of the firms' stewardship (Ku et al., 2010). The highest pick of its contribution to gross domestic product (GDP) after the oil boom period was attained in 1982 as evidenced by some selected years' contribution to GDP as presented in Table 2.5 below. As presented in Table 2.5, manufacturing sector's contribution to GDP decreased from 7.82% in 1982 to 4.3% in 2012. The trend indicates the contribution of manufacturing sector decreased almost double throughout the period

Table 2. 5
Manufacturing Sector's Contribution to GDP for Selected Years

Year	Contribution to GDP
1982	7.82%
1987	5.80%
1992	5.60%
1997	4.72%
2002	3.81%
2007	4.10%
2012	4.30%

Source: NBS (2014)

Okafor (2011), Ogbu (2012) and Banjoko (2012) pointed that the underperformance of this sector occasioned with assets underutilization is among the factors that contributed to the high rate of unemployment in the country as the total number person employed has been decreased between the year 2010 to 2012 as shown in Table 2.6. Table 2.6 shows that the percentage of manufacturing sector's employment opportunity increased from year 2010 to 2011 but decreased in year 2012. This could be as a result of the closure of some firms as studies revealed.

Table 2. 6
The Aggregate Number of Employment Offered by the Nigerian Manufacturing Sector

Year	The Number of Labour Engaged
2010	2,880,973
2011	3,029,884
2012	2,981,082

Source: NBS (2014)

However, the total number of labour paid for are less than the number engaged. This perhaps is the cause for frequent strike action by the employees of the sector as notified by Alos (2000) in his study. The report showed that the labour engaged were not totally paid as 82.8%, 84.3% and 79.5% of the total labour engaged were paid. This is a signal of industrial failure and financial performance weakness, and hence incompetence by the management team. Many manufacturing firms have close operations totally and

the remaining being described “ailing” and under-performing in meeting their immediate financial commitments as presented by the Manufacturers Association of Nigeria (MAN) 2010. This persistent fall in operating activities of Nigerian manufacturing firms resulting to low contribution to gross domestic product (GDP) and poor financial performance has thrown many scholars into the field of research to identify the major issues in anticipation of providing adequate measures, but the issue seems to be unresolved this moment.

2.2.2 Performance of Manufacturing Firms in Nigeria

Manufacturing firms in Nigeria have been under-performing since the discovery of oil in the 1970s, which has resulted in the sector’s low contribution to the country’s Gross Domestic Product (GDP) compared to their counterparts in the developed nations and even other developing nations in Africa and Asian regions. This is not without its consequences as the rate of unemployment has escalated due to the closure of some firms and ailing in part of the existing ones resulting to the low standard of living thereby increasing the percentage of Nigerian population living below the poverty line. This has as well served as a major contributory factor to the current security challenge in the country. The major causes of this are because of poor infrastructure development, high cost of production, limited in their scope of operation, government policy inconsistency, financial constraint, over-dependent on oil, incompetency in part of the firms’ management, lack of planning, frequent labour strike and poor investment in the sector because of unattractiveness of their financial performance. These are evident from the studies by Söderbom and Teal (2002), Malik et al. (2006), Ku et al.

(2010), Banjoko et al. (2012), Ogbu (2012), Onuoha (2013), Sola et al. (2013), Adesina (2013), Imeokparia (2014) and Olamade et al. (2014).

The survey of an enterprise carried out by Soderbom and Teal (2002) identified demand factor as domestic and foreign, and supply factor as infrastructure and the cost of production as explanatory variables in manufacturing firms' performance. They recommended that efficiency will lead to increase in performance and more likely increase in investment and hence reduces management-labours' loggerhead by providing means of paying workers promptly. The study pointed out that it is good to identify factors that will improve efficiency. However, the research did not focus on pointing out those efficiency factors and the mode of their identification that would have aided in evaluating the firms' performance either as the responsibility of the management or otherwise.

The management operational activities regarding target costing as a factor affecting manufacturing firms' performance expressed through profitability, return on capital employed, reduction in the cost of production, and the level of its adoption. It signified the strong relationship between the adoption of target costing and return on investment and cost reduction, which are analysed through least squares, t-test and Pearson correlation as the statistical tools (Imeokparia, 2014). They proved that the application of target costing by manufacturing firms in Nigeria will improve their performance, but clearly noted that the level of its adoption is very low across the sector. Manufacturing firms were encouraged to adopt target costing to boost their performance. The research was a survey research through a structured questionnaire.

The focus of this research was mainly on cost related variables. Other internal organisational factors were not focused. The assessment of their performance via costing alone may not show the through a picture of the factors responsible for their performance. The research was limited in scope by avoiding other explanatory variables of firms' performance in part of management expertise. This could not give an overview assessment of the firms' internal operating environment. In addition, the study was also focused on manufacturing firms located in only a geographical zone (south-western) of the six in Nigeria.

Malik et al. (2006) investigated the performance of Nigerian manufacturing firms through the report on the Nigerian Enterprise survey 2004. The report itemised trade and environment, infrastructure, productivity and profitability, and finance as the determinants of their performance. The recommendation was made on the need for more funds for the sector by making loans available to them by banks of industry and commercial banks to aid increase in their productivity toward achieving higher profitability. In addressing the issue of trade environment and infrastructure, Malik et al. (2006) advised the government to provide a conducive business environment that will attract both local and foreign investors by way of eliminating corruption and initiate productive and business-friendly policies. The major pitfall of this study is that there is no quantifiable evidence backing up the loan advice because more loans may be counterproductive depending on the nature of the relationship between firms' financial performance and financial leverage. Malik et al. (2006) noted their difficulties and limitation on too much reliance on qualitative and subjective data.

Ku et al. (2010) are among the scholars having a concern on the challenges of Nigerian manufacturing firms. In assessing the performance of the firms, foreign investment, crude oil, labour, the management team, finance and infrastructure are the variable used to explain the performance of the Nigerian manufacturing firms. The data which are analysed qualitatively demonstrated that foreign investment has a positive impact on the performance of manufacturing firms between the period 1960-1970 and the investment seem to have disappeared with time. They noted the major problems of the firms as over-dependent on oil, weak infrastructure, and incompetence in the management of the firms, lack of proper and productive planning, shortage of skilled labour and financial constraint. However, the analysis of their stewardship reports evaluating the extent to which the firms' internal affairs affect their financial performance was not the focus of the research. Moreover, the subjective measure seems to be inadequate in assessing firm performance when accounting records are available for quantification (Rowe & Morrow, 1999). Hence, no measures were provided in addressing the identified problems most especially the financial constraint.

The manufacturing sector has immense positive externalities as its importance cannot be overemphasised in developing an economy, providing employment opportunities, reducing the poverty level and contribution to the nation's gross domestic product (GDP) (Ogbu, 2012). However, Nigeria case is less impressive as it is lacking behind in all aspects of its benefits to economic growth and development, and its contribution to GDP is far lower as compared to some selected countries as shown in Table 2.7 below. Table 2.7 indicates that Nigerian manufacturing sector's contribution to GDP of 4% is significantly low as compared to the other selected nations, such as Thailand which has the highest contribution of 35%.

Table 2. 7
Contribution of Manufacturing Sector to GDP for Selected Countries

Countries	Contribution to GDP
Thailand	35%
Malaysia	34%
Indonesia	28%
Brazil	20%
Nigeria	4%

Source: Ogbu (2012)

Ogbu (2012) noted that the absence of real manufacturing sector contributed to the downfall in the Nigerian economic growth and development and one of the factors for the rising levels of poverty in the nation. This is because the Nigerian industrial policy for the promotion of the manufacturing sector might not be effective like other nations. The study concentrated mainly on the external factors that have an impact on the performance of the firms without accord any relevance to the internal operating activities of firms.

The economic meltdown has significantly affected Nigerian manufacturing and has resulted to underperformance in their operational activities (Kolade, 2012). The study tested the dependence level of their profitability to technological changes, instability in government tax policies and regulation, and war as explanatory variables using the regression analysis for profitability functional. In addition, output-turnover ratio, employment, the share capital of the firms and levels of employment were among others considered. It was demonstrated that the output-turnover ratio is the most significant determinant factor of profitability and reduced drastically during the economic meltdown period. The research analysed the situation without a clear focus on what it intended to solve and as well not comprehensive enough to address various determinants of financial performance as demonstrated by Khalifa and Shafii (2013).

Hence, address very few of the current challenges that affect the financial performance of the manufacturing firms.

A 50-year analysis of the performance of the Nigerian manufacturing sector addressing the growth and retrogression between the period of 1960 (i.e. Since the date her independent) to the year 2012 showed that the sector witnessed more of retrogression than growth in all ramifications (Banjoko et al., 2012). They noted that the state of their health has contributed immensely to the current security challenge of the country as a result of idle minds of unemployed youths since the role of the manufacturing sector in jobs provision cannot be overemphasised. Banjoko et al. (2012) attributed the problems of the sector to poor in government regulation, unfriendly business and investment environment, lack of modern technology application on their operational activities, poor infrastructural facilities and multiple taxations. However, the hope of conducive business environment has been guaranteed by the present administration's focus on economic diversification and such may help in addressing multiple taxation problems.

In addition, the global competitiveness, Nigerian manufacturing firms was assessed to see the factor responsible for backwardness through a qualitative approach by Onuoha (2013). Deterioration and poor infrastructure, higher production cost, inconsistency in government regulation, the threat of competition from import goods from other countries, underutilization and limitation in the scope of operations, and majorly financial constraint due to the unattractiveness of their financial performance. The study noted that if efforts toward initiation of business-friendly policies by

government, serious efforts by the firm's management team make them more attractive to the investors and much expenditure on research and development will surely go a long way to improving the performance of the firms. The study opens the door for more research on the firms to assess their financial performance to evaluate the extent of their management incompetence and financial constraint remedial actions.

Further, manufacturing firms' performance has a negative correlation between the investment, exchange rate and export and import as demonstrated by Sola et al. (2013). Investment, the exchange rate and export and import were used as the explanatory variable manufacturing performance in Nigerian testing its sustainable growth implication. The data were analysed using the mean and standard deviation of gross domestic product (GDP) as presented by the National Bureau of Statistics (NBS). The major determinants of the firms' performance are found to be an investment, exchange rate and export and import. There should be more investment in the sector to enhance their performance (Sola et al., 2013). However, to attract more investors in the sector, there is a need for sound and healthy financial performance of the firms. The need for assessing the management's stewardship report is fundamental.

In an attempt to address the issue, Ojo and Ololade (2013) tested globalisation and trade openness to see how they could explain the performance of Nigerian manufacturing firms in the globalisation era taking into consideration the output of the firms between periods of 1980-2009. The ordinary least squares of regression showed a very strong correlation between trade openness and globalisation with the firms'

performance. They recommended that the firms should be well positioned because they stand the chance to benefit from globalisation. The repositioning recommendation here needs to look beyond the external to the internal affairs of the firms. The use and application of strategic information and communication technology will address some of the problems of manufacturing firms and help in expanding their scope of operation to enhance them the effective global competition (Olamade et al., 2014).

The attempt by these scholars to address the challenges of Nigerian manufacturing firm do not accord importance to their accounting records notwithstanding the internal operations and management issues discovered by most of the studies. In comparison to the study by Khalifa and Shafii (2013) and Xu and Banchuenvijit (2014) that assessed the firms' financial performance via accounting records. These were to examine the effect of an internal organisational factors on financial performance through their financial statements. Their studies evaluated the firms' financial statements to assess the cause of their financial performance weakness. And, to determine how well the firm's management team are operating toward achieving the firms' goal and objectives.

However, attempts to assess the financial health of Nigerian manufacturing firms via their financial statements found that solvency liquidity management, capital structure and corporate social responsibilities are significant to the firms' survival. The effective strategies regarding these factors will strengthen the firms' reputations and competitive advantage as demonstrated by Owolabi and Obida (2012), John (2014), Hur-Yagba et al. (2015) and Togun and Nasieku (2015). The effect of liquidity

management on the profitability of some selected manufacturing firms in Nigeria showed that the variables have a significant relationship with the firms profitability (Owolabi & Obida, 2012). In this study, credit policies, cash flow management and the cash conversion cycle were used as independent variables in relation to corporate profitability measured by return on assets, and return on investment, return on equity from the firms' annual reports and financial statements.

John (2014) confirmed the impact of the capital structure of Nigerian manufacturing firms on their performance measured by return on assets and return on equity using Pearson correlation and regression analysis as analytical tools. Long term debt to equity (LDE), debt to common equity (DCE), short-term debt to total debt (SDTD), and debt to capital (DC) were used as independent variables and age of the company ((AGE) as the control variable. The result showed that DC, DCE, SDTD & AGE are significant and related to return on assets and return on equity positively while LCD significantly related to return on assets and return on equity with opposite direction. It was established that a significant relationship exists between return on assets and return on equity, and it can be concluded that financial measures are the indicator of financial strength, weakness, opportunity and threats of any firm.

In addition, the financial health of Nigerian manufacturing companies was analysed to determine their solvency or insolvency position by Hur-Yagba et al. (2015). Working capital to total assets, retained earnings to total assets, earnings before interest and taxation to total assets, sales to total assets, and market value of equity to book value of total debt were used as independent variables and solvency (insolvency)

used as the dependent variable. The data were analysed through correlation analysis, student t-test and Z-score for the two selected companies recommended the use of Altam multiple discriminate analysis models (AMDAM) and financial ratios in detecting the sign of failure in companies.

Further, corporate social responsibility does not only improve the performance of firms, but also strengthen their legitimacy, reputation and competitive advantage building (Togun & Nasieku, 2015). The performance of manufacturing firms in Nigerian in relation to their corporate social responsibility (CSR) was evaluated by Togun and Nasieku (2015) using expenditure on free education, contribution to youth development, health care, and environmental benefit as explanatory variables to the firm's performance using descriptive analysis. The study recommended for other variables the influence firms' performance as corporate social responsibility alone is deficient. The literature revealed that a comprehensive assessment of their financial performance has not been studied as any of the attempts to evaluate the Nigerian manufacturing firms' financial performance were either limited in scope or deficient in the methodology or the analytical tool.

2.3 Firms' Performance

Performance could be viewed as the ability of an organisation to manage, control and coordinate the resources at its disposal in several ways to gain competitive advantage toward achieving the business goal and objective (Xu & Banchuenvijit, 2014). The quantifications of the firms' efficiency and effectiveness in achieving the organisation's goals and objectives are performance measurement. It is the quantitative

means of assessing the firms' management ability to achieve results with little resources and the achievement of the planned strategic goal of an organisation (Neely et al., 1995).

Performance measurement could be viewed as the control areas for management (Parulian & Robert, 2007). The success of results compared to some benchmark as a result of executing an action is termed performance measurement as demonstrated by Bourguignon (2004) and Pietro & Luca (2014). Firm performance is a vital concept of business strategy, but has no consensus definition among scholars because of its complexity and dimensionality. Hence, firm performance measurement addressing the stakeholders' requirements is vital in evaluating how efficiently the firm is, as validated by the stakeholders' theory (Santos & Brito, 2009).

Neely et al. (1995) identified three levels of performance measurement system to include individual performance measures, entity performance measurement and measuring the correlation between the performance measures to the environment it operates. It was exhibited that individual measures are a subset of the entity performance measurement system, and entity performance measurement system is as well the subset of the environment measurement system. The environment has much impact on the performance of the organisation and hence dictates its fortune (Neely et al., 1995). They noted the various categories of measures in performance measurement to include inventories, variance and labour performance, capital appropriations, spending for controllable and non-controllable expenses.

Performance measures could be made in relation to quality through which its associated costs are prevention cost, appraisal cost and failure cost in accordance to the studies by Neely (2005) and Hassan, Mukhtar, Qureshi and Sharif (2012). Also in relation to time as a competitive advantage as established by Neely (2005). Further, they could be viewed in relation to the flexibility of which time, range and cost are identified as flexibility dimensions (Neely, 2005). Their studies found that effective manipulation of organisational internal factors as related to cost doing business determines firms' performance. Hence, the cost tends to change with time and the range of business.

However, Kaplan and Norton (1996) showed four performance measurement perspectives termed "balanced scorecard" through which sufficient information should be made available to the managers by performance measurement system. The four perspectives are financial perspective, internal business perspective, customers' perspective and innovation and learning perspective. The study evident that these four perspectives are interwoven in achieving organisation strategic goal, Similarly, the process of measuring firms' performance could be harnessed through accounting perspective (Otley, 1999), marketing perspective (Clark, 2000) and operations perspective (Neely & Austin, 2002). Accounting perspective measures of performance help to review the role and function of organisational financial performance measures. A financial measure of organisational performance plays three main functions including a tool for financial management and as a major objective of the business establishment. It also can be regarded as a mechanism through which motivation and control within the business organisation could be carried out (Otley, 1999). He demonstrated the overlap between the three functions as they complement one another.

Through accounting perspective measures of firms' performance, return on investment/capital employed occupies the apex of the accounting ratios pyramid, and liquidity ratios signify the short-term solvency of a business organisation. However, to satisfy the need of external suppliers of the fund, then the external financial reporting in respect of both debt and equity is required. Shareholders are majorly concerned with the central indicator of performance, which is commonly earnings per share (EPS) to which the firms' operational activities are prerequisites (Turk, 2006).

Further, the confirmatory evidence is provided to investors through accounting perspective measures of performance. This is because investors examine the financial health of companies through their financial statement. In addition, for there to be controlled and motivation, there would be a need for accounting measure of performance by using the firms audited financial statements. This will enhance the evaluation of the firms' critical success factors. In addition, Otley (1999) employed and appreciated the importance of balance scorecard as a good avenue for designing an array of measuring firms' performance. The marketing perspective of performance measures encompasses the firms' effectiveness and efficiency toward market orientation involving intelligence in market information and activities. This also includes how well customers are satisfied, the customers' loyalty to the organisation which speaks on the firms' goodwill, and the brand quality compared to the competitors (Clark, 2000). It was noted that the reasonableness and the comprehensiveness of the approach to use are normally the challenges of the researchers and the managers.

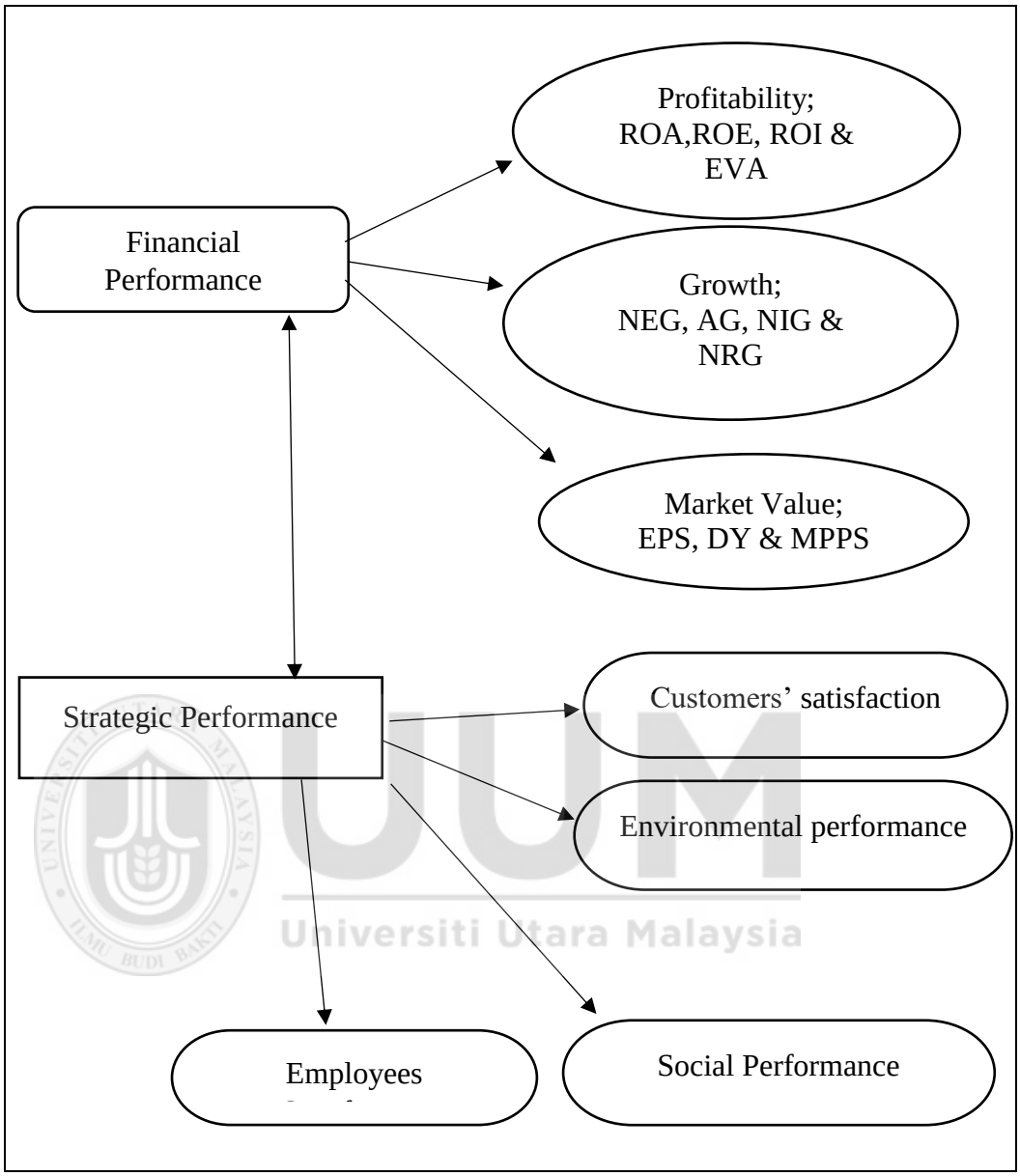
The measurement of the business performance through the operational activities and the employees' performance of an organisation are the operational perspective measure of performance (Neely & Austin, 2002). The importance of technological competence for an improved firm performance, as it is related to market-based performance negatively, but positively correlated with the accounting measures of performance. This is not without being imitated, which necessitates the need for the firm to exploit its current competence and advance for a new one (De Carolis, 2003). This study stressed the need for new knowledge and technology to strengthen the management competency. The theoretical and conceptual facts underpinning the performance measurement field are control theory, motivation theory, agency theory, stakeholders' theory, contingency theory and transaction cost economies (Parulian & Robert (2007)

However, one of the challenges with the literature in respect of performance measurement is its diversity scope portraying that scholars tend to concentrate on various dimensions of performance measurement depending on the situation at hand and the need for the measurements (Neely et al., 1995). With the diversity in performance measures and criteria for its measurement, Globerson (1985) identified the superiority of objectivity to subjectivity in performance measurement and that ratio-based performance criterion is superior to absolute numbers. The study pointed that performance measures should be objectively assessed using firms' data.

In strategic management research, firm performance (precisely, financial performance) is a relevant construct and is normally used as a dependent variable.

Hence, selecting its indicators (determinants) depends on convenience, and hence its dimensionality must not be accorded strict consideration (Santos & Brito, 2012). Financial performance of a firm could be measured in three various ways which are through accounting records, market records or variables and subjective measurement (Rowe & Morrow, 1999). Accounting, market and subjective measures are referred to as multiple indicators of firms' financial performance. Though, the subjective measurement could only be used when records (i.e. Accounting records and market information) are not available to quantify the financial performance of firms. Accounting dimension is one of the most popular strategic resources in firms' performance assessment. On the same vein, Neely (2002) identified three performance measurement as accounting, marketing and operational perspectives and noted that financial performance is accorded consideration inevitably.

Rowe and Morrow (1999) suggested that financial performance and strategic performance are a prerequisite to each other, and dictated by customers' satisfaction, employees' satisfaction, environmental performance and social performance which are a move toward developing or maintaining firms' goodwill by the management. The firms' financial performance is the product of all these put together and could be evaluated through profitability, growth and market value (Rowe & Morrow, 1999; Santos & Brito, 2012). They constructed a financial performance model as shown in Figure 2.1.



Source: Rowe and Morrow (1999) and Santos and Brito (2012)

Where; ROA= return on assets; ROI= return on investment; ROE= return on equity; EVA= economic value added; NEG= number of employees' growth; AG= asset growth; NRG= net revenue growth; EPS= earnings per share; DY= dividend yield and MPPS= market price per Share.

Figure 2.1
Financial Performance Model

This is an indication that the management needs to strategize on optimal use firms' resource to enhance firms' financial performance. Based on the model, satisfaction towards customers, employees, social and environmental performance could be

achieved through strategic policy implementation by the management. In line with this, the researcher evaluated the financial performance of Nigerian manufacturing firms through accounting measures to examine the firms' critical success factors.

2.4 Financial Ratios and Firms' Financial Performance

Financial performance is the organisational earnings, profits and appreciation in share price and revenue growth (Mwangi & Murigu, 2015). Further, it is also regarded as an avenue to satisfy investors. Profitability, market value and growth could be used to represent financial performance (Horrigan, 2007; Agwor, 2014). The indicators to assess the success of economic units of organisation in achieving its stated strategic objective by optimising the firm's critical factors is financial performance (Lahtinen, 2009). The primary objective of measuring financial performance is to enhance determination of operating effectiveness and efficiency toward the business economic units and the financial characteristics as portraying by the firm's financial/annual records and reports (Bhunia, 2010).

The financial objectives of firms are profit, cash flow and return on capital employed. These could be viewed as single objective or multiple objectives based on the firms' strategies (Otley, 1999). The ultimate health and survival of firms are their financial performance. The primary concern of all business stakeholders is the firms' financial performance (Batra, 1999; Olimpia & Annette, 2010; Abdolreza & Mehdi, 2013). Firms' financial performance is influenced by organisation factors and economic factors (Onuoha, 2013). The study revealed that the influence of the organisational factors which include the structure, system, size and industry doubled the economic

factors on the firms' profitability. In addition, Richards, Devinney, Yip, and Johnson (2008) noted that heterogeneous environment and the characteristics of firms have an influence on their performance.

The two performance measures categories are the outcomes and the drivers (Kaplan & Norton, 1996). The accounting measure of firms' financial performance is a return on assets (ROA), return on equity (ROE), return on investment (ROI) and revenue growth (RG). Financial performances of firms are influenced by liquidity management, operational activities, financial leverage, management competence or capability, asset structure, market structure and corporate governance. Their nature and the degree of influence were demonstrated by the various studies of Pandya and Rao (1998), Richards et al. (2008), Liargovas and Skandalis (2008), Lalith (2011), Sudiyatno, Puspitasari and Kartika (2012), Tehrani, Mehragan and Golkani (2012), Almazari (2012), Delen, Kuzey and Uyar (2013), Khalifa and Shafii (2013), Mirza and Javed (2013), Ongore and Kusa (2013), El-Dalabeeh (2013), Odunga, Nyangweso and Nkobe (2013), Ana-Maria and Stancu (2015), Mubin, Iqbal, and Hussain (2014), Adedeji (2014), Borhan, Naina Mohamed and Azmi (2014), Islam (2014), Xu and Banchuenvijit (2014) and Mwangi and Murigu (2015).

Therefore, in assessing the financial performance of firms, financial ratios play an immense role (Pandey, 2001; Horrigan, 2007). Financial ratio is a useful tool that can assist firms' management in identifying strengths and weaknesses (Agwor, 2014). Palmer (2003), Turk (2006), and Agwor (2014) submitted that ratios are useful in firm

performance evaluation because they serve as an analytical tool, monitoring device and effective for business planning.

2.4.1 Liquidity Efficiency and Firms' Financial Performance

The planning and controlling of firms' current assets and short-term obligations in a manner that will minimise the risk of inability to settle the obligations and avoid holding too much net current assets is liquidity efficiency management as suggested by Eljelly (2004) and; Saleem and Rehman (2011). It is vital for firms to hold liquid assets for transactional motive, precautionary motive and speculative motive. However, effective management is required to derive an optimal benefit from its holdings (Horrigan, 2007; Agwor, 2014).

The firms' profitability could be improved significantly through proper management of liquidity. Precisely, the firms' cash conversion cycle should be managed effectively by keeping the optimal level of account receivables (Gill, Biger, & Mathur, 2010). As suggested by Eljelly (2004) there is a variation on the relationship between liquidity and profitability among industries

There is a trade-off between firms' liquidity and profitability. Firms' liquidity positions influence their levels of financial performance in different ways and degrees. The relationship between firms' liquidity could either be positive or negative, significant or insignificant depending on the kind, nature and the environment on which the business exists. These are emanated from the studies of Eljelly (2004),

Nasruddin (2006), Bordeleau and Graham (2010), Saleem and Rehman (2011), Gill and Mathur (2011), Owolabi and Obida (2012), Lartey, Antwi and Boadi (2013), Khalifa and Shafii (2013) and Mwangi and Murigu (2015).

Eljelly (2004) evidenced negative and significant correlation between liquidity and profitability. It was established that at a low level of liquidity, profitability will have an insignificant effect, but the impact is multiple for larger size firms. On the contrary, Nasruddin (2006) evidenced that there is a moderate positive relationship between liquidity and profitability. Through a non-parametric Spearman rank correlation coefficient analysis, the study revealed that at a higher level of liquidity, firms make a higher profit and vice versa.

Mohamad and Saad (2010) found that current ratio has a negative and significant influence on the financial performance of 172 quoted firms in Malaysia. Further, Bordeleau and Graham (2010) evident a non-linear correlation between liquid assets and profitability through a regression analysis. They noted profit improves to a certain level of liquidity and then decrease with further holding beyond that level. They suggested that firms should hold less liquid assets to enhance profit maximisation. Further, the impact of liquidity on profitability indicated that each element of liquidity ratios has a significant correlation with the financial performance of oil and gas companies in Pakistan but on different directions (Saleem & Rehman, 2011). The study measured profitability as return on assets, return on equity and return on investment as responding variable to the current ratio, quick ratio and liquid ratio as independent variables. The liquid ratio has a significant impact only on return on

assets. Return on equity is not significantly affected by current ratio, quick ratio and liquidity ratio.

Gill and Mathur (2011) established that liquidity improves profitability at an optimal level. They suggested that higher level of liquidity may affect firms' profitability negatively. Similarly, Owolabi and Obida (2012) suggested that managers should maximise the shareholder's wealth by the effective and efficient management of liquidity. The descriptive analysis of liquidity management and corporate profitability proved a significant correlation between account receivable collection period, account payables payment period and cash collection cycle as independent variables with return on asset, return on equity and return on investment as the elements of profitability.

Lartey et al. (2013) evidenced that there is a very weak positive relationship between liquidity and profitability of Ghanaians' Banks. On the contrary, Khalifa and Shafii (2013) demonstrated a negative correlation between the elements of liquidity ratio with the financial performance of non-oil manufacturing companies in Libya. Similarly, financial performance was insignificantly affected by the liquidity of Kenya insurance companies (Mwangi & Murigu, 2015). It was suggested that liquid assets should be properly managed to enhance an improved financial performance (Odunga et al., 2013).

Evidence from the literature indicates that firms' liquidity determines their financial performance. The nature and the degree of influence differ between industries, firms

and among places or environment. In line with the financial performance of Nigerian manufacturing firms, efficient liquidity management would improve their stewardship report by a way of maximising the stakeholders' interests as mandated by the stakeholders' theory. This necessitates the need for examining the effect of their liquidity efficiency of the financial performance of Nigerian manufacturing firms. The researcher will examine the effect of liquidity efficiency of the financial performance of the firms in line the literature. Table 2.8 summarises the literature related to liquidity and profitability.

Table 2. 8
Summary of Literature on Liquidity and Profitability

Authors	**Country**	**Dependent variable(s)**	**Independent variable(s)**	**Findings**
Eljelly (2004)	Saudi Arabia	Profitability	Current ratio, Cash Gap	There is a significant negative relationship between liquidity and profitability
Nasruddin (2006)	Malaysia	Profitability	Liquidity	There exist a moderate positive relationship between liquidity and profitability.
Saleem and Rehman (2011)	Pakistan	Return on assets, return on equity, return on investment	Current ratio, quick ratio, liquid ratio	Liquid ratio has significant impact on ROA, but insignificant to ROE & ROI
Bordeleau and Graham (2010)	Pakistan	Profitability	Liquid assets	Too much holding of liquid assets decreases profitability.
Lartey, Antwi and Boadi (2013)	Ghana	Profitability: ROA	Liquidity	There is a very weak relationship between liquidity and profitability
Owolabi and Obida (2012)	Nigeria	Profitability: Return on assets, return on equity, return on investment	Liquidity management: Debtors collection period, creditor payment period, cash conversion cycle	A correlation exists between them liquidity and profitability. Shareholders' wealth will be maximised through proper management of liquidity.

2.4.2 Financial Leverage and Firms' Financial Performance

Financial leverage or gearing is a financing of a business with the combination of fixed charge funds (i.e. Preference share capital and loan or debenture stock) and owner's equity (David & Olorunfemi, 2010). The financial framework of an organisation is its capital structure. However, there are specific country factors affecting the firms' capital structure decisions (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). Firms are exposed to choices on financial leverage depending on the theories of corporate finance. The trade-off theory assumes the premise that there exists an optimal capital structure. Indicate inherent benefit from debt financing through the tax shield on debt (Modigliani & Miller, 1963). It shows that debt financing increases financial performance because interests on debts are tax deductible. However, higher leverage could cause a decrease in the firms' value through an increase in the financial distress costs (Rose, Westerfield, & Jaffe, 2002). This is an indication that there is a certain level of leverage firms should be maintained. On the other hand, pecking order theory emphasised the popularity of internal mode of financing to external financing (Myers & Majluf, 1984). The study evident that the more attractive, profitable, cheaper and flexible mode of financing is debt financing and there is information asymmetry.

The third theory is Modigliani and Miller (1958) irrelevant on the mode of corporate financing. The theory is of the view that regardless of firms' capital structure, the firms' value will be affected. The assumptions of the theory are; no taxation, no transaction cost, nil bankruptcy cost, debt has no effect on profit before interest and taxation and information access equality. Further, the timing theory by Baker and Wurgler (2002) evident that debt financing is appropriate only when equity related

cost is higher. Finally, the portion of a firm's capital represented by leverage is against the agency relationship between managers and the shareholders. However, the free cash flow theory suggests managers are encouraged to pay equity holders and debt holders' dividends and interest where excess cash exists (Jensen & Meckling, 1976). This is the preference of getting the lid of excess cash through payment of dividends and interests instead of taking a decision on investments with negative net present values that will be counterproductive to wealth maximisation.

Therefore, regarding the various schools of thought on the impact of financial structure, empirical evidence indicated that there is a correlation between financial leverage and firms' financial performance. The influence of financial leverage on financial performance could either be positive or negative, significant or insignificant. However, the environmental and industrial factors could not be ignored. The relationship and the influence are as Studied by Pandey (2001), Chiang, Chan, and Hui (2002), Yoon and Jang (2005), Ibrahim (2009) and Yazdanfar and Öhman (2015).

In evaluating the influence of capital structure on the profitability of Hong Kong property and construction companies, Chiang et al. (2002) evidenced that gearing relates to assets positively, but inversely influenced the firms' financial performance measured as profit margin. On the contrary, Abor (2005) researched that financial leverage has a significant positive relationship with the firms' return on equity. He suggested that for firms to generate more returns, the business operations should be financed mostly by long-term debts.

Further, empirical evidence of capital structure impact on Egyptian firms' performance by Ibrahim (2009) found that financial leverage has a weak-to-no influence on firms' financial performance. The study indicated that short-term debt has a negative impact on firms return on equity. But the overall influence of financial leverage (long term debt and short debt) on the firms' financial performance measured as return on asset, return on equity and gross profit margin is very weak. The contrary empirical study by Uwalomwa and Uadiale (2012) studied a significant influence of financial leverage on financial performance. Short term debt has a positive and significant impact on return on asset while long-term debt has a negative but significant impact on return on asset. They concluded that too much long-term debt will result in low financial performance.

In addition, Gweyi and Karanja (2014) revealed the mixed influence of debt-equity ratio on financial performance elements. They found a strong positive relationship between debt-equity ratio and return on equity and profit after tax. However, the study showed a weak positive relationship between return on assets and income growth. On the contrary, Mule and Mukras (2015) evidenced that financial leverage is a negative predictor of financial performance. The multiple regression analysis indicated that financial leverage negatively affected return on assets. Further, Babatunde, Nwidobie and Adesina (2015) established that financial leverage has a significant and positive impact on financial performance. The suggested that for firms to make higher earnings, it should finance their operations with the debt-equity mix. However, Yazdanfar and Öhman (2015) indicated that firms' profitability is negatively influenced by debt ratio. The study showed that high debt ratio will increase the agency cost, hence there is a need for satisfactory debt level.

The evidence from the literature portrays the relationship between financial leverage and financial performance. However, the high degree of instability of the economic environment of Nigeria as a developing economy poses a difficulty to firms in taking a decision regarding capital structure mix. The cost of capital and firms' financial performance is greatly affected by the firms' capital structure (Uwalomwa & Uadiale, 2012).

Therefore, the need for an optimal capital structure arises because one of the factors mitigating against the effectiveness and efficiency of Nigerian manufacturing firms is rising cost of capital (Banjoko et al., 2012). This is necessary for the fact that previous research suggested bank loan financing to remedy the financial crisis facing the Nigerian manufacturing firms. This action will increase the gearing ratio of the firms. In line with this, there will need to examine the effect of financial leverage on their financial performance in order to determine the optimal capital mix for the firms. This will aid in addressing the financial constraint of Nigerian manufacturing firms as revealed in the study of Ku and Goh (2010). Table 2.9 summarises the literature related to financial leverage and financial performance.

Table 2. 9
Summary of Literature on Financial Leverage and Profitability

Authors	**Country**	**Dependent variable(s)**	**Independent variable(s)**	**Findings**
Ibrahim (2009)	Egypt	Return on assets, return on equity, gross profit margin	Short-term debt, long-term debt, total debt	Capital structure has negative impact on ROA and no impact on ROE and gross profit margin
Uwalomwa and Uadiale (2012)	Nigeria	Financial performance	Short-term debt, shareholders fund, long-term debt	STD and shareholders fund has significant positive impact on financial performance and LTD has significant negative impact on financial performance
Gweyi and Karenja (2014)	Kenya	Return on assets, return on equity and income growth	Debt-Equity ratio	There is a strong relationship between financial leverage and financial performance
Nwidobie and Adesina (2015)	Nigeria	Financial performance: profit before tax	Equity ratio, debt ratio	There are exist a strong relationship between capital structure and financial performance.
Yazdanfar and Ohman (2015)	Sweden	Return on assets	Account payables, short-term debt, long-term debt	Return on assets is significantly and negatively related to debts

2.4.3 Business Operating Activity and Financial Performance

Business operational activity measures the firms' ability to generate revenue from asset utilisation. Business operational efficiency evaluates effectiveness and efficiency of firms in utilising their assets judiciously to generate sufficient revenue toward achieving business goals and objectives. It could be viewed as the firms' ability in

gaining competitive advantage (Bajkowski, 1999). This could be achieved through proper coordination of business resources. According to Turk (2006) and Agwor (2014), asset turnover and inventory turnover are majorly employed to assess the efficiency of business operations activities. The need for evaluating operating activity of firms arises from the fact that there are differences among industries in asset turnover. In addition, it is the core of business strategic economic units which dictates it a fortune. This is because firms generate revenue mostly from asset utilisation. However, the high ratio may indicate insufficiency of assets for future operations and a low ratio indicates redundancy or low productivity of business assets (Bajkowski, 1999).

Further, assets underutilization indicates that managers do not act in the shareholders' best interest, and this increases agency costs (Fleming, Heaney, & McCosker, 2005). Further, Ablanedo-Rosas, Gao, Zheng, Alidaee and Wang (2010), Jingxue, Yi'nan and Mei (2010) and Gupta, Jain and Yadav (2011) evident that asset utilisation has an impact on organisational financial performance significantly. In addition, Xu and Banchuenvijit (2014) and Gupta et al. (2011) revealed that asset utilisation is one of the independent variables for evaluating financial performance has significant positive impact on financial performance. They suggested that effective utilisation of firms' assets is an influential factor of firms' market share, hence entice investors.

Khalifa and Shafii (2013) assessed firms' operational efficiency through inventory turnover, account recoverable turnover and general administration expenses ratios. They established that the variables are positively related to firms' financial

performance. In addition, Mubin et al. (2014) found that operating activities efficiency affects firms' performance significantly. Further, Adedeji (2014) suggested operating efficiency as a tool for measuring organisational performance because it has a fundamental impact on firms' financial performance and differs across industries. On the contrary, Innocent, Mary and Matthew (2013) revealed a negative relationship between inventory turnover ratio and total asset turnover with a profit margin in the evaluation of determinant factors of Nigerian pharmaceutical industry profitability. However, it was evident by Almazari (2012) that business operations activities are a prerequisite to return on equity and return on asset.

In line with these studies, the effect of operating activities of firms as regard the asset utilisation and the rate of stock turnover are vital internal factors that dictate that fortune of firms' financial performance. It was revealed by various studies that assets underutilization contributed immensely to low contribution of Nigerian manufacturing firms to gross domestic product and their financial performance in comparison to their foreign counterparts. Table 2.10 summarises the literature related to business operating activities and financial performance.

Table 2. 10
Summary of Literature on Business Operating Activities and Profitability

Authors	Country	Dependent variable(s)	Independent variable(s)	Findings
Khalifa and Shafii (2013)	Libya	Return on assets	Liquidity ratio, inventory turnover, accounts receivable turnover, general expense ratio	There is a significant relationship between the variables.
Mubin, Iqbal and Hussain (2014)	Canada	Return on assets, return on equity	Asset turnover ratio, leverage ratio	There is a significant relationship between asset turnover and ROA and ROE.
Innocent, Mary and Mathew (2013)	Nigeria	Gross profit margin	Inventory turnover ratio, assets turnover ratio, debtor turnover ratio, creditor velocity	The independent variables are negatively related to financial performance
Adedeji (2014)	Nigeria	Firm performance	Business operating efficiency, liquidity, profitability, inter-firm comparison	Ratios are significantly in assessing firm financial performance
Xu and Banchuenvijit (2014)	China	Financial performance: return on assets, return on equity	Asset utilisation ratio, liquidity, leverage, firm size	Asset utilisation has a positive and significant relationship with financial performance

2.4.4 Management Competency and Financial Performance

Managerial competency is skill, knowledge, behaviour that enable managers to control and coordinate the organisational resources toward achieving the strategic goal (Armstrong, 2006). Managers are always exposed to three decision-making processes, which are resolving a current problem, preventing future problems and designing or creating a better relationship (Smith, Arnold, & Bizzell, 1991). The study also submitted that the responsibility of the management is to develop a strategic tool that

matches the internal organisational strength and weaknesses with external opportunity and threat. The business environment dynamism requires competency of the management team as a fundamental drive for gaining competitive advantage (Konigova, Urbancova, & Fejfar, 2012). Hence it provides a reasonable ground for encouraging investors through an improved firm's financial performance (Jennings & Beaver, 1997). The study indicated that financial performance is significantly and positively influenced by managerial competencies. However, there is variation in management competencies toward the firm's -"high-performance"- not only by industry but also by the level of maturity in an organisation (Bersin, 2007).

Further, one of the reasons for financial performance measurement is to evaluate the management input and output to the organisation's success. This will serve as a mechanism for their control and motivation (Otley, 1999). The internal factor influencing firm's financial performance is management competency (Ongore & Kusa, 2013). Management competency is one of the firm's performance drivers (Kaplan & Norton, 1996b). The metamorphic process between management and performance indicates that managers' learnings change their behaviour which eventually leads to employee motivation. This translates to the firm's productivity finally measured through sales revenue as the process end result (Holton, 1999).

Management is to render an account of its stewardship report to the owners through manipulating variables like credit policy, financial decision and business operations activities toward maximising profit or return on investment for the owners/stakeholders. Hence, financial reporting should provide useful information

that aid investor and other stakeholders make appropriate economic decisions. In addition, paragraph 14 of the international Accounting Standard Board (IASB) framework designated that the results of management stewardship or their accountability for the resources entrusted to them are expressed through financial statements.

The evaluation of the efficiency in operating expense management is one of the management efficiency assessment dimensions. However, it is often evaluated subjectively and qualitatively through staff quality, organisational level of discipline, the system of management, the efficacy of internal control system, and the likes (Ongore & Kusa, 2013). However, one of the quantitative means of measuring management quality and competence using financial ratio is by taking the ratio of operating profit to the total income of the firm. According to Ongore and Kusa (2013), a higher ratio signifies incompetency of management. Management quality determines profitability through the operating expense level (Athanasoglou, Brissimis, & Delis, 2008). In addition, Lalith (2011) confirmed a positive relationship between management competency and firms' financial performance. This is in line with the study of Edmister (2003) that ineffective or bad management is a major cause of business failure.

Mwangi and Murigu (2015) found that management competency was among the determinants of firms' financial performance. It evaluated as the ratio of profit to the number of professional. It was demonstrated that management competency has a positive correlation with the companies' financial performance. On the other hand,

Ongore and Kusa (2013) assessed management efficiency as the ratio of total operating expenses to total revenue. The evidence from the literature is an indication that the overall success of firms is majorly on the capability of the management team to control and coordinate organisational human and material resources effectively and efficiently. And the optimal goal is to maximise the shareholders and the other stakeholders' wealth. Table 2.11 below summarises the literature related to management competency and financial performance.

Table 2. 11
Summary of Literature on Management Competency and Profitability

Authors	**Country**	**Dependent variable(s)**	**Independent variable(s)**	**Findings**
Ongore and Kusa (2013)	Kenya	Return on assets, return on equity, net profit margin	Management efficiency, asset quality, liquidity management, GDP, inflation, interest rate	The Board and management decision has much impact on financial performance. And internal factors influence more than external factors
Mwangi and Murigu (2013)	Kenya	Return on assets	Management competence, leverage, liquidity, retention ratio, ownership structure	There is a positive relationship between management competency, leverage, and financial performance
Lalith (2011)	China	Firm performance	Management technical capacity, liquidity, leverage, asset structure, growth potential, market structure	There are significant relationships between the independent variables and firm performance
Ku and Goh (2010)	Nigeria	Performance	Management, foreign investment, finance, oil, labour, infrastructure	Foreign investment has positive impact on performance, the major problems are lack of proper management, financial constraint,

				shortage of skilled labour

2.5 Underpinning and Supporting Theories

The underpinning and supporting theories for this research are stakeholders' theory (Freeman, 1994), agency theory (Jensen & Meckling, 1976) and signalling theory (Morris, 1987). The theories are selected based on their relevance to the problems of Nigerian manufacturing firms in relation to the entire stakeholders like investors, suppliers, customers, employees, management, local communities and the Nigerian government at large. The relevance of owners-managers' relationship cannot be ignored. Hence, the hope for more investment in the sector as recommended by previous scholars requires a positive signal of the safety and productivity of their intended investment through the analysis of their financial statements. However, the justifications and the ground for the selected theories are presented below.

2.5.1 Stakeholder's Theory

Firm's stakeholders are those individuals or groups that are affected by the corporate actions positively or otherwise regarding the conduct and the end result of its business activities (Freeman, 1994). He identified the corporate stakeholder as owners, employees, suppliers, management, customers, government and local/ host community. These are parties that have a stake in the business and should be managed in their best interests. Further, Jensen (2001) recognised the stakeholders' multiplicity. According to Freeman and Reed (1983), stakeholders could be viewed in two ways depending on the scope of its definition. There are stakeholders that are fundamental to the attainment of the corporate success and survival. Also, in the wider definition,

there are those that can influence or be influenced by the corporate actions. Freeman (1994) itemised the stakeholders affected by corporate financial health to include employees, stockholders, community, bank creditors and bondholders, the board of directors, merchandise and government.

Stakeholder theory is a framework made of organisational management and business ethics that aid in addressing moral and ethical value regarding business/corporate management. Value creation as necessary for stakeholders' wealth maximisation is the fundamental task of the corporate executive without resorting to trade-off (Freeman, 1994). According to Donaldson and Preston (1995), stakeholder theory can be viewed to be descriptive because it portrays the through colour of the corporation. Further, it is a framework for evaluating the management practice and their achievements toward corporate performance goal. In addition, they suggested that stakeholder theory is normative and managerial. According to Chen and Merville (1999) and Hertzel, Li, Officer, and Rodgers (2008), the need for assessing firm financial performance (health) arises because business failure has an adverse impact on the stakeholders at large.

Stakeholder theory is one of the underpinning theories of firms' financial performance (Freeman, 1994). Firms' performance is defined with social and financial aspect through stakeholder theory as exhibited by Venkatraman and Ramanujam (1986) and Combs, Crook and Shook (2005). In line with these, stakeholder theory was employed by Waddock and Graves (1997), Agle, Mitchell and Sonnenfeld (1999) and Kaplan and Norton (2001) in firm performance assessment. They argued that stakeholder

theory provides a basis to define construct boundary and measures. In an attempt to maximise stakeholders' wealth there is a need for management to apply its expertise in removing or discontinuing non-productive and non-value added elements of cost (Berman, Wicks, Kotha, & Jones, 1999). The study revealed the relationship between firms' financial performance and stakeholder relationship as a direct model. In addition, they evident that stakeholder relationship could mediate between firm strategy and firm financial performance measured as return on asset. It was concluded that stakeholders' relationships have a direct impact on firm financial performance.

Further, stakeholders' interest could only be protected when appropriate measures are put in place by managers and directors (Sanda, Mikailu, & Garba, 2005). Creditors are more concerned with firms' liquidity while the owners' primary concern is profitability (Freeman, 1994). This portrays the need for efficient liquidity toward profit maximisation if both stakeholders' needs are to be addressed. Stakeholder theory revolves around stakeholders' wealth maximisation measures as financial performance. Firms attain this objective through manipulation of its internal organisational factors and the ability to adapt to the general economic factors. Poor decisions about to liquid asset management could threaten the firms' health and survival. Their mode of financing affects the firms' earning objective this is because the stakeholders required a rate of returns varies with the inherent risk of their investments. Though, Modigliani and Miller (1963) suggested that firms could make a profit from debt financing. Overutilization and underutilization of assets affect firms' wealth maximisation (Bajkowski, 1999). These portray the linkage of all firms' activities including operating and financing activities in their financial performance. In line with this, stakeholders' theory was of great interest for this study since the

entire stakeholders of Nigerian manufacturing firms have been affected by their performance.

2.5.2 Agency Theory

According to Berhold (1971), Heckerman (1975) and Jensen and Meckling (1976) agency relationship is a contractual relationship between two parties whereby a party known as the principal engages the service of the other party called the agent to perform or act on their behalf involving decision making authority delegation to the agent. They suggested that to ensure agent acts in the best interest of the principal; the principal incurs costs by way of expenditure for monitoring, bonding expenditure by the agent, and residual loss. These put together are agency cost.

The "separation of ownership and control" gives rise to an agency relationship between owners/shareholders (principal) and the management (agent) (Jensen & Meckling, 1976). However, in a modern corporation where there is a wider spread in the share ownership, a conflict of interest exists as a result of the departure of management actions from the action toward maximising shareholders return as expressed by Berle and Means (1932) and Zeckhauser and Pratt (1985). These divergences in the interests of the managers (agents) and the shareholders (principal) called for the initiation of appropriate incentives for the agents in the form of agency costs (Jensen & Meckling, 1976).

The argument of agency theory is the maximisation of shareholders' wealth/interest (return on equity). This could be attained by a shared incumbency of the board chair

and Chief Executive Officer (CEO) role as submitted by the studies of Williamson (1985) and Lex and James (1991). Further, for the managers to act in the owners' best interest, appropriate corporate governance structure ought to be in place (Jensen & Meckling, 1976). In addition, for the management to function effectively for the best interest of the shareholders, the board of directors' monitoring role is required (Hillman & Dalziel, 2003).

The proponent of agency theory anchored it on the duty delegation to the managers by the business owners as regard business decisions. Hence, the theory primarily centred on shareholders' wealth maximisation. However, the actions of the managers may not be perfectly monitored by the shareholders nor can they easily possess the information available to the managers. This paves way for the possibility of opportunistic behaviour on the part of the management. The actions of the management teams on operating and financing activities are assessed through the firms' bill of health (financial statements).

Conflict of interest does exist on the various decisions taken by the managers' which are more predominant in larger firms (Jensen, 1993). These decisions could either be in the form of financing, managing liquid assets and short-term obligations, assets employment and utilizations and perhaps most importantly the firm's operating expenses where managers' salaries and allowances are inclusive. Business owners try to maximise wealth through the effort from the managers at low cost. But the managers and the employees seek remuneration maximisation and effort minimization. These are termed goal congruence that usually results in a conflict of interest. Also, the mode

of financing (financing decision) is theoretically associated with firms' performance. This is because high debt cost increases agency cost (Yazdanfar & Ohman, 2015). Hence, this theory linked the research variables because of the agency cost in relating to management expenses and financial leverage.

2.5.3 Signalling Theory

The usefulness of signalling theory arises when there is a need for describing behaviour regarding the two parties either individuals or organisations having access to information that is quite different. Signalling theory is very vital in a variety of literature for management discipline, including entrepreneurship, human resources management and strategic management as revealed by Zimmerman (2008) and Connelly, Certo, Ireland and Reutzel (2011).

An action undertaken by a party will be a signal underlying its quality to other parties. Directors of firms send messages via financial reporting to the current and the potential investors regarding the legitimacy of their corporate activities as revealed in the studies by Filatotchev and Bishop (2002) and Certo (2003). Reduction of information asymmetry among parties is the fundamental role of signalling theory. The studies by Spence (2002) and Zhang and Wiersema (2009) found that the quality of firms' performance over time will be signalled to the potential investors by the Chief Executive Officer. Further, Bell, Moore and Al-Shammari (2008) integrated signalling theory with agency theory within the insider ownership (signal) the potential investors as the receiver. The study evident that the company financial/annual report serves as a signal to the prospective shareholders. Morris (1987) noted that combination of agency

and signalling theory provide a sound background theoretically for studies in accounting policies and practices.

However, among the theories that help on the determinant of accounting practice is the signalling theory (Ross, 1977). He argued that signals are sent to the market for the use of investors because of the existence of information asymmetry. For this reason, financial information (i.e. Financial statements) will serve as a tool for a good company to attract potential investors (Delen, et. Al., 2013). Tuvadaratragool (2013) employed signalling theory to predict the business future and financial health through the financial ratios analysis. This signified that the larger the liquidity, the smaller the failure probability. In addition, the greater probability of failure is attributable to a large amount of business debt (highly levered) and higher operating expenditure. Therefore, in determining the financial health of firms, their financial statements should be evaluated through the use of financial ratios to enable the stakeholders to assess the risk inherent in the firms (Hur-Yagba et al., 2015).

Signalling theory tells how financial performance could be influenced by the various components of ratios from their financial statements. The excessive holding of liquid assets could signal improvement in firms' financial performance or otherwise. It exposes the firms' areas of weaknesses and the critical success factors among the variables. However, to examine the stewardship reports of the management, the association of their liquidity, financial leverage, business operating activities and management competency with financial performance (wealth maximisation) were examined. Studies revealed that firms' liquidity, financial leverage, operating

expenditure and business activities signal the firms' performance direction. This portrays a direct relationship between the independent variables and the firms' performance.

2.6 Limitation and Gaps from the Reviewed Literature

The problem of the Nigerian manufacturing sector is the inadequacy and lacking behind in academic research and development of Nigerian universities (Meagher, 2006). In line with this, to revive the Nigerian manufacturing sector, there is a need for policymakers and other stakeholders to rethink and re-strategize (Banjoko et al., 2012). This constituted a gap for more research on their performance to aid the policy makers and the management in taking a decision.

It was evident that individual measures are a subset of entity performance measures system, and entity performance measures system is as well the subset of the environmental measures system. The overall performance of firms depends on the individuals' performance within the firm. However, the environment on which the firm operates has much impact on the performance of the organisation and hence dictates its fortune (Neely et al., 1995). This is an indication that research in a different country may not serve the same purpose in Nigeria because it might have been influenced by environmental factors. In addition, heterogeneous environment and the characteristics of firms have an influence on their performance (Richards et al., 2008).

In strategic management research firm performance or precisely financial performance is a relevant construct and is normally used as a dependent variable, and selecting its indicators (determinants) depends on convenience, and hence its dimensionality must

not be accorded strict consideration (Santos & Brito, 2012). This gap paves way for the selection of internal organisational factors as permitted by the available data from the firm's annual report and supported by variable used in previous studies.

The relationship between firms' liquidity and financial performance could either be positive or negative, significant or insignificant depending on the kind, nature and the environment on which the business exists (Eljelly, 2004). In addition, there are other factors affecting firms' financial performance apart from liquidity. There is a need for further research on Nigerian manufacturing firms' financial performance (Owolabi & Obida, 2012). In addition, there are specific country factors affecting firms' capital structure decisions (Booth et al., 2001). However, their nature and the degree of influence on the financial performance of Nigerian manufacturing firms need to be evaluated.

There is variation in management competencies toward firm's "high-performance" not only by industry but also by the level of maturity in an organisation (Bersin, 2007). Management competency as a problem of Nigerian manufacturing firm in line with the study of Ku et al. (2010) constituted a theoretical problem as regards the dictate of stakeholders' theory. It is an indication there is a conflict of interest in the affairs of Nigerian manufacturing firms.

2.7 Summary of the Chapter

This chapter reviewed the relevant literature to the internal organisational factors affecting manufacturing firms' financial performance in Nigeria. The major problem

of the Nigerian economy is the overreliance on the oil sector. Hence, to address the situation many scholars had carried out many research works and proffered solutions at various instances. Though, the major issues with the researchers are over reliance on the macroeconomic variables without taking into consideration the internal and specific factors of the firms based on how they are being managed.

Further, performance measurement is the quantification of the firms' effectiveness and efficiency. The financial performance is affected by business operating activities, liquidity management, financial leverage and management capability and competencies. The investors assess the firms' financial statement to determine their financial health. The effective management of organisational internal factors will improve the financial health of the organisation. The assessment of firms' financial performance is underpinned and supported by stakeholders' theory, agency theory and signalling theory. Finally, the study highlighted the limitations and gap from past studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that will be applied in addressing the formulated research questions and objectives. The rest of the chapter is arranged as 3.2 Research Framework, 3.3 Hypotheses Development, 3.4 Control Variables 3.5 Research Model, 3.6 Measurement of Variables and 3.7 Research Design. Finally, the target population, technique for data analysis and summary of the chapter are discussed.

3.2 Research Framework

The assessment of firms' policies and operation efficiency in monetary term is expressed through profitability, and this is essential to all business stakeholders. Profitability as a measure of financial performance is vital based on the economists' belief on the profit maximisation as the main objective of every business establishment (Pathirawasam &Adriana, 2013). Profitability aids in assessing the firms' policies and operations in monetary terms and every firm are most concerned about with its profitability. This is because the profitability measure is vital to firms' internal and external users of financial statements (Bodie, Robert & David, 2009; Ayad, 2014). The In addition, Majed, Said and Firas (2012) emphasised the importance of profitability as it indicates the firms' ability to meet interest obligations to creditors and an indication of the returns and progress on the investments of the shareholders. Hence, the importance of profitability in performance measurement to all stakeholders necessitates its choice of measurement of financial performance for this research.

Return on assets and return on equity proxy for profitability as financial performance measures. Return on assets is a proxy for efficiency in managing the firm's assets while return on equity proxies for how much the shareholders earn from their investment (Pandey, 2001; Horrigan, 2007). Return on assets is vital because it is a common corporate goal and assists in evaluating efficiency in the use of firms' assets. This aids in system development for planning and control for decisions within the firm (Mubin, et al., 2014). In addition, return on equity is employed as a measure of profitability because it is a goal of financial management that focus on the owners' wealth maximisation as the focal point of agency theory (Mubin, et al., 2014).

The Nigerian manufacturing firms have experienced poor performance over time as the studies by various scholars such as Ku et al. (2010), Ogbu (2012), Onuoha (2013), Sola et al. (2013) and Adesinal (2013). The studies pointed out financial constraints, assets underutilization and management problem as among the challenges of the Nigerian manufacturing firms. These serve as areas of motivation for this research by examining the related variables of internal organizational factors to the identified issues. Therefore, financial constraints facing the firms as studies pointed out calls for the firms' liquidity and financial leverage examination. To determine the extent of their capital utilisation, employment of assets assessment is vital, and the velocity of their stock turnover. Non-value-added costs and expenses of firms which comprises total operating expense measures the extent of the management competency and addresses conflict of interest as regard principal-agent relationship. Additionally, Santos and Brito (2012) Opined that financial performance is normally used as dependent variable, and its explanatory variables depends on the researcher's need and area of concern.

The framework for this research is presented in Figure 3.1.

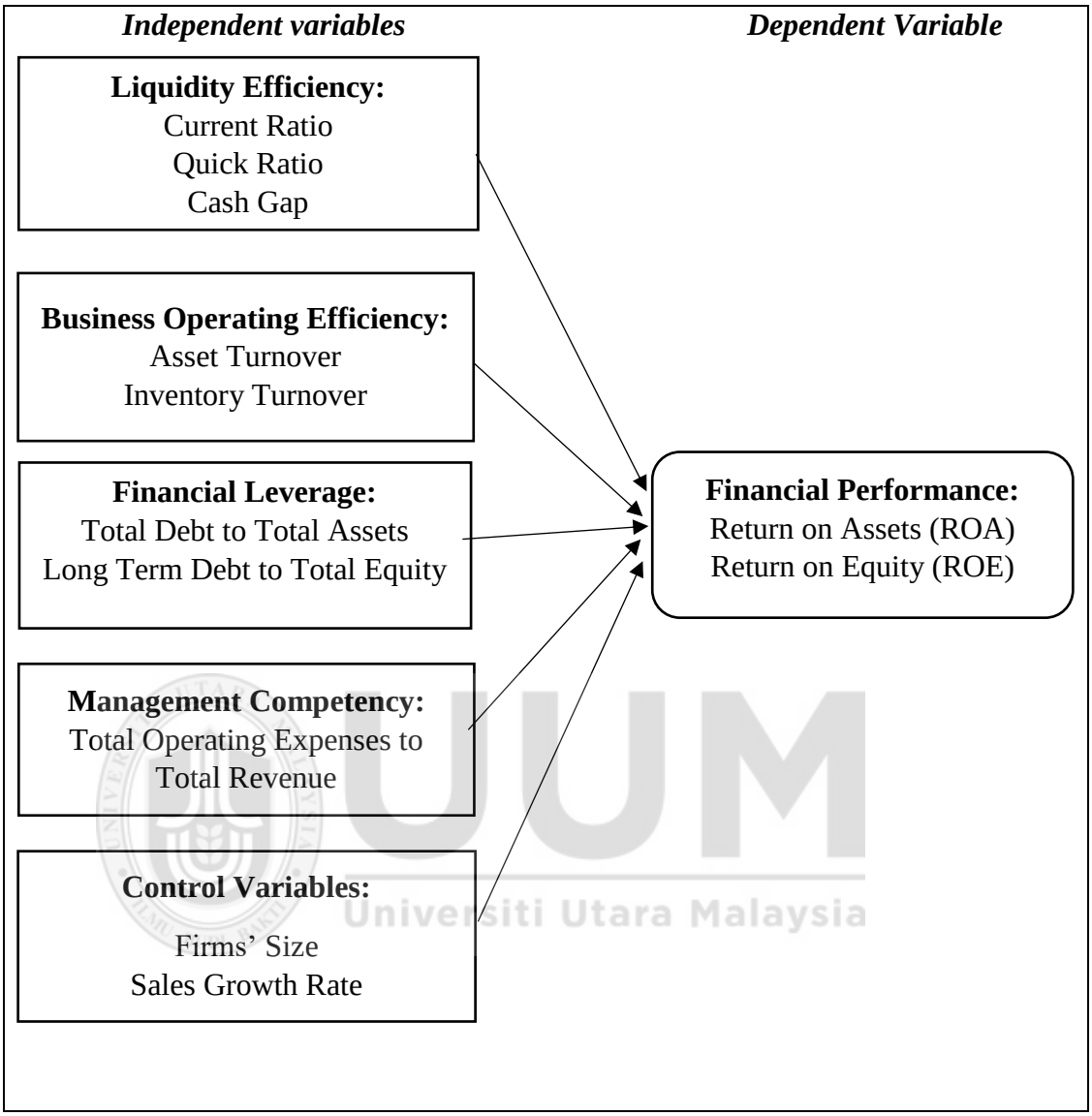


Figure 3.1
Research Framework

3.2.1 Return on Assets (ROA)

Return on asset is employed as a measure of firms' financial performance because is effective in measuring the economic unit to generate profit from the use of assets specifically in manufacturing firms (Pandey, 2001; Salehi & Biglar, 2009). For the economic unit to better off or effective, a higher ratio is required, and this indicates

how efficient management is in utilising firms' assets for the stakeholders' benefit (Salehi & Biglar, 2009). Return on assets have been employed as a measure of firms' financial performance by Pandya and Rao (1998), Richards et al. (2008); Saleem and Rehman (2011), Almazari (2012), Mirza and Javed (2013), Ongore and Kusa (2013), Lartey et al. (2013), Khalifa and Shafii (2013) and Mwangi and Murigu (2015).

3.2.2 Return on Equity (ROE)

Return on equity (ROE) is employed as a measure of firms' financial performance because it addresses the equity holders' interest as they are concerned about their wealth maximisation. A firm with a higher return on equity is unlikely to face internally cash generation challenges (Xu & Banchuenvijit, 2014). Return on equity enhances comparison between firms' financial performance by way of assessing the level of their profitability (Helfert, 2001). The major concern of the equity holders is the firms' return on equity, which shows how their wealth is being maximised (Jensen & Meckling, 1976; Maria & Victoria 2013). Among the scholars that have employed return on equity as a measure of firms' financial performance are Pandya and Rao (1998), Richards et al. (2008), Saleem and Rehman (2011), Owolabi and Obida (2012), Mirza and Javed (2013), Delen et al. (2013), Mubin et al. (2014) and Xu and Banchuenvijit (2014).

3.2.3 Independent Variables

The independent variables for this study are liquidity efficiency, business operating efficiency, financial leverage and management competence. These are chosen based on the research focus of stewardship examination to see their combined effects on the financial performance of Nigerian manufacturing firms over periods. Their

relationships have been studied by various scholars at a different time across various industries and business and political environments. The examination of these variables in the context of Nigeria manufacturing firms will assist in complementing earlier researches that were majorly focused on the external variables. Stakeholders' wealth is maximised when the variables are properly managed (Jensen & Meckling, 1976; Abor, 2005; Khalifa & Shafii, 2013). This is because studies revealed firms make profit from holding liquid assets, debt financing and optimisation of asset utilisation and employment.

In addition, management expenses and the cost of debt increase agency cost which link management competency and financial leverage to firms' performance through agency theory. The nature and kind of relationship between the variables and financial performance will serve as a signal on how the management should respond to them to improve financial performance as signalling theory portrays (Beaver, 1966; Bell, et al., 2008). There is a mixed influence of the variables on firms' financial performance as many studies show the effect of industrial, environmental and political factors. Among the scholars that studied the relationship and the influence of these variables on financial performance are Delen et al. (2013), Mwangi and Murigu (2015), Almazari (2012), Adedeji (2014), Khalifa and Shafii (2013), Tehrani et al. (2012) and Xu and Banchuenvijit (2014).

3.3 Hypotheses Development

This research formulates and tests four hypotheses in accordance with the research objectives. The relationship between the dependent and independent variables are derived from this research theories which include stakeholder theory, agency theory

and signalling theory. The main theory is signalling theory. This is because signalling theory aids in determining the financial health of firms through financial ratios (Turk, 2006; Horrigan, 2007; Agwor, 2014). Firms financial statements could be evaluated through the use of financial ratios to enable the stakeholders to assess the risk inherent in the firms (Lewellen, 2008; Hur-Yagba et al., 2015). Signalling theory tells how financial performance could be influenced by the various components of ratios from their financial statements.

3.3.1 Liquidity Efficiency

The firms' current ratio, quick ratio and cash gap are used as proxies for liquidity efficiency. The current ratio is chosen because it measures the ability of firms in meeting short-term obligations. The effective management of this ratio improves firms' profitability and enhance business going concern. The quick ratio is selected because it is a more rigorous test for the firms' liquidity position of the economic units compared to the current ratio (Khalifa & Shafii, 2013). In addition, cash gap is chosen as the third measure of liquidity to supplement the inefficiency of current quick ratios in firms' cash flow prediction (Eljelly, 2004). Firms' liquidity is said to be efficient when they can settle their present obligations with ease (Eljelly, 2004). Also, avoid holding excessive liquid assets by taking a short-term investment with positive net present value when excess funds exist (Eljelly, 2004; Saleem & Rehman, 2011). However, the holding of liquid assets is vital for firms' daily transactions, short-term investment opportunity and for unforeseen contingency (Agwor, 2014). Firms' liquidity has an influence on their financial performance because there is a trade-off between liquidity and profitability (Eljelly, 2004). Summarily, the liquidity efficiency

of Nigerian manufacturing firms is assessed through current ratio, quick ratio and cash gap.

Eljelly (2004) suggested that liquidity ratios measured by current and quick ratios could be supplemented or replaced with cash gaps due to their limitations in predicting future cash flows nature and patterns. In line with this, cash gap will be employed to supplement the inefficiency of current and quick ratios to uncover their combined effect on the financial performance of Nigerian manufacturing firms. The effect of current ratio and cash gap on firm profitability was studied by Eljelly (2004). In addition, Saleem and Rehman (2011) confirmed the influence of current ratio, quick ratio and liquid ratio on the firms' profitability measured as return on asset, return on equity and return on investment. The study revealed that liquidity ratios are related to firms' financial performance.

The studies of Borhan et al. (2014), Xu and Banchuenvijit (2014) and Mwangi and Murigu (2015) evidenced that the correlation between liquidity and profitability is positive. These are in line with the study of Nasruddin (2006) that there is a moderate positive relationship between profitability and liquidity. Among other scholars that established positive relationship between liquidity and firms' performance are Gill and Mathur (2011), Lartey et al. (2013) and Ana-Maria and Stancu (2015). On the contrary, Eljelly (2004) and Khalifa and Shafii (2013) revealed that firms' liquidity negatively correlates with their financial performance. This signifies an inverse relationship between the variables. In addition, Gill et al. (2010) established that there

is an optimal level of liquidity, and suggested that higher liquidity affects profitability negatively.

There are mixed relationships between liquidity efficiency and financial performance, but more studies established a positive relationship (Nasruddin, 2006). However, among the firm's stakeholders are creditors who are concerned with firms' liquidity and owners that are primarily concerned with profitability (Freeman, 1994). Stakeholder theory portrays a positive relationship between stakeholders-oriented management and firms' performance mostly measured in financial terms (Freeman, 1984; Jones, 1995; Harrison, Bosse & Phillips, 2010). The position of stakeholders' theory reveals that maintaining an efficient liquidity as the concern of creditors as firms' stakeholders will improve profitability. This is because efficient liquidity reduces financial cost and optimises firms' returns (Freeman, 1994; Nasrudsin, 2006; Owolabi & Obida, 2012). Thus, the proposed hypothesis is:

***H_1**: Liquidity efficiency is positively associated with the manufacturing firms' financial performance in Nigeria.*

3.3.2 Business Operating Efficiency

The firms' asset turnover and inventory turnover are used as proxies for business operating efficiency. Business operating efficiency measure how effective and efficient a firm is in generating reasonable revenue from the use of its assets. It measures company's accomplishment over time to meet the stakeholders needs (Bajkowski, 1999). Assets turnover is chosen for this research because it helps in

examining how well assets are utilized in generating a return for the stakeholders. It is vital for this research because it examines the major revenue source for the firms. Asset turnover is used to assess how much revenue is generated from the employment of the firms' assets (Horrigan, 2007). Under and overutilisation of assets are measured through asset turnover ratios. If assets are underutilised, it indicates that the firm is not generating enough revenue from the use of its assets. On the contrary, if over utilisation of assets occurs, it indicates that there would inefficiency of assets for future business operations, which signal danger for necessary management actions (Bajkowski, 1999). Underutilization of assets increases agency costs as managers seem not to be acting in the owners' best interest. This as well undermines the interest of the entire stakeholders at large (Fleming et al., 2005).

Further, inventory turnover ratio indicates how many time inventories turn over (i.e. realised as sales) (Pandey, 2001). The researcher chooses this variable because of its role in examining the operational efficiency performance. Inventory management is vital in the economic unit because it measures the number of time inventories are turned to sales revenue. Inventory turnover differs across business lines and industries (Bajkowski, 1999). Asset turnover and inventory turnover are examined to know how efficiency the Nigerian manufacturing firms are utilising their assets. This is because among the problem of manufacturing firms in Nigeria is assets underutilization (Ayanwale, 2007; Onuoha, 2013). Hence their influences on financial performance was evaluated in consistent with the studies of Tehrani et al. (2012), Khalifa and Shafii (2013), Gupta et al. (2011) and Mubin et al. (2014). Hence, the business operating efficiency of Nigerian manufacturing firms was examined through assets and inventory turnover.

Various studies of Almazari (2012), Adedeji (2014) and Xu and Banchuenvijit (2014) established positive correlations between business operating activities and firms' financial performance. However, Innocent et al. (2013) demonstrated a negative relationship between firms' assets turnover and inventory turnover. The empirical evidence revealed more on positive relationships between the business operating activities and financial performance, which is a clear view of generating wealth for stakeholders through optimal utilisation of the assets. The efficiency in business operating activities affects firms' performance positively (Phillips, 2010). Firms' stakeholders jointly have stakes in the firms' assets. There are affected by the firms' decision regarding their utilisation and employment (Freeman, 1994 & Jensen, 2001). Stakeholder theory reveals that there is a positive relationship between stakeholders-oriented management and firm's financial performance (Freeman, 1984; Jones, 1995; Harrison, Bosse & Phillips, 2010). The efficient business operating activities enhance better management and utilisation of firms' assets (Bajkowski, 1999). Asset management efficiency improves firm performance (Agwor, 2014). This portrays that managing the stakeholders' joint interest (i.e. on firm's assets) will positively affect firms' financial performance. In line with the theory and the anticipation, the proposed hypothesis is:

***H_2**: Business operating efficiency is positively associated with the manufacturing firms' financial performance in Nigeria.*

3.3.3 Financial Leverage

The ratio of total debt to total assets and the ratio of fixed interest debt-to-equity proxy for financial leverage. These ratios are relevant to this research because it helps in revealing the optimal financing mode to address the firms' financial constraint as prior

studies revealed (Ku, et al., 2010). The higher total debt to total assets ratio is riskier for firms' survival and the owners' control (Maria & Victoria, 2013). However, the fixed interest debt could not be ignored because the cost of debt increases agency cost. Financial leverage is the financial framework of a business organisation (Booth, et al., 2001). The combination of owners' equity and fixed interest fund is termed financial leverage (i.e. gearing) (David & Olorunfemi, 2010).

There are various studies that have established a correlation between firms' mode of financing and their financial performance. The relationship between financial leverage and financial performance are proved by Yoon and Jang (2005), Abor (2005), Ibrahim (2009), Kodongo et al. (2014) and Yazdanfar and Öhman (2015). However, there are specific country and internal factor affecting firms' mode of financing. Hence, Uwalomwa and Uadiale (2012) noted that the developing status of Nigeria poses a challenge to firms in deciding their capital structure mix. In addition, one of the challenges of Nigerian manufacturing firms' is a financial constraint (Ku et al., 2010). Further, the nature and the level of influence of financial leverage on the financial performance of Nigerian manufacturing firms was evaluated to determine the optimal capital mix that suits the financial, business and political environment on which they exist. The ratio of debt to asset is often employed in the empirical study of financial leverage and firm financial performance (Pandey, 2001). Therefore, the ratios of total debt to total assets and long-term debt to book value of equity will be employed to evaluate the effect of financial leverage on the Nigerian manufacturing firms' financial performance.

The studies by Abor (2005), Delen et al. (2013), John (2014) and Mwangi and Murigu (2015) proved a positive relationship between financial leverage and financial performance. Abor (2005) established further that firms earn profit from debt financing, that is debt financing increases firms' profitability. In addition, Ibrahim (2009) revealed that financial leverage has a weak-to-no influence on financial performance. On the contrary, financial leverage has a negative correlation with firms' financial performance as proved by Yoon and Jang (2005), Kodongo, Mokoaleli-Mokoteli, and Maina (2014), Xu and Banchuenvijit (2014) and Mule and Mukras (2015). Notwithstanding the agency cost resulting from the cost of debt, firms could make profit from debt financing because debts are tax deductible, which is termed inherent benefit from debt financing by Modigliani and Miller (1963).

Agency theory suggests an optimal capital structure that increases firms' performance (Jensen & Meckling, 1976; Zeckhauser & Pratt, 1985; Maria & Victoria, 2013). There are two conflicts of interest that could emanate firm' debt financing. These include the conflicts between the manager and shareholders, and between shareholders and creditors. Agency theory suggests proposed debts financing as a way of solving the potential conflict between the manager and shareholders to work towards the same objective of profit maximisation (Jensen & Meckling, 1976; Maria & Victoria, 2013). The theory portrays increasing profitability with debt financing, but the debt should be maintained at an optimal level. In the presence of income tax, financial expenses are tax deductible and this will lead to increasing firms' earning after taxation (Modigliani & Miller 1963; Jensen & Meckling, 1976). Thus, the proposed hypothesis is:

***H_3**: Financial leverage is positively associated with the manufacturing firms' financial performance in Nigeria.*

3.3.4 Management Competency

The ratio of total operating expenses to total sales revenue is a proxy for management competency. This variable is chosen because of its role in examining the relationship between the agency cost as regard management expenses and firms' objective of profit maximisation. It helps in examining whether the cost incurred in respect of management remuneration, advertisement cost, consultancy fee, audit fee and all other agency fees commensurate with the revenue generated, and to determine whether they are value added expense. Firms' revenue could be improved through effective and efficient strategies put in place by the management. The operating expenses could also be reduced through management expertise by removing non-productive and non-value added cost (Berman, et al., 1999). Among the techniques that could be put in place by the managers for efficient management is Total Quality Management (TQM) (Ongore & Kusa, 2013). This will aid the management in eliminating non-value added cost without undermining the quality of the firms' products.

However, one of the contributory factors to the problems of Nigerian manufacturing firms is management incompetence (Ku et al., 2010). Further, Sangosanya (2011) studied the effect of management competency as a determinant of Nigerian manufacturing firm's growth rate. Management competency was expressed as the ratio of net profit margin to sales revenue. In addition, Ongore and Kusa (2013) and Mwangi and Murigu (2015) have studied management competence as an independent variable

of firms' financial performance. Though Mwangi and Murigu (2015) expressed management competence as the ratio of profit to the numbers of professional in the firms and a positive relationship was established. On the contrary, how well management handles firms' operating expenses in relation to the revenue generated was approach employed by Ongore and Kusa (2013). Hence, the management competency of Nigerian manufacturing firms is examined as the ratio of operating expenses to sales revenue.

Management competency has a strong impact on financial performance (Liargovas & Skandalis, 2008). In addition, the various studies of Lalith (2011), Ongore and Kusa (2013) and Mwangi and Murigu (2015) displayed a correlation between management competency and technical capacity and firms' financial performance. Study of Ku et al. (2010) that management incompetence contributed to the problems of Nigerian manufacturing firms, thus the need further research. The firms' expense should be justified by the generated revenue since the motive behind incurring expenditure in business is what it could give in return as revenue.

Agency theory reveals that the management expenses including management performance bonuses are offered to managers to encourage them in acting in the shareholders' interest (Jensen, 1993). Therefore, the normative aspect of the agency relationship emphasises how to structure the contractual relationship (including compensation incentive) between the agent and the principal. The positive aspect of this is to enhance the principal welfare maximisation through firm's financial performance (Jensen & Meckling, 1976; Williamson, 1985; Lewellen, 2008). In line

with the theory's normative aspect of improving profitability through these agency costs, the proposed hypothesis is:

***H_4**: Management competency is positively associated with the manufacturing firms' financial performance in Nigeria.*

3.4 Control Variables

The control variables are variables held constant to enable the assessment of the relationship between other variables. They are the variables that are outside the researcher area of concern, but which cannot be ignored totally. The control variables in this research are firms' sizes and sales growth rate. Firms' size is chosen for this research because it plays an immense role in determining the nature of relationship firms enjoy with their environment and thus affects financial performance. Ejelly (2004) and Khalifa and Shafii (2013) opined that firms' size plays an important role in their profitability. In addition, firm's revenue growth rate is vital to this study because revenue contributes majorly to firms' financial performance. The various studies Eljelly (2004), Khalifa and Shafii (2013), Ana-Maria and Stancu (2015), Xu and Banchuenvijit (2014), Mwangi and Murigu (2015) and Eljelly (2004) established a mixed relationship between firms' sizes and financial performance. In addition, Eljelly (2004); Khalifa and Shafii (2013) showed a positive relationship between firms' sizes and their financial performance. On the contrary, Mwangi and Murigu (2015) indicated a negative correlation between the variables. In addition, Uwuigbe, Uwalomwa, and Egbide (2011) established a positive relationship between firms' sales growth taking as a control variable and the profitability.

3.5 Research Model

The multiple linear regression equations for this research are presented below:

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + \beta_n X_{nit} + è$$

Where; Y is the dependent variable, α is the constant coefficient (i.e. Y-axis intercept, Xn is the independent variable, i is the number of firms, t is the number of the year covered and è is Error term. In line with these, the multiple linear regressions for this research are presented.

Model

$$FP_{it} = \alpha + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 CG_{it} + \beta_4 ATOV_{it} + \beta_5 ITOV_{it} + \beta_6 TDTA_{it} + \beta_7 LDTE_{it} + \beta_8 TOTR_{it} + \beta_9 FS_{it} + \beta_{10} SGR_{it} + è$$

Where:

FP	=	Financial Performance measured as ROA & ROE
ROA	=	Return on assets
ROE	=	Return on equity
CR	=	Current ratio
QR	=	Quick ratio
CG	=	Cash gap
ATOV	=	Assets turnover
ITOV	=	Inventory turnover
TDTA	=	Total debt to total assets
LDTE	=	Long-term debt to total equity
TOTR	=	Total operating expenses to total revenue
FS	=	Firms' size
SGR	=	Sales growth rate
i	=	Number of firms
t	=	Number of years covered

3.6 Measurement of Variables

3.6.1 Dependent Variables

The dependent variables for the financial performance of manufacturing firms in Nigeria are measured through return on assets and return on equity. There are various ratios for assessing firms' financial performance, but returns on assets and equity are mostly and widely used. They show the best way of evaluating the return on investment (Murthy and Sree, 2003); (Xu and Banchuenvijit, 2014).

Additionally, among the ways of computing return on assets is after tax return on asset. After-tax return on assets takes care of interest expenses associated with funding those assets. Also, after-tax return on assets will help to reveal the efficacy of tax deductible nature of debt financing in improving firms' profitability (Agwor, 2014). Accordingly, net earnings after tax is a good way for measuring return on investment and ease firms' performance comparison regardless of their sizes (Liargovas & Skandalis, 2008; Khalifa & Shafii, 2013). Therefore, after-tax return on assets was employed in this study because it is helpful in comparing the profitability of different-sized firms which is the case with Nigerian manufacturing firms with varying sizes. It allows investors to assess how efficient a company works with what it has regardless of its size.

3.6.2 Independent Variables

The independent variables in this research are liquidity efficiency, business operating activities, financial leverage and management competency. They are internal organisational factors that are controllable by management decisions to achieve overall business goals and objectives. The choice of the variables is in consistence with previous studies on firms' financial performance evaluation. Presented in Table 3.1 is the measurement for this research variables.

Table 3. 1
Measurement of Variables

Variables	Measurement	Reference
Dependent Variables		
Return on assets	$\frac{\text{Earnings after taxation}}{\text{Total assets}}$	Horrigan (2007) Pandey (2001)
Return on equity	$\frac{\text{Earnings after taxation}}{\text{Total book value of equity}}$	Horrigan (2007) Agwor (2014)
Independent Variables		
Current ratio	$\frac{\text{Total current assets}}{\text{Total current liabilities}}$	Eljelly (2004) Edmister (2002)
Quick ratio	$\frac{\text{Total current assets less inventory}}{\text{Total current liabilities}}$	Saleem and Rehman (2011)
Cash gap Where: Days in inventory Days in receivable Days in Payable	Days in inventory + days in account receivable - days in account payable $\frac{\text{365 days x average inventory}}{\text{Cost of goods sold}}$ $\frac{\text{Account receivables x 365 days}}{\text{Total sales}}$ $\frac{\text{Account payables x 365 days}}{\text{Total Purchase}}$	Eljelly (2004)
Assets turnover	$\frac{\text{Total Sales/Revenue}}{\text{Total Assets}}$	Bajkowski (1999) Pandey (2001)
Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	Bajkowski (1999) Tehrani et al. (2012)
Total debt to total assets	$\frac{\text{Total liabilities}}{\text{Total assets}}$	Pandey (2001) Ongore and Kusa (2013)
Long term debt to Equity	$\frac{\text{Total fixed interest debt}}{\text{Total book value of equity}}$	Kodongo et al. (2014) Horrigan (2007)
Management competency	$\frac{\text{Total operating expenses}}{\text{Total revenue}}$	Ongore and Kusa (2013)
Control Variables		
Firms' size	Logarithm of total sales	Eljelly (2004)
Sales growth rate	$\frac{\text{Sales}_1 - \text{Sales}_0 \times 100\%}{\text{Sales}_0}$	Uwuigbe et al. (2011)

3.7 Research Design

The master plan of procedures and method applied for data collection and analysis constitute research design (Zikmund, 2003). The design for this research is longitudinal research. A quantitative approach was applied for this research. The secondary data are sourced from financial statements of Nigerian manufacturing firms. The data were run as panel data because the data are collected across firms and for various years. Descriptive, correlation and analytical approaches are employed for data analysis. Descriptive statistics help to assess characteristics of the variables while correlation assists in assessing the relationship between the variables. Further, regression analysis was used to establish the association between the independent variables with the firms' financial performance measured as return on assets and return on equity.

3.8 Sample Selection

The sample selection for this research is the quoted manufacturing firms in the Nigerian Stock Exchange. The studied sample for the study is the total of the manufacturing firms across the various sub-sectors of the manufacturing sector in Nigerian Stock Exchange (NSE) between the periods of years 2011 to 2015. The selected sample for this research is 69 listed manufacturing firms as shown by the Nigerian Stock Exchange published lists of quoted firms as of the year 2016. However, five years' financial statements of 66 firms were collected giving a total of 330 financial statements for this research. The unavailability of the annual reports for the remaining 3 firms is responsible for the short fall from 69 firms to 66 firms.

The choice of the years is in line with the implementation of IFRS requirements. The roadmap for the adoption of IFRS in Nigeria mandates that listed entities and significant public interest entities, start adopting IFRS for the year 2012 as reported date and the year 2011 as a comparative report (Madawaki, 2012). The data were collected to include the year 2015 accounting period for the latest year due to annual reports availability.

3.9 Technique for Data Analysis

The analytical tools that are applied to the analysis of this research are descriptive statistics, correlation test and multiple linear regression analysis. These tools were employed by Pandey (2001), Khalifa and Shafii (2013), Odunga et al. (2013), Innocent et al. (2013) and Xu and Banchuenvijit (2014). The firms are classified into two based on the nature of their performance over the study period for further analysis. The need and justifications for the choice tool are as presented below.

3.9.1 Multiple Linear Regression

Financial ratios are not without their limitations, but remedial actions were demonstrated by Whittington (2007). Proportionality is the basic assumption of ratios analysis, which assumes that a relationship exists between two variables that are normally expressed as the rate of a variable taking as a numerator to another variable taking as the denominator. Therefore, because of the violation of this assumption which could make some variables non-related, regression analysis is used to supplement the inefficiency of ratios by expressing the relationship between the variables because it is powerful and has flexibility in estimating the correlation

between a pair of variables (Whittington, 2007). It was noted that it would yield the best estimate that will be void of biases and more reliable, and the non-linearity of ratio correlation will usually take the form of multi-regression equation as a statistical tool for its evaluation.

The data are assessed through the assumptions of multiple regression analysis, such as linearity test, normality test, multicollinearity test, autocorrelation test and heteroscedasticity test. Therefore, multiple regression analysis is the appropriate tool for this research to examine the relationship between the dependent variable and independent variables and for hypothesis testing. Hence, the multiplicity of the independent variables necessitates the application of multiple regression analysis. It was used in the research equation estimation and the basis for research hypothesis testing. This is in line with the various scholars that have applied this tool such as Lalith (2011), Ongore and Kusa (2013), Borhan et al. (2014) and Mwangi and Murigu (2015).

3.9.2 Sensitivity Analysis of Good and Poor Performing Firms

For in-depth analysis, the firms were categorised into two classes of performance as good and weak performance. Whether ROE is high or low it depends on whether it is higher than the risk-free interest rate. However, Ryan 2014 suggested that and ROE of 10% could be considered strong and covers the firms' cost of capital. Turk (2006) suggested ROE of 10% - 12% for firms' effective performance. However, aside from meeting a specific rate of return, studies show the effect of negative earning on firms' health and survival. The key indicator of company's overall productivity is its ROA. A negative ROA portrays that the firms are not utilising its capital efficiently and its

management competency is questionable (Edmister, 2002; Delen, et al., 2013; Agwor, 2014). In addition, a negative ROE indicates the reduction of owners' wealth which could result in financial distress (Jan & Ou, 1995). Collins and Pincus (1999) evaluated firms with positive earnings and negative earnings and emphasised the impact of firms' negative earnings on the owners' wealth. It was revealed that negative earnings could emanate from firms' specific factors such as inefficiency of operations, excessive debt financing, declined sales revenue resulting from ineffective strategic choice in relation to marketing policy and product mix.

However, for this research, Nigerian manufacturing firms are categorised into two as good/average performing firms and weak performing firms. The firms with negative return within/over the study period and having an average return of less than 10% for the five-year period will be classified as poorly performing firms. Good/averagely performing firms are the firms that consistently earned positive returns over the study period or having average returns of 10% and above for the five-year period. This was to enhance further examination of their performance in relation to their internal factors.

3.10 Summary of the Chapter

This chapter introduced the methodological approach to the research work. The research framework as derived from various empirical studies of firms' financial performance was presented. Four hypotheses are theoretically formulated in line with the research questions and objectives. The multiple linear regression equations were for formulated for the two components of financial performance as presented in the framework. The approach of the research is quantitative using secondary data as presented on the firms' financial statements. The techniques for analysis are

descriptive statistics, correlation test and multiple linear regression. Their usefulness and reasons for their application are clearly justified

CHAPTER FOUR

RESULT AND DISCUSSION

4.1 Introduction

This chapter presents the research results and discussion on the association between internal organisational factors and financial performance of Nigerian manufacturing firms. The chapter is organised into 11 sections. Section 4.1 provides introduction; followed by Section 4.2 that presents descriptive analysis. The research correlation analysis is presented in section 4.3. Section 4.4 presents panel data analysis models, while section 4.5 is for a diagnostic check. Also, test for the appropriate panel data model for the research is presented in section 4.6 while section 4.7 presents model estimation.

Additionally, evaluation of the model is presented in section 4.8 and section 4.9 presents the summary of the research hypotheses. The descriptive analysis of good performance versus poor performance firms is presented in section 4.10. Finally, the summary of the chapter is presented in the concluding section 4.11

4.2 Descriptive Analysis

The data for this research were sourced from the annual reports of Nigerian manufacturing firms listed on Nigerian Stock Exchange. A total of 66 firms' annual reports for a period of five years with a total observation of 330 examined. The data were analysed using Eviews8 software. Table 4.1 presents the mean, standard deviation, minimum and maximum values of the variables.

Table 4. 1
Descriptive Statistics

Variables	Mean	Standard Deviation	Minimum	Maximum
ROA (%)	0.0370	0.1275	-0.9326	0.5396
ROE (%)	0.0366	0.7176	-6.9073	7.0849
CR (ratio)	1.4432	1.7716	0.0058	27.7096
QR (ratio)	0.8721	1.0120	-0.9931	14.0366
CG (days)	191.3968	2056.2820	-2245.6300	2893.5200
ATOV (times)	0.9518	0.8050	0	6.6874
ITOV (times)	7.1761	29.1179	0	502.9198
TDTA (%)	0.7768	1.5901	0.0734	15.9772
LDTE (%)	0.5667	3.7085	0	66.2391
TOTR (%)	0.2724	4.2431	0	2.8726
FS (Log)	22.5210	3.4586	0	27.6408
SGR (%)	7.9854	3.3597	-66.7633	275.4186

Note: ROA is return on assets; ROE is return on equity; CR is current ratio; QR is quick ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size and SGR is sales growth rate.

The firms' financial performance was measured through return on assets and return on equity. Table 4.1 illustrates the mean of returns on assets as 3.7%, with standard deviation of 12.8%. This is lower than the ideal ratio for ROA of 5% as suggested by Ryan (2014). Further, return on equity over the study period showed a mean of approximately 3.7%, with standard deviation of 71.8%. This percentage is low from the ideal benchmark of 10% as return on equity as suggested by Ryan (2014). The standard deviation of firms' return on equity is 71.8%. However, with the higher standard deviations of the firms' earnings (ROA and ROE) and the much disparity between their earnings as observed from their minimum and maximum earnings signified that there are many differences in their earning potentials. This may be a sign of the firms' individualities and heterogeneities in term of operations.

Further, the firms' liquidities are examined through their current ratios, quick ratios and cash gap. The result forms the Table 4.1 shows that the mean of current ratio is 1.44:1 with a standard deviation of 1.77:1. Further, the mean of quick ratio is 0.87:1 with the standard deviation of 1.01:1. It could be concluded that the firms' average current ratios and quick ratios are below the ideal benchmark of 2:1 and 1:1 respectively as revealed by Khalifa and Shafii, (2013).

In addition, the mean of cash gap is approximately 191 days. It shows that on average, it takes the firms an interval of 191 days to receive from customers and pay for inventory purchased. In summary, it takes the firms' 191 days to generate cash on average. The standard deviation of the firms' cash gap is 2056 days. This result is greater than 180 days mean of cash gap studied by Eljelly, (2004). Generally, it can be concluded that with the higher standard deviation of the firms' liquidity and a wider range (minimum and maximum), the firms' individuality might have played a role in their liquidity management.

More also, business operating activities are examined through assets turnover and inventory turnover. The mean of assets turnover for the period is 0.952 times with the standard deviation of 0.805 times as presented in Table 4.1. This implies that the firms' assets generate sales 0.952 time in a year. However, high ratio may indicate insufficiency of assets for future operation unless proper measures are put in place while low asset turnover indicates redundancy (Bajkowski, 1999). Steven (2015) submitted that there is no standard norm for asset turnover ratio. It varies throughout every sector. In addition, the mean inventory turnover for the period is 7.18 times with

a standard deviation of 29.12 times. The result shows that on average the firms' inventories were turned to sales 7.18 times per annum over the study period. The mean inventory turnover of 7.18 times is lower than the ideal standard norm of 8 times as revealed by Khalifa and Shafii (2013). However, higher standard deviations on both assets turnover and inventory turnover evidence the disparities among the firms on their operating efficiency.

Furthermore, the financial leverage of the firms was examined through the ratios of total debt to total assets and fixed interest debt to total equity. The mean of total debts to total assets is 77.7% with a standard deviation 159%. This indicates that on average 77.7% of the firms' total assets are financed by debts. This could be considered aggressive firm financing because the mean ratio is above 50% (Steven, 2015). It could result to financial distress unless timely measure is put in place. The mean of long-term debt ratio to total equity is 56.7% with a standard deviation of 370.8%. These results show that averagely the firms' assets are majorly financed by debts. Also, the excessive standard deviations in both the total debt to total assets and long-term debt to total equity reveals that there are firms within the group that are heavily in debt.

Additionally, the management competency was examined through the ratio of operating expenses to total revenues. The mean of total operating expenses to total revenue is 27.2% with the standard deviation of 29.7%. This indicates that averagely, the management incurred 27.7% of firms' revenue for operating expenses. The mean firm size is 22.52 with the standard deviation of 3.46. The low standard deviation of the firms' size is an indication that the disparity between the firms in term of size is

moderate. In addition, the mean of sales revenue growth rate is 7.98% with the standard deviation is 3.5%. The revenue growth rate of the firms shows much differences. This is because of the wider range between the firm with negative growth rate of -66% and the firm with excessive growth rate of 275%.

The results of the descriptive statistics clearly show that the average performance of the sample firms is weak, and there is much disparity on the firms' mode of operations in terms of earning potentials and the examined internal variables.

4.3 Correlation Analysis

Correlation analysis aids in describing the nature and the direction of the linear relationship between variables (Pallant, 2011). Hair, Anderson, Tatham and Black (2010) suggested that a correlation of zero signifies the absence of a relationship between two variables while a correlation of +1 indicates an absolute positive relationship and correlation of -1 indicates an absolute negative relationship between variables. In addition, Hair et al. (2010) submitted that correlation between variables could either be a weak, moderate or strong correlation. The strength of the relationship between two variables depends on its significance regardless of whether small, moderate or strong relationship. Pearson correlation matrix was employed to examine the relationship between the variables as presented in Table 4.2.

Table 4.2 reveals the relationship between the dependent variables (return on assets and return on equity), the independent variables (current ratio, quick ratio, cash gap,

asset turnover, inventory turnover, total debt to total assets, long-term debt to total equity and total operating expense to total revenue) and the control variables (firm size and sales growth). Presented in Table 4.2 shows that quick ratio, cash gap, assets turnover, total debt to total assets, firm size and sales growth rate are significantly correlated with return on assets. The correlations between return on assets (ROA) and the variables shows that current ratio (CR) is 0.063 related to ROA, quick ratio (QR) is 0.10 to ROA, cash gap (CG) is 0.13, asset turnover (ATOV) is 0.20 related to ROA, inventory turnover (ITOV) is related with ROA by -0.043, total debt to total assets (TDTA) is -0.43 to ROA, long-term debt to total equity (LDTE) relationship with ROA is -0.05, total operating expenses to total revenue (TOTR) is 0.011 related with the ROA, firms' size (FS) is associated with ROA by 0.49 and sales revenue growth rate (SGR) is 0.13 correlated with ROA. However, the relationship between the ROA and the variables signifies a small relationship except for TDTA and FS with moderate relationship to ROA.

Further, Table 4.2 shows that assets turnover, long term debt to total equity, total operating expenses to total revenue, firm size and sales growth rate have significant correlations with return on equity. The correlations between the ROE and the variables indicates that CR is 0.043 associated with the ROE, QR is 0.057 correlated with ROE, CG is 0.053 to ROE, ATOV is associated with ROE by 0.11, ITOV is -0.018 correlated with ROE, LDTA is -0.043 to ROE, LDTE is related to ROE by 0.41, TOTR is -0.09 to ROE, FS is related to ROE by 0.1 and SGR correlation with ROE is 0.1. Therefore, the correlations indicate that CR, QR, CG, ATOV, ITOV, TDTA, TOTR and SGR fall in the category of small association with ROE while LDTE is moderately correlated with ROE. However, with the level of correlations between the dependent variables

and the independent variable it could be concluded that there is established a relationship between the variables.

The correlations among the independent variables as presented in Table 4.2 show that CR is significantly correlated with QR, TDTA and SGR. While QR and TDTA are 0.93 and 0.15 correlated with CR, SGR is 0.12 correlated with CR. Also, QR is significantly correlated with CG at 0.10, ITOV at 0.11, TDTA at 0.16, TOTR at 0.1 and SGR at 0.11. CG is significantly correlated with only TOTR at 0.58. Additionally, Table 4.2 indicates that ATOV is significantly correlated with ITOV, TOTR, FS and SGR at 0.15, 0.33, 0.3 and 0.19 respectively. ITOV is only significantly correlated with TOTR at 0.09. Further, TDTA is significantly correlated with FS at 0.78 while TOTR is 0.17 and 0.12 correlated with FS and SGR respectively.

Table 4. 2

Pearson Correlation Matrix

	ROA	ROE	CR	QR	CG	ATOV	ITOV	TDTA	LDTE	TOTR	FS	SGR
ROA	1											
ROE	0.4686***	1										
CR	0.0630	0.0431	1									
QR	0.1029**	0.0566	0.9310***	1								
CG	0.1327**	0.0533	0.0641	0.1050**	1							
ATOV	0.2005***	0.1107**	-0.0403	-0.063	-0.0804	1						
ITOV	-0.0427	-0.0180	0.0239	0.1134**	-0.0215	0.1503***	1					
TDTA	-0.4292***	-0.0431	-0.1504***	-0.1592***	-0.0261	-0.0381	-0.0275	1				
LDTE	-0.0503	0.4092***	-0.0575	-0.0594	-0.0216	-0.0033	0.0064	0.0102	1			
TOTR	0.0115	-0.0896*	0.0381	0.0978*	0.5790***	-0.3315***	-0.0946*	-0.1100	0.0253	1		
FS	0.4947***	0.0991*	-0.0174	0.0206	-0.0485	0.3056***	0.0570	-0.7818***	-0.0580	-0.1702***	1	
SGR	0.1321**	0.1008*	-0.1156**	-0.1097*	-0.0091	0.1292**	0.0133	-0.0320	0.0292	-0.1229**	0.0760	1

Note: ROA is return on asset; ROE is return on equity; CR is current ratio; QR is quick ratio; CG is cash gap; ATOV is asset turnover; ITOV is inventory turnover; TDTA is total debt to total asset; LDTE is long-term debt to total equity; TOTR is total operating expenses to total revenue; FS is firms' size and SGR is sales growth rate.

***, **, * are significant at 1%, 5% and 10% level, respectively.

4.4 Panel Data Analysis

Panel data are otherwise known as longitudinal or cross-sectional time series data consist of data set where the entity behaviours are observed across time. It provides a way for controlling for variables that couldn't be observed (Oscar, 2007; Agung, 2014). However, one of the most commonly used statistical methods for ascertaining a relationship between variables is regression analysis (Hair et al., 2010). Panel data analysis could employ one of its three models of establishing a linear relationship between variables, which include ordinary least squares (OLS) model, fixed effects (FE) model and random effect (RE) model (Oscar, 2007). The model to employ in establishing a linear relationship of panel data depends on the appropriateness of any of the models to the situation at hand at any given time.

4.4.1 Ordinary Least Square (OLS) Model

The used of ordinary least squares assumes that the individual entity within the studied group is homogenous. It provides no room for individuality and homogeneity among the studied group that might have some impact on their performance or behaviour over time. Hence the data are pooled together for analysis as a group to establish a common regression equation for the group. In OLS model, between and within variations are used to give an estimation of parameters (Jager, 2008).

4.4.2 Fixed Effect (FE) Model

A fixed effect model is also referred to as a covariance model or within estimator or individual dummy variable model or least square dummy variable model. The fixed effect model comes with an assumption that there are things within the individual entities that could influence the predictor which need to be controlled (Oscar, 2007). The fixed effect model allows for entities' heterogeneity and individuality. However, the addition of dummy variables is required to control for the unobserved individuality and heterogeneity among the group. One of the advantages of the fixed effect model is that it always gives consistent estimates, but might not be the most efficient. The dummy variable coefficients for the individual entities reflect an estimation of the unobserved time-invariant factors (Wooldridge, 2003 & Allison, 2009)

4.4.3 Random Effect (RE) Model

The random effect model assumes that the variations across the entities/group are uncorrelated and are random with the independent variables. Unlike the fixed effect model, random effect model allows for the inference of result on the entire population beyond the sample used in the model. It assumes that individual specific effects have constant variance (Oscar, 2007; Baltagi, 2008).

Therefore, before the appropriateness of the models of this research was assessed, the basic assumptions and requirements of linear regression were evaluated through a diagnostic test.

4.5 Diagnostic Tests

The diagnostic test is the assessment of data quality before running multivariate regression analysis by assessing the key assumptions or requirement of multiple linear regression. This could be termed data cleansing (Ebrahim, et al., 2012). These assumptions of multiple linear regressions are linearity assumption, normality assumption, no multicollinearity assumption, non-auto correlated and homoscedasticity assumptions. The satisfaction of these assumptions is vital to ensure that the errors in the model predictions are free from bias (Hair, et al., 2010). This will not only ensure consistency of the model, but also enhances its efficiency.

4.5.1 Checking of Linearity Assumption

Linearity and additive of the association between the dependent variable and the independent variables assume that the dependent value is a straight-line function of individual independent variables. It also indicates that the influence of various independent variables is additive on the expected value of the dependent variables. Hence, residual plots could help be used in assessing the linearity of data, but this is considered non-scientific by many scholars. Hair et al., (2010) and Ebrahim et al., (2012) accorded importance to the comparison of the standard deviations of the dependent variables with the residual standard deviation. The linearity assumption stands if the standard deviation of the dependent variable is greater than the residual standard deviation. This was employed in this research as presented in Table 4.3.

Table 4. 3
Standard Deviation of Dependent Variables and Residuals

Dependent Variables	Standard Deviation	Residuals	Decision
ROA	0.12751	0.10626	Accepted
ROE	0.71762	0.63078	Accepted

Note: ROA is return on assets and ROE is return on equity

From the Table 4.3, the standard deviations of ROA and ROE are greater than the residual which implies that there is no linearity problem with the data. Further testing was conducted to determine the combined significance of the independent variables in predicting the dependent variables through the F-test as presented in Table 4.4

Table 4. 4
Wald Test for F-Statistics4.4

Dependent variable	F-statistics	Probability
ROA	14.03381	0.0000
ROE	9.38786	0.0000

Note: ROA is return on assets and ROE is return on equity

The probability values below 5% indicate that the dependent variables have some predictive power on both ROA and ROE. This revealed that the variation in the independent variables is additive on the expected value of the dependent variables.

4.5.2 Checking of Normality

Normality assumption is the shape of the variable for quantitative data and its normal distribution around the mean. The most commonly used tests for normality are skewness and kurtosis (Ebrahim et al., 2012). Skewness can be described as the balance of the distribution while kurtosis portrays the flatness or peaks of distribution. However,

significant deviation from normal does not normally show by skewness or kurtosis (Tabachnick & Fidell, 2007). The Eviews8 version provides for a data normality check through the assessment of the significance level of residual via histogram-normality check (Agung, 2014). This was employed in this research to assess the normality assumption and the result presented in Table 4.5.

Table 4. 5
Histogram-Normality Check

Dependent Variable	Jarque-Bera	Probability
ROA	509.1457	0.0000
ROE	58228.9500	0.0000

Legend: ROA is return on assets and ROE is return on equity

The probability value of less than 5% indicates that the distribution has a normality problem as shown in Table 4.5. Non-normality issue could be remedied by the data log transformation (Rich, 2011). The results from the data after the transformation indicate a similar issue as noted above. However, Thomas, Paula, Scott & Lu (2002) revealed that least-square linear regression does not need any assumption of normal distribution in large samples. The study revealed that t-test and least squares regression could perform well in moderately large sample with normality issue. Thomas et al. (2002) submitted that the past simulation studies placed sufficiently large data to be under 100 observations. Normality is not necessary for the least square fittings of the regression model (Kleinbaum, Kupper, Muller & Nizam, 1998). David (2013) studied that the normality assumption is necessitated, particularly for a small sample. This is because for a large sample, violation of normality assumption is inconsequential for the dictate of the central limit theory that the statistic will follow the appropriate distribution asymptotically even in the error non-normality (Thomas et al., 2002). The study revealed that small sample

requires normality, but the statistical tools for large samples rely on the central limit theorem. Hair, et al., (2006) and Ebrahim et al. (2012) suggested that non-normality of distribution could be ignored for an observation of 200 and above. Hence, in line with these studies, with the total observation of 330 for this research, it is assumed that the evidence of normality problem may not affect the research results.

4.5.3 Checking of Multicollinearity

There is evidence of multicollinearity when the correlation between two dependent variables is above 0.9 (Fidell, 2007; Hair, et al., 2010). Multicollinearity reveals the portion to which a given independent variable explains what ought to have been explained by the other independent variable (Hair, et al., 2010). One of the assumptions multiple linear regression models is the absence of multicollinearity among the independent variables (Gujarati, 2003).

The result from the Table 4.2 flashed the existence of multicollinearity between the current ratio (CR) and the quick ratio (QR). This is because the relationship between them is 0.9310 which is above the benchmark of 0.9. The existence of multicollinearity constitutes a nuisance to models which may increase R-square unnecessarily but decrease adjusted R-square. Therefore, the remedial action for multicollinearity between independent variable is to remove one of the variables from the model. The removal of the variable depends on its relevance or level of significant to the model compared to the

other variable by assessing their probability values (Agung, 2014). This is as demonstrated in Table 4.6.

Table 4. 6
Probability Values of the Multicollinearity Variables

Variables	CR	QR
ROA	0.3021	0.3652
ROE	0.8379	0.9391
Decision	Supported	Not supported

Note: ROA is return on assets and ROE is return on equity; CR is current ratio and QR is quick ratio

The probability values of CR are more significant to the model than those of the QR, therefore the QR will be removed from the model to address the multicollinearity problem.

4.5.4 Checking for Serial Correlation

Serial correlation is also called autocorrelation, which is all about the independence of errors statistically (Oscar, 2007). Dufour and Dagenais (1985) submitted that autocorrelation indicates that the errors are correlated with one another. The revealed that the neglect of autocorrelation and heteroscedasticity does not affect the estimates of regression because the estimates are still not biased, but only result to the biases of standard errors. Hence, Eviews8 provides a report for the Durbin-Watson Statistics for serial correlation assessment through a regression output (Agung, 2014). Durbin-Watson is most powerful for first-order serial correlation checking (Dufour & Dagenais, 1985). The test for serial correlation through Durbin-Watson statistics should be around 2 to indicate that there is no serial correlation. A Durbin-Watson statistic below 1 signals that certainly there is positive serial correlation, while a value above 3 indicates a certainty of

negative serial correlation (Durbin & Watson, 1971). Therefore, the result from Durbin-Watson statistics for this research is as presented in Table 4.8

Table 4. 7
Durbin-Watson Statistics for Serial Correlation

Dependent Variables	Durbin-Watson Statistics	Decision
ROA	2.369268	Accepted
ROE	2.073057	Accepted

Note: ROA is return on assets and ROE is return on equity

Null hypothesis: there is no serial correlation

Alternative hypothesis: there is serial correlation

The result from the Table 4.7 denotes that there is no serial correlation and therefore the null hypothesis is accepted and rejected the alternative hypothesis.

4.5.5 Checking for Heteroscedasticity

Heteroscedasticity is the absence of homoscedasticity of a linear regression. Homoscedasticity is an important assumption of a linear regression which assumes that the disturbance appearance in the regression function is all having the same variance (Gujarati, 2003). Homoscedasticity indicates a non-clear pattern of spread when plotted on a graph. Heteroscedasticity is normally associated with cross-sectional data, not time series. This is more common when the individuality of the group is not controlled. However, like autocorrelation heteroscedasticity does not have the effect on the regression estimate, but produces bias standard errors (white, 1980). The OLS is not optimal when evidence of heteroscedasticity occurs because the coefficients remain unbiased and

consistent, but are inefficient (Richard, 2015) However, an evidence of heteroscedasticity error term in the OLS regression is in general may not amount to heteroscedasticity error term in the fixed effect model (FE) regression (Gujarati, 2009). One of the methods assessing heteroscedasticity is through Breusch-Pagan-Godfrey test which was employed in this study as presented in Table 4.8

Table 4. 8
Heteroscedasticity Test: Breusch-Pagan-Godfrey

Dependent variable	Obs R-squared	Probability	Decision
ROA	62.94369	0.0000	Rejected
ROE	14.99946	0.1321	Accepted

Note: ROA is return on assets and ROE is return on equity

Null hypothesis: the data are homoscedastic i.e. there is no heteroscedasticity

Alternative hypothesis: The data are heteroscedastic

The null hypothesis will be accepted if the probability value is not significant i.e. If the p-value is greater than 5%. However, from Table 4.8 there is evidence of heteroscedasticity with ROA. White-heteroscedasticity and data transformation are among the remedies for heteroscedasticity (Ebrahim, et al., 2012; Agung, 2014). The statistical results of both measures are similar to the research results as presented in Table 4.8. heteroscedasticity could be overcome by employing an estimator other than OLS (Muhammad, 2016), and FE model could be appropriate in fixing heteroscedasticity issue (Christopher, 2015). Heteroscedasticity does not affect a regression estimate, but may produce bias standard errors which affect research probability values (White, 1980; Gujarati, 2009; Agung, 2014; Richard, 2015). Alternatively, heteroscedasticity problem could be addressed by using robust standard error estimates (Huber, 1967 & Arellano, 1987). Therefore, robust standard errors are employed in this research to address heteroscedasticity issue.

4.6 Checking for the Appropriate Model of Panel Data for the Research

There are three models of panel data analysis that could be employed in establishing the linear regression equation for research work involving entities over a time (i.e. Panel data analysis). The models are an ordinary least square model (OLS), fixed effect model (FE) and random effect model (RE). The model to be applied depends on its appropriateness to the research data and the entities involved (Agung, 2014). The main distinction of the three models revolves around the manner in which the individualities and heterogeneities of the entities are treated. Among the statistical approaches to determine their appropriateness to a given research linear regression are Houseman test for RE and FE, and Wald test for OSL and FE. These are applied in this research to determine the suitable model for the research linear regression equation estimation.

4.6.1 Houseman Test: Random Effect Model versus Fixed Effect Model

The assumption of a random effect model is a constant variance of individual specific effect while fixed effect model accords importance to the heterogeneity of the individual group by establishing intercept for the unobserved variables of the individual group that affect their behaviour or performance over the study period (Greene, 2003). Houseman is normally used to determine whether there is a correlation between the unobserved effect with the independent variables or not (Baltagi, 2008). Hence, Houseman test was used to determine which among the two models is appropriate for this research work. This is as presented in Table 4.9

Table 4. 9
Houseman Test for RE and FE

Dependent Variable	Chi-Sq Statistics	Probability	Decision
ROA	30.215934	0.0004	Rejected
ROE	187.135709	0.0000	Rejected

Note: ROA is return on assets and ROE is return on equity

Null hypothesis: Random effect model is the appropriate model

Alternative hypothesis: Fixed effect model is the appropriate model

The decision criterion is acceptance of the null hypothesis if the Chi-Square statistics probability values are greater than 5%, but a rejection of the null hypothesis if otherwise. However, from table 4.9 the probability values for both ROA and ROE are less than 5%. The null hypothesis that random effect model is appropriate was rejected, hence accepted the alternative hypothesis that fixed effect model is the appropriate model among the two models.

4.6.2 Wald Test: Ordinary Least Square Model versus Fixed Effect Model

To determine the best model among the remaining two models OLS and FE after the rejection of RE by Houseman Test, Wald test was used. Dummy variables are introduced to take care of the unobserved variable among the individual firms. The Wald test was to determine whether the dummies are significant or not. The number of dummies to be introduced was determined through the formula N-1, where N is the number of the entities involved (Oscar, 2007; Agung, 2014). This is because dropping of one individual is vital when adding dummy variables since a constant term is already included in the regression

equation which serves as the intercept of the omitted individuals from dummies. In line with this, a total of 65 dummy variables was introduced for the 66 firms for this research. Therefore, Table 4.10 displays the results of the Wald test for OLS and FE in respect of the two dependent variables ROA and ROE.

Table 4. 10
Wald Test for OLS and FE

Dependent variable	F-statistics	Probability	Decision
ROA	6.738269	0.0000	Rejected
ROE	5.069157	0.0000	Rejected

Note: ROA is return on assets and ROE is return on equity

Null hypothesis: Ordinary Least Square is appropriate (i.e. all dummy variables are 0)

Alternative hypothesis: Fixed Effect Model is appropriate (i.e. all dummies are not 0)

The decision criterion is acceptance of the null hypothesis if probability values of F-statistics are greater than 5%. The probability values are less than 5% as shown in Table 4.10 hence, the null hypothesis that all dummies are zero was rejected and accepted alternative hypothesis that the appropriate model is fixed effect model. The Houseman test and Wald test are supportive of the fixed effect model as the appropriate model for this research. Therefore, both Random effect model and ordinary least square model were rejected because they are not the appropriate models for this research.

4.7 Model Estimation

The tests for Houseman test and Wald test accorded importance to fixed effect model as the appropriate model to estimate regression equations for this research. The studies revealed that among the three models of regression equation estimation for panel data, fixed effect model is always consistent, but deficient in making inference on the entire population, unlike the random effect model. However, fixed effect model was applied in this research for linear equation estimation. With the assumption of time-invariant of the fixed effect model, 65 dummies were introduced for the unobserved effects to take care of the group heterogeneity.

4.8 Evaluation of the Model

Following the assumptions of regression and the test for the appropriate model for the research, regression analysis was run using Eviews8 for fixed effect model. The research was carried to examine the relationship between the firm financial performance and their internal organizational factors such as current ratio, cash gap, asset turnover, inventory turnover, total debt to total assets ratio, long-term debt to total equity ratio, total operating expenses to total revenue ratio, firm size and sales revenue growth rate. The main reason for running multivariate regression is to determine the predictive directions of the independent variables on the dependent variables.

There are two models utilize in this research. The first model outlines ROA as the dependent variable while in model 2, ROE is the Dependent variable. The independent variables are liquidity efficiency, business operating efficiency, financial leverage and management competency. The firms' size and sales revenue growth rates are the control variables.

4.8.1 Return on Assets (ROA) as the Dependent Variable (Model 1)

As presented in Table 4.11, the R^2 is 0.74 which implies that the dependent variable is explained by 74% of the variation in the independent variables in this study. One of the attributes of a good regression is a higher R^2 coefficient. With this 74%, it could be concluded that the model is well fitted. The F-statistics is 9.886 and significant at ($p<0.01$). The probability value of F-statistics is highly significant at 1 percent, this indicates that the independent variables are jointly the significant predictors of the firm return on assets (ROA). Among the determinants of a model's validity is the significance of F-statistics (Agung, 2014). Therefore, the p-value of less than 0.01 ($p<0.01$) indicates the validity of this model.

The result in Table 4.12 reveals that the current ratio is associated with ROA at a regression coefficient of 0.0019 (t stat of 0.5414), but is not a significant predictor of ROA. The result suggests that every increase in the current ratio is associated with an increase in firm's profitability by 0.019 percent. This finding is in line with the findings

of Zainudin (2006) and Saleem and Rehman (2011) that firms' profitability increases with an increase in current ratio. Additionally, the research reveals that cash gap is positively associated with ROA at the coefficient of 0.00008 (t stat of 2.3865) and significant at ($p<0.01$). Cash gap is a positive predictor of ROA and is significant at 1%. The result shows that every 1 day increase in the cash gap is associated with an increase in profitability by 0.008 percent. This result is contrary to the finding by Eljelly (2004) that cash gap is a significant negative predictor of profitability.

Table 4.11 signifies that asset turnover predicts ROA at a coefficient of 0.0122 (t stat 1.01084) but is not a significant predictor. Every increase in the asset turnover is related to an increase in profitability of 0.12 percent. However, inventory turnover is associated with ROA at a regression coefficient -0.000013 (t-stat of -0.0670). This result is significant at a probability value of 5%. It indicates that a decrease in profitability is associated with every 1 increase in the inventory turnover ratio.

More significantly, a relationship is found between the ratios of debt to total assets with ROA. The total debt to total assets ratio is associated with ROA at a coefficient of 0.0281 (t stat 2.2184) significant at ($p<0.001$). The result reveals that every increase in total debt to total assets ratio is associated with an increase in profitability by 2.8 percent. On the contrary, the ratio of long term debt to total equity connotes no significant association with ROA. The ratio of long-term debt to total equity is positively, but not significantly related to profitability at a regression coefficient 0.0016 (t-stat 0.0010). The study

indicates that every increase in long-term debt-to-equity ratio is associated with an increase in profitability by 0.16 percent. This positive relationship between debt ratios and profitability agrees with the agency theory that debt financing improves profitability. This is also in line with the position of Modigliani and Miller (1963) that debt financing increases financial performance.

The ratio of the firm's operating expenses to total revenue is with the largest coefficient of -0.1323 (t stat -2.4614) as the predictor of ROA and is also significant at ($p<0.05$). The ratio of operating expenses to total revenue is a significant negative predictor of ROA. This result designates that every increase in the ratio of operating expenses is related to a decrease in profitability by 13.2 percent. This result is an indication that the firms' agency costs need to be addressed to enhance improvement in profitability. This is because this finding is contrary to the normative aspect of the agency theory that increasing agency costs will increase financial performance.

The variable firm's size is positively associated with ROA at the regression coefficient of 0.0307 (t stat 1.3532 and significant at $p<0.01$). Firm's size is a significant predictor of ROA at the probability value of less 1%. It directs that the firms' profitability increases by 3.1 percent for every increase in the firm's size. This result reveals that larger firms tend to be more profitable compared to the smaller firms. Finally, Table 4.11 shows that sales growth rate is negatively and significantly related with ROA with a regression

coefficient -0.000003 (t stat of -0.0021) and significant at ($p<0.05$). This reveals that profitability decreases by 0.003 percent for every sales growth rate.

Table 4. 11
FE Regression Results for ROA as the Dependent Variable (Model 1)

Hypotheses	Variable	Expected sign	Coefficient	Std. Error	t-stat	P-Value
H1a	CR	+	0.0019	0.0022	0.5414	0.2929
H1b	CG	+	0.000008	0.000002	2.3865	0.00255***
H2a	ATOV	+	0.0122	0.0053	1.0108	0.1103
H2b	ITOV	+	-0.000013	0.0001	0.0667	0.02035**
H3a	TDTA	+	0.0281	0.0044	2.2184	0.0000***
H3b	LDTE	+	0.0016	0.0010	1.2053	0.45275
H4	TOTR	+	-0.1323	0.0176	-2.4614	0.0098**
CV1	FS		0.0307	0.0021	1.3532	0.0000***
CV2	SGR		-0.000031	0.0001	-0.0021	0.01195**
Number of observation		330				
Number of firms		66				
F-statistics		9.8861				
R^2		0.7415				
Adjusted R^2		0.6665				
Probability value		0.0000				

Note: CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size; SGR is sales growth rate and CV is control variable
***, **, * are significant at 1%, 5% and 10% level (one-tailed) respectively

4.8.2 Hypotheses Testing

4.8.2.1 Liquidity Efficiency and Return on Asset (ROA)

The firms' liquidity is examined through current ratio and cash gap. Hence the hypothesis on liquidity efficiency is tested via current ratio in hypothesis 1a (H1a) and cash gap as hypothesis 1b (H1b).

H1a: Current Ratio and Return on Assets

As presented in Table 4.11 current ratio is associated with ROA at (β=0.0019, t-stat=0.5414). This direction of a positive relationship between current ratio and return on assets seems to be in line with the first hypothesis that there is a positive relationship between liquidity and financial performance measured as return on asset. However, the association between the current ratio and ROA is not a significant relationship. The positive, but insignificant relationship between current ratio and ROA is not in support of the hypothesis that there is a positive relationship between liquidity and financial performance.

H1b: Cash Gap and Return on Assets

The second measure of firms' liquidity is the cash gap as used in this study. The result in Table 4.11 signposts that the firm's cash gap is correlated with return on assets at (β= 0.000008, t-stat=2.3646 and significant at $p<0.01$). This shows that the cash gap predicts

ROA by 0.0008 percent and significant at 1% probability value. Summarily, there is a positive and significant relationship between cash gap and ROA. This is supportive of the research hypothesis that there is a positive relationship between liquidity (cash gap) and financial performance (ROA). Therefore, the result of the regression is in line with the formulated hypothesis.

In summary, it can be concluded from the regression results that liquidity efficiency is positively associated with financial performance measured as return on asset (ROA). But the only significant predictor of ROA is cash gap. It could be concluded that liquidity efficiency as positively associated with profitability (ROA). This is because cash gap may be used to replace or supplement the inefficiency of the current ratio and the quick ratio in the predicting the cash flow pattern of an organization (Kamath, 1989; Eljelly, 2004). This is in line the stakeholder theory that efficient liquidity management is positively associated with financial performance.

4.8.2.2 Business Operating Efficiency and Return on Assets (ROA).

The business operating efficiency is examined in this study through asset turnover and inventory turnover. The relationship between asset turnover ratio and ROA is explained in hypothesis 2a (H2a) while hypothesis 2b (H2b) explains the association between inventory turnover and ROA.

H2a: Asset Turnover and Return on Assets

The results presented in Table 4.11 reveal that asset turnover ratio is associated with Return on asset (ROA) at a regression coefficient (β=0.0122, t-stat=1.0108). The study indicates a positive relationship between asset turnover and ROA. The positive association between asset turnover and return on assets seems to be in line with the hypothesis that a positive relationship exists between business operating efficiency and financial performance (ROA). However, the relationship between them is not a significant relationship. This indicates that asset turnover is not a significant predictor of return on assets and not supportive of the research hypothesis.

H2b: Inventory Turnover and Return on Assets

The regression result presented in Table 4.11 discloses that the inventory turnover ratio is negatively related to return on asset (ROA) at a regression coefficient (β= -0.00001; t-stat= -0.0670; $p<0.05$). There is a significant negative relationship between ROA and inventory turnover. The relationship between inventory turnover with ROA is negative and this is contrary to the hypothesis the there is a positive relationship between business operating efficiency and financial performance (ROA). The result indicates that inventory turnover is a significant negative predictor of return on assets.

The summary from this second hypothesis indicates that asset turnover is positively associated with ROA while inventory turnover associated with ROA negatively. But the significant determinant of return on assets among the two measures of business operating

efficiency is inventory turnover. The hypothesis that there is a positive relationship between business operating efficiency and financial performance (ROA) is not supported.

4.8.2.3 Financial Leverage and Return on Assets (ROA).

The relationship between financial leverage measured as the ratio of total debt to total assets and long-term debt to total equity with financial performance (ROA) is as presented in Table 4.11. The relationship between the ratio of total debt to total assets and return on assets is explained in hypothesis 3a (H3a) while the relationship between the ratio of long-term debt to total equity and return on assets is presented as hypothesis 3b (H3b).

H3a: Ratio of Total Debts to Total Assets and Return on Assets

The result shows that the ratio of total debt to the total asset is associated with ROA at a regression coefficient (β= 0.0281, t-stat= 2.2184, $p<0.01$). This regression results reveal a significant positive relationship between total debt to total assets ratio and ROA. The ratio of total debt to total assets predicts return on assets by 2.8 percent and significant at 1% probability value. This is in the support of the research hypothesis that financial leverage is positively associated with financial performance (ROA). This is an indication that firms' profitability significantly increases with increase in debt financing.

H3b: Ratio of Long-Term Debts to Total Equity and Return on Assets

Further, the ratio of long-term debt to total equity is associated with ROA at a coefficient (β= 0.0016, t-stat= 1.2053) as shown in Table 4.11. There is a positive association between the ratio of long-term debt and return on assets as this study reveals. The positive relationship between the variable is in line with the direction of the research hypothesis but is not a significant relationship. Therefore, the hypothesis that a positive relationship exists between financial leverage and financial performance is not significantly supported by the ratio of long-term debt to equity and return on assets.

Summarily, there are positive relationships between the ratios of total debt to total asset and long-term debt to total equity with financial performance measured as ROA. However, the hypothesis that financial leverage is positively associated with financial performance is fully supported by the relationship between the ratio of total debts to total assets and return on assets. It could be concluded that the ratio of total debts to total assets as a measure of financial leverage is fully in support of the agency theory that debt financing improves profitability.

4.8.2.4 Management Competency and Return on Assets (ROA)

The competency of the management toward engaging on value added expenses was measured through the portion of total revenue generated incurred as total operating expenses (i.e. the ratio of total operating expenses to total revenue). The multivariate

regression result from Table 4.11 reveals that the ratio of total expenses to total revenue is associated with ROA at a coefficient (β= -0.1323, t-stat= -2.4614, p<0.05). This regression implies that the ratio of total expenses to total revenue is negatively and significantly associated with the return on assets (ROA). This is a reverse of the stated hypothesis that management competency is positively associated with financial performance. This is contrary to the normative aspect of the agency theory that increasing agency costs will enhance the management to act in the owners' interest and hence improve financial performance. This research finding is contrary to the study by Mwangi and Murigu (2013) that a positive relationship exists between management competency and return on assets. The regression result is not in the support of the hypothesis, hence the hypothesis that management competency is positively associated with financial performance (ROA) is rejected.

4.8.2.5 Control Variables and Return on Assets (ROA)

The control variables in this research are firm size and growth rate. The choice of size is justified by the distinct characteristics of companies as studies revealed. The possibility of firm size and growth rate associating with firm performance were highlighted by Eljelly (2004) and Egbida (2011). Eljelly (2004) and Khalifa and Shafii (2013) studied a positive relationship between firm performance (ROA) and firm size while Mwnagi and Murigi (2015) study revealed a negative relationship between them.

CV1: Firm's Size and Return on Assets

From the result in Table 4.11, it shows that a positive and significant relationship exists between firm size and return on assets (ROA) at a regression coefficient (β=0.0307, $p<0.01$). This is an indication that larger firms tend to be profitable than the smaller firms. For every increase in size, return on assets is increased by 3.07 percent and is significant at 1 percent probability value.

CV2: Sales Growth Rate and Return on Assets

Table 4.11 reveals that the sales revenue growth rate is associated with ROA at a regression coefficient of -0.000003 and significant at ($p<0.05$). The result signifies that there is inverse and significant relationship between sales revenue growth and return on assets. This result is contrary to the finding by Egbida (2015) that there is a positive relationship between sales growth rate and ROA. Therefore, the two control variables are significant predictors of return on assets.

4.8.3 Return on Equity (ROE) as the Dependent Variable (Model 2)

As presented in Table 4.12, the R^2 is 0.66 which indicates that 66% variation in dependent variable (ROE) is explained by the variation in the independent variables in this study. One of the attributes of a good regression is a higher R^2 coefficient. With this 66%, it could be concluded that the model is well fitted with the selected independent variables. The coefficient of R^2 above 50% indicates a good regression model for this research. The

F-statistics of the regression is 6.7229 with the probability value of 0.0000. The p-value of less than 1% gives a strong indication that the model is valid and proves that the independent variables are jointly the significant determinants of return on equity (ROE).

The result from Table 4.12 shows that the firm's current ratio is associated with the return on equity at a coefficient of 0.0090 (t-stat of 0.4065). The result shows that every increase in current ratio is associated with an increase in profitability (ROE) by 0.9 percent. However, current ratio is an insignificant predictor of return on equity. Additionally, as shown in Table 4.12, cash gap is a significant predictor of ROE at ($p<0.05$) with a regression coefficient of 0.00004 (t-stat of 2.1886). The result implies that 0.004 percent increase profitability (ROE) is associated with every 1 day increase in cash gap. The relationship shows that cash gap and ROE change in the same direction which is contrary to the findings by Eljelly (2004) which revealed inverse relationship between cash gap and profitability.

Further, asset turnover is positively associated with return on equity at the regression coefficient of 0.0813 (t-stat of 1.0426). This implies that every increase in asset turnover is related to an increase in ROE by 8.1 percent. However, asset turnover's prediction of ROE is insignificant. In addition, inventory turnover is associated with return on assets at a regression coefficient of -0.0003 (t-stat -0.2412). The relationship points out that every increase in inventory turnover is associated with a decrease in return on equity by 0.03 percent. This is contrary to the study by Khalifa and Shafii (2013) that inventory turnover

ratio and profitability are positively related. However, inventory turnover is not a significant predictor of return on equity.

Total debt to total asset ratio associates with ROE at a regression coefficient of 0.0065 (t-stat of 0.0791, $p<0.01$). The regression results as shown in Table 4.14 reveals that the total debts to total assets ratio is positively and significantly associated with return on equity. The study finds that every increase in the ratio of total debt to total assets is associated with an increase return on equity of 0.65 percent. Additionally, the ratio of long-term debt to total equity is associated with ROE at a regression coefficient of 0.1545 (t stat of 17.8715, $p<0.01$). This denotes that long-term debt to total equity is positively and significantly associated with ROE. Return on equity increases by 15.5 percent for every increase in the ratio of long-term debt to total equity. This is in line with the findings by Gweyi and Karenji (2014) that there is a strong and significant relationship between debt-equity ratio and return on equity.

Further, the ratio of total operating expenses to total revenue is associated with ROE at a regression coefficient of -1.0466 (t stat of -3.0227). The ratio of total operating expenses to total revenue is the largest predictor of return on equity among the independent variables. The results as presented in Table 4.12 reveals that every increase in the ratio of operating expenses to total revenue is associated with a decrease in return on equity of 104 percent. However, the statistics reveal that it is not a significant predictor of ROE.

The result as shown in Table 4.12 indicates that firm size is related to ROE at 0.1413 (t stat of 0.9663, p<0.01). This reveals that firm's size is positively and significantly associated with ROE. It indicates that every increase in firm size is associated with an increase in ROE by 14.1 percent. Finally, the sales growth rate is associated with return on equity at a regression coefficient of -0.0007 (t-stat -0.7628, p<0.05). There is a negative and significant relationship between sales revenue growth rate and ROE. The result shows that every increase in the sales growth rate is associated with a decrease in ROE by 0.07 percent.

Table 4. 12
FE Regression Results for ROE as the Dependent Variable (Model 2)

Hypotheses	Variable	Expected sign	Coefficient	Std. Error	t-value	P-Value
H1a	CR	+	0.0090	0.0045	0.4065	0.4811
H1b	CG	+	0.00004	0.00001	2.1886	0.0029***
H2a	ATOV	+	0.0813	0.0108	1.0426	0.2844
H2b	ITOV	+	-0.0003	0.0003	-0.2412	0.0554
H3a	TDTA	+	0.0065	0.0090	0.0793	0.0000***
H3b	LDTE	+	0.1545	0.0020	17.8715	0.0000***
H4	TOTR	+	-1.0466	0.0359	-3.0227	0.1701
CV1	FS		0.1413	0.0042	0.9663	0.0000***
CV2	SGR		-0.0007	0.0023	-0.7628	0.0089**
Number of observation		330				
Number of firms		66				
F-statistics		6.7229				
R^2		0.6611				
Adjusted R^2		0.5628				
Probability value		0.0000				

Note: CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size; SGR is sales growth rate and CV control variable
***, **, * are significant at 1%, 5% and 10% level (one-tailed) respectively

4.8.4 Hypotheses Testing

4.8.4.1 Liquidity Efficiency and Return on Equity (ROE)

This section tests the hypothesis on liquidity efficiency and financial performance measured as return on equity (ROE). The firms' liquidity is measured through current ratio and cash gap. Hence the hypothesis on liquidity efficiency is tested via current ratio in hypothesis 1a (H1a) and cash gap as hypothesis 1b (H1b).

H1a: Current Ratio and Return on Equity

The result from Table 4.12 tells that the ratio of total debt to total assets is related to ROE at a regression coefficient (β= 0.0090, t-stat= 0.4065). This indicated that an increase in profitability by 0.9 percent is associated with every increase in the current ratio. The result presents a positive relationship between current ratio and return on equity (ROE). This tends to be in line with the research hypothesis that there is a positive relationship between liquidity efficiency and financial performance (ROE). However, the association between the current ratio and ROE is insignificant relationship. Therefore, the regression result is not in full of support of the research hypothesis that a positive relationship exists between liquidity and financial performance.

H1b: Cash Gap and Return on Equity

The second measure of liquidity efficiency as used in this research is cash gap. The result presented in Table 4.12 shows that cash gap is positively and significantly associated with

the return on equity at a regression statistics (β= 0.0004, t-stat= 2.1886, p<0.01). It portrays that every 1 day increase in the cash gap is associated with an increase in profitability by 0.04 percent. Cash gap has a positive relationship with ROE, and significant at 1 percent. This is in support of the research hypothesis that liquidity efficiency is positively associated with financial performance. This finding is contrary to the report by Eljelly (2004) that cash is inversely associated with profitability.

The conclusion from this analysis, current ratio and cash gap are positively associated with financial performance measured as return on equity (ROE). Though, the current ratio is not a significant predictor of ROE. However, Kamath (1989) and Ejelly (2004) submitted that cash gap could be used to replace or supplement the current ratio and the quick ratio. This is because of the inability of both the current ratio and the quick ratio to predict the cash flow pattern of an organization compared to cash gap. Summarily, the research hypothesis that liquidity efficiency is positively associated with firm financial performance is supported. This is the support of the stakeholder theory that firms could be more profitable with efficient liquidity

4.8.4.2 Business Operating Efficiency and Return on Equity (ROE)

This section tests the hypothesis between business operating efficiency and financial performance (ROE). The business operating efficiency is measured in this study through asset turnover and inventory turnover. The hypothesis is tested via hypothesis 2a and hypothesis 2b. The relationship between asset turnover ratio and ROA is explained in

hypothesis 2a (H2a) while hypothesis 2b (H2b) explains the association between inventory turnover and ROA.

H2a: Asset Turnover and Return on Equity

From the result in Table 4.12, asset turnover ratio was related to return on equity (ROE) at a regression coefficient (β= 0.0813, t-stat=1.0426). The result entails that there is a positive relationship between asset turnover ratio and return on equity. As presented in Table 4.12, every increase in the asset turnover is associated with an increase in profitability by 8.1 percent. This seems to be in line with the research hypothesis that they are positively related. However, the relationship between asset turnover and return on equity is not a significant relationship. Therefore, that research hypothesis is not supported.

H2b: Inventory Turnover and Return on Equity

Further, the statistical relationship between inventory turnover and return on equity is revealed at (β= -0.0003, t-stat= -0.2412). There is a negative relationship between ROE and inventory turnover and contrary to the research hypothesis of a positive relationship. This is not in line with the research hypothesis that there is exist a positive relationship between inventory turnover and ROE. Additionally, the relationship between inventory turnover and ROE is an insignificant relationship. The hypothesis is entirely not supported by this relationship.

In conclusion, the relationships between asset turnover and inventory turnover with return on equity are not significant. Therefore, business operating efficiency is not a significant predictor of return on equity. The hypothesis that the business operating efficiency is positively associated with financial performance (ROE) is not supported.

4.8.4.3 Financial Leverage and Return on Equity (ROE)

The research third hypothesis is about financial leverage and financial performance. The relationship between financial leverage measured as the ratio of total debt to total assets and long-term debt to total equity with financial performance (ROA) is as presented in Table 4.12. The relationship between the ratio of total debt to total assets and return on assets is explained in hypothesis 3a (H3a) while the relationship between the ratio of long-term debt to total equity and return on assets is presented as hypothesis 3b (H3b).

H3a: Ratio of Total Debts to Total Assets and Return on Equity

As presented in Table 4.13, it reveals that total debt to total assets ratio is related to ROE at (β= 0.006471, t-stat= 0.079309, $p<0.01$). The results show that the ratio of total debt to total assets is positively associated with profitability (ROE). This is in line with the research hypothesis that there is a positive relationship between financial leverage and financial performance. This relationship is significant at the 1 percent level of significance. Therefore, the ratio of total debt to total equity is positively and significantly associated with return on equity. The research hypothesis is fully supported.

H3b: Long-Term Debts to Total Equity and Return on Equity

Further, the ratio of long-term debt to total equity as presented in Table 4.12 displays that it is related to return on equity at a regression coefficient (β= 0.1545, t-stat= 17.8715, p<0.01). The results disclose a significant positive relationship between the ratio of long-term debt to total equity and return on equity. This is supportive of the research hypothesis that financial leverage if positively associated with financial performance (ROE).

In summary, the ratios of total debt to total assets and long-term debt to total equity are positively and significantly associated with return on equity. The hypothesis that financial leverage is positively associated with financial performance (ROE) is fully supported. This is in the support of the agency theory that debt financing increase firm profitability. Additionally, the study is in line with the position of Modigliani and Miller (1968) that firms make profits from debt financing. This research finding is consistent with the studies by Abor (2005), Delen, et al. (2013) and John (2014) that financial leverage is positively associated with profitability.

4.8.4.4 Management Competency and Return on Equity (ROE)

The ratio of total operating expenses to total sales revenue was applied in this research to measure management competency. The result from Table 4.12 indicates that the ratio of total operating expenses to total revenue is associated with ROE at a regression coefficient (β= -1.0466, t-stat= -3.0227). The regression result shows that there is a significant

negative relationship between the ratio of total operating expenses to total sales revenue and return on equity. The study reveals that the ratio of operating expenses to total revenue is not a significant predictor of return on equity. The research hypothesis that management competency is positively associated with financial performance is not supported.

4.8.4.5 Control Variable and Return on Equity (ROE)

This section examines the association between the control variables and return on equity. The control variables in this research are firm size and sales growth rate. The choice of size is justified by the distinct characteristics of companies as studies revealed. The possibility of firm size and growth rate associating with firm performance were highlighted by Hansen and Wernerfelt (1089), Eljelly (2004) and Egbida (2011). Eljelly (2004) and Khalifa and Shafii (2013) studied a positive relationship between firm performance (ROA) and firm size while Mwnagi and Murigi (2015) study revealed a negative relationship between them.

CV1: Firm's Size and Return on Assets

As presented in Table 4.12, it exhibits that firm size is associated with the return on equity at a coefficient (β= 0.1413, t-stat= 0.9663, $p<0.01$). The firm's size is positively and significantly associated with return on equity. This is consistent with the finding by Khalifa and Shafii (2013). The result shows that firms size predicts profitability by 14.1

percent. This means that larger firms tend to be more profitable than smaller firms, thus the size matters in the issue of firms' profitability.

CV2: Sales Growth Rate and Return on Assets

Further, the result as presented in Table 4.12 shows that sales revenue growth is associated with return on equity at the regression coefficient (β= -0.0007, t-stat= 0.0023, $p<0.05$). This is an indication that the sales growth rate is a negative predictor of return on equity, and this is significant at 5 percent significant levels. This is contrary to the finding by Uwuigbe, et al. (2011) that sales growth is positively associated with profitability. Both control variables (firm's size and sales growth rate) are significant predictors of profitability (ROE).

4.9 Summary of Hypotheses Testing on Financial Performance

The internal organisational factors were assessed through their management as regard liquidity efficiency, business operating efficiency, financial leverage and management competency. The two different ways of measuring financial performance are taken as return on asset (ROA) and return on equity (ROE). However, the multivariate regression equation was established through fixed effect model of panel data equation estimation. From the result of analysis, most of the research hypotheses are partially supported. The results from both Table 4.14 (Model 1= ROA) and table 4.15 (Model 2= ROE) indicate that the directions of the variables toward both measures of financial performance (i.e.

ROA and ROE) are the same. The liquidity efficiency and financial leverage are positively associated with both ROA and ROE while management competency is negatively associated with both ROA and ROE. However, the firms' business operating efficiency is partly positively and partly negatively associated with ROA and ROE equity.

4.10 Sensitivity Analysis of Good and Poorly Performing Firms

The section presents the sensitivity analysis on the two groups of firms as categorises in this study as good performing and poor performing firms based on the set criteria of performance. This is to enhance in-depth analysis on the activities of the firms as regard their level of performance. The firms are classified in accordance to Ryan (2014) suggested ideal benchmark of 5% and 10% for return on assets and return on equity respectively. Accordingly, firms that consistently generated positive returns over the study period or might have attained the 10% as average return on equity on equity over the period were in this research accorded the status of good performance. While those firms that generated a negative return with the study period are classified as firms with poor performance. Out of the 66 firms for this research, 39 firms (i. e. giving 195 observations) are classified as good performance while 27 firms (i.e. 135 observations) fall under the categories of poor performance. The descriptive analysis is presented, followed by the regression analysis of the two groups tabled in a comparative form.

4.10.1 Descriptive Analysis of Firms with Good Performance

It is an indisputable fact that positive returns will lead to an appreciation of owners' wealth in every organisation. The firms classified under this category for this research might not in all have generated the ideal rate of return of 10% on equity as suggested by Ryan (2014). These firms also have consistently earned positive returns throughout the 5years on this period of study. There are 39 firms under this group for five years, giving a total of 195 observations. Therefore, this section is to examine the activities of the firms over the period as presented in Table 4.13.

The firms under this category as presented in Table 4.13 come with an average return on assets of 9.3% for the study period. This is over and above the ideal benchmark for return on asset of 5% as suggested by scholars (e.g. Ryan 2014). The standard deviation of the firm's return on assets is 8.6%. In addition, the firms mean return on equity for the period is 14.3% with a standard deviation of 19.9%. Also, the group average return on equity over the period is above the ideal benchmark of 10% for return on equity.

Therefore, the nature of their internal organisational factors that gave rise to their returns on assets and equity include the current ratio at an average of 1.4:1 with the standard deviation of 0.63:1. In addition, the mean cash gap of the group for the period is 298 days with the standard deviation of 2648 days. On the business operating activities, the average asset turnover for the group is 1.0452 times with the standard deviation of 0.7065 times.

The group mean asset turnover is somehow low which might portray the asset underutilization of Nigerian manufacturing firms as previous scholars noted. Further, the group mean inventory turnover is 6.37 times with the group standard deviation of 10.5490 times in the period.

As the regard the group mode of financing, the Table 4.13 reveals the mean of their ratio of total debt to the asset as 50.6% with the standard deviation of 16.8%. This implies that the group's total assets are 50.6% financed by debts. Further, the average ratio of long-term debt to total equity in the group is 21.7% with the standard deviation of 32.5%. In addition, the mean ratio of their total operating expenses to total revenue is 23.9% with the standard deviation of 32.5%. This indicates that on average, 23.9% of firms' revenue are consumed as total operating expenses comprises all the management agency costs. Also, the mean firm size, which was taken as the natural logarithm of their total revenue is 23.5832 with the standard deviation of 1.7830. This does not portray much disparity among the firms in the group in term of the size. Finally, the sales revenue growth rate indicates a mean of 9.99%, with the standard deviation of 24.7%.

Table 4. 13
Descriptive Statistics of Firms with Good Performance

Variables	Mean	Standard Deviation	Minimum	Maximum
ROA (%)	0.0926	0.0857	0.0036	0.5396
ROE (%)	0.1434	0.1986	0.0059	1.4082
CR (ratio)	1.4057	0.6282	0.3790	3.2793
CG (days)	298.2872	2648.43	-268.883	28931.52
ATOV (times)	1.0452	0.7065	0.0294	5.7997
ITOV (times)	6.3738	10.5490	0	105.988
TDTA (%)	0.5060	0.1680	0.1779	0.8405
LDTE (%)	0.2174	0.4199	0	2.9109
TOTR (%)	0.2394	0.3252	0.0124	2.8726
FS (log)	23.5832	1.7830	20.2449	27.6408
SGR (%)	9.9925	24.7688	-52.6013	192.1041

Note: ROA is return on assets; ROE is return on equity; CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size and SGR is sales growth rate

4.10.2 Descriptive Analysis of Firms with Poor Performance

The firms under this group are those that generated average returns of below 10% and experience negative returns on assets and equity. The figures in Table 4.14 present the returns generated by the group and their peculiar ratios of internal organisational factors. The mean return on assets is -4.3% with the standard deviation of 13%. The group generated a negative return on assets over the period. The statistics indicate that the firm performance over the period is generally poor and much disparity among the firms in the group.

The descriptive analysis of their internal organizational factors as Table 4.14 indicates that the mean current ratio of the group is 1.5:1 with the standard deviation of 2.67:1. The

statistics show much disparity among the firms with higher standard deviation. In addition, the average cash gap is 37 days with the standard 431 days. The mean cash of this group is low as compared to the firms in the good performance group.

The business operating activities of the group indicate that the firms' assets were turned over 0.82 times for the period on average with the group standard deviation of 0.9151 times. The mean inventory turnover ratio is 8.3 times with the standard deviation of 43.798 times. The standard deviation is excessively highly which is also an indication of disparity among the firms. Additionally, the firms' capital structure from the statistics in Table 4.14 reveals the mean ratio of total debt to the total asset as 116% with the standard deviation of 243%. This financing structure indicates that the group debt is over the firms' asset which is a clear sign of business in financial distress. In addition, the ratio of long-term debt to total equity indicates an average of 107% with the standard deviation of 5.7513.

The ratio of the firms' total operating expenses to total revenues signifies that on average the group expensed 32% of its revenue with the standard deviation of 24.4%. This ratio is as well higher than that in the group of firms classified under good performance. The statistics reveal the average group size as 20.9866 with the standard deviation of 4.5555. Finally, Table 4.14 shows that the sales growth rate of the group is 5.08% on average with the standard deviation of 43.2% for the period.

Table 4. 14
Descriptive Statistics of Firms with Poor Performance

Variables	Mean	Standard Deviation	Minimum	Maximum
ROA (%)	-0.0433	0.1353	-0.9326	0.2663
ROE (%)	-0.1971	1.0555	-6.9073	7.0849
CR (ratio)	1.4973	2.6701	0.0058	27.7096
CG (days)	36.9996	431.1748	-2245.63	1450.399
ATOV (times)	0.8169	0.9151	0	6.6874
ITOV (times)	8.3352	43.7980	0	502.9198
TDTA (%)	1.1678	2.4312	0.0734	15.9772
LDTE (%)	1.0713	5.7513	0	66.2391
TOTR (%)	0.3201	0.2441	0	1.0398
FS (log)	20.9866	4.5555	0	27.2358
SGR (%)	5.0862	43.2493	-66.7633	275.4186

Note: ROA is return on assets; ROE is return on equity; CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size and SGR is sales growth rate

4.10.3 FE Regression Equation for Good and Poor Performance

Presented in Table 4.15 and Table 4.16 is the fixed effect model regression equations for good performance firms and poor performance firms in comparative form. The results of regression analysis for the two categories of the firms as used in this research is as presented in Table 4.15 for the independent variables' relationship with ROA and Table 4.16 for independent variables' relationship with ROE.

4.10.3.1 FE Regression for ROA as the Dependent Variable

The results of the regression as presented in Table 4.15 divulge that the R^2 of the good performing firms is 87.2 percent. This means that 87.2 percent variation in the profitability

(ROA) is explained by the variation in the research independent variables and control variables. The F-statistic is 21.3 with p-value of 0.0000. This reveals that the independent variables are joint significant predictors of the group profitability at 1 percent probability level.

Both the current ratio and the cash gap are positively associated with ROA. But the current ratio is the only significant predictor of ROA at the 10 percent level of significance. Further, asset turnover and inventory turnover ratios are significant determinants of the group ROA at 10 percent and 1 percent, respectively. While the asset turnover ratio associates with ROA positively, inventory turnover ratio is inversely related to ROA. The ratios of total debt to total assets and long-term debt to total equity associate with ROA negatively. But only the ratio of total debt to total assets is significant at the 1 percent level of significance. Also, the ratio of total operating expenses to total revenue is negatively and significantly associated with ROA. Finally, the firm size and sales growth rate are positively associated with ROA of the group, and they are both significant at the 1 percent level of significance.

As presented in Table 4.15, the R^2 for the poor performance is 29.1954. This implies that 29.2 percent variation in the group performance (ROA) is explained by the research independent variables and the control variables. The F-statistics is 5.73 with the p-value of 0.000001. This portrays that the variables are significant jointly at the 1 percent level of significance in predicting the group ROA. Table 4.15 shows that the current ratio and

the cash gap are positively associated with the group ROA. Among the two measures of liquidity, the cash gap is the only significant predictor of ROA at the 1 percent level of significance.

The asset turnover ratio is positively and significantly associated with ROA at 10 percent significant levels. While inventory turnover is negatively and insignificantly related to ROA. Additionally, the result shows that the ratios of total debt to total assets and long-term debt to total equity are not significantly associated with profitability. While the ratio of total debt to total assets associated negatively with ROA, the ratio of long-term debt to total equity is positively associated with ROA. Also, total operating expense to total revenue ratio is negatively and insignificantly associated with ROA. Finally, firm size and sales growth are positively associated with ROA. They are both significant predictors of ROA at 10 percent level of significance.

Summarily, the results for both good performance and poor performance reveal that the independent and control variables are jointly significant predictors of their profitability (ROA). The directions of the relationship between the dependent variable (ROA) and the independent variables are mostly the same except long-term debt to total equity ratio. It could be concluded that the performance of the first group is efficient because it maintains moderate ratios compared the poor performance group.

Table 4. 15
FE Regression for ROA as the Dependent Variable for the Two Groups

	Expected Sign	Good Performance		Poor Performance	
Variable		**Coefficient**	**P-value**	**Coefficient**	**P-value**
CR	+	0.0023	0.0526*	0.0032	0.4123
CG	+	0.000003	0.1492	0.00002	0.0023***
ATOV	+	0.0386	0.034*	0.0134	0.0338*
ITOV	+	-0.00014	0.0003***	-0.00014	0.1463
TDTA	+	-0.0204	0.0009***	-0.0140	0.4001
LDTE	+	-0.0152	0.3988	0.00065	0.2599
TOTR	+	-0.0073	0.0000***	-0.0215	0.2140
FS		0.0070	0.0000***	0.0075	0.0401*
SGR		0.0004	0.0001***	0.0003	0.0653*
Number of	observation	195		135	
Number of	Firms	39		27	
F-statistics		21.2738		5.7269	
R^2		0.8718		0.2919	
Adjusted R^2		0.8308		0.2410	
Probability	Value	0.0000***		0.000001***	

Note: CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size and SGR is sales growth rate.
***, **, * are significant at 1%, 5% and 10% level (one-tailed) respectively.

4.10.3.2 FE Regression for ROE as the Dependent Variable

This section examines the relationship between the ROE and the independent variables of the good performing and poor performing as presented in Table 4.16. The R^2 for the good performing group is 88.7797. This means that the 88.8 percent variation in the group ROE is explained by the research independent variables. The F-statistics is 24.74 with the p-value of 0. The independent variables are jointly significant predictors of ROE at the 1 percent level of significance.

As presented in Table 4.16, the current ratio and the cash gap are positively associated with ROE of the good performance. But the only significant predictor of ROE among the current ratio and the cash is the current ratio which is significant at the 5 percent level of significance. The asset turnover is positively associated with ROE and significant at the 10 percent level of significance. While the inventory turnover ratio is a significant negative predictor of ROE at 1 percent significance level. The figures as in Table 4.16 show that financial leverage is not a significant predictor of the good performing group. While the ratio of total debt to total assets is positively associated with ROE, the ratio of long-term debt is inversely related to ROE. The ratio of total operating expenses is positively associated with ROE and significant at 1 the percent level of significance. Finally, the firm size and the sales growth rate are both significant predictors of ROE at the 1 percent level of significance. While the firms' size is negatively associated with ROE, the sales growth is a positive predictor.

Further, the FE regression for poor performing group indicates an R^2 coefficient of 27.1187. This indicates that 27.1 percent variation in ROE is explained by variation in the independent and control variables. The F-statistic is 5.1680 with a p-value of 0.000006 indicating that the independent variables are jointly significant in predicting the ROE of the poor performing group.

As presented in Table 4.16, the current ratio and cash gap are positively associated with the ROE of the poor performing group. However, the cash gap is the only significant

predictor among the two measures of liquidity at 5 percent level of significance. Asset turnover ratio and inventory turnover ratio are not significantly associated with ROE. The asset turnover is positively associated ROE while inventory turnover is related to ROE inversely. In addition, total debt to total asset ratio is a negative and insignificant predictor of ROE. The ratio of long-term debt to equity is positively associated with ROE and significant at1 percent level. The ratio of total operating expense to total revenue is negatively and positively associated with ROE at the 1 percent level. Finally, the firm size and the sales growth are both significantly related to ROE at the 10 percent level. While the firms' size is related to ROE inversely, the sales growth rate is positively associated with ROE.

In summary, the research independent and control variables are significant jointly in predicting profitability (ROE) of both good performance and poor performance at the 1 percent level of significance. It can be concluded that the good performance performed credibly over the study period because the firms maintained moderate levels of ratio as compared to the poor performance as the descriptive statistics reveal

Table 4. 16

FE Regression for ROE as the Dependent Variable for the Two Groups

	Expected. Sign	Good Performance		Poor Performance	
Variable		**Coefficient**	**P-value**	**Coefficient**	**P-value**
CR	+	0.0096	0.0124**	0.0231	0.3685
CG	+	0.000006	0.1579	0.0002	0.0057**
ATOV	+	0.0943	0.0365*	0.0208	0.3375
ITOV	+	-0.0001	0.0003***	-0.0005	0.18985
TDTA	+	0.1756	0.3153	-0.0379	0.12235
LDTE	+	-0.0252	0.2127	0.0885	0.0000***
TOTR	+	0.0159	0.0005***	-0.6434	0.0036***
FS		-0.0063	0.0001***	-0.2286	0.0516*
SGR		0.0009	0.0001***	0.0013	0.0659*
Number of	observation	195		135	
Number of	Firms	39		27	
F-statistics		24.7465		5.1679	
R^2		0.8878		0.2712	
Adjusted R^2		0.8519		0.2187	
Probability	Value	0.0000		0.000006	

Note: CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue; FS is firm size and SGR is sales growth rate

***, **, * are significant at 1%, 5% and 10% level (one-tailed) respectively

4.11 Summary of the Chapter

The chapter provides the analysis of the data from the firms' annual reports in the forms of descriptive analysis, Pearson correlation analysis and multiple linear regression. The data was diagnosed based on the assumptions of multiple linear regression such as linearity, normality, no multicollinearity, no serial correlation and homoscedasticity. The appropriateness of the three models for panel data equation estimation was determined through Houseman test and Wald test. From the result of, the fixed effect model was the appropriate model for the research equation estimation. This was employed to estimate the research equation through which the research hypotheses were tested. Further, the

descriptive analysis of the firms under the two groups of good/average performance and poor performance was conducted. Finally, the next chapter discusses research findings, conclusions, implications of research findings and limitation of the study for future research.

CHAPTER FIVE

CONCLUSSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the research conclusion and recommendations. The chapter comprises seven (7) sections. Section 5.1 introduces the chapter. An overview of the study is presented in Section 5.2 while Section 5.3 outlines the discussion of the research hypotheses results and findings. Section 5.4 presents a discussion on the sensitivity analysis while the contribution of the study is presented in Section 5.5. Finally, the limitation and suggestion for future research is discussed in Section 5.6 and the conclusion of the study is presented in section 5.7.

5.2 An Overview

This final chapter of the study presents the summaries of the empirical research findings and the contributions to knowledge, practically and theoretically. The findings in summary based regarding the research questions and the hypotheses are presented in this chapter. The study provides highlights on filling the research gap by looking at the organisational specific factors and variables as previous studies majorly focused on the general economic variables. Finally, the discussion and the study limitations are presented in this chapter with ending remarks.

The main objective of this research is to examine the relationship between internal organisational factors such as liquidity efficiency (measured by the current ratio and the cash gap), business operating efficiency (measured by asset turnover and inventory turnover), financial leverage (measured by the ratios of total debt to total assets and long-term debt to total equity), and management competency (measured by the ratio of total operating expenses to total revenue) with the Nigerian manufacturing firms' profitability proxies by ROA and ROE. The study uses financial data from the annual reports and financial statements of 66 manufacturing firms listed on the Nigerian stock exchange (NSE) covering a period of 5 years from 2011 to 2015.

Presented in Table 5.1 is the summary of this research findings. The answers to the research questions are based on the Fixed Effect (FE) regression estimates for the two measures of profitability as presented shown in the chapter four in Table 4.12 and 4.13 for ROA and ROE, respectively.

Table 5. 1
Summary of Findings on the Research Questions

		Findings	
	Research Questions	**ROA**	**ROE**
1	Does liquidity efficiency associate with financial performance of Nigerian manufacturing firms?		
	(a) CR and profitability	Insignificant positive	Insignificant positive
	(b) CG and profitability	Significant positive	Significant positive
2	Does business operating efficiency associate with financial performance of Nigerian manufacturing firms?		
	(a) ATOV and profitability	Insignificant positive	Insignificant positive
	(b) ITOV and profitability	Significant negative	Insignificant negative
3	Does financial leverage associate with financial performance of Nigerian manufacturing firms?		
	(a) TDTA and profitability	Significant positive	Significant positive
	(b) LTDE and profitability	Insignificant positive	Significant positive
4	Does management competency associate with financial performance of Nigerian manufacturing firms?		
	(a) TOTR and profitability	Significant negative	Insignificant negative

Note: ROA is return on assets; ROE is return on equity; CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio; TOTR is total operating expenses to total revenue.

The overall association of the independent variables with ROA and ROE indicates that the cash gap is significantly positively related to both ROA and ROE. The asset turnover ratio reveals an insignificant positive relationship with ROA and ROE. While current ratio is insignificantly positively predictor of ROA, it is an insignificant negative predictor of

ROE. The asset turnover is positively and insignificantly associated with ROA and ROE. Inventory turnover is negatively associated with ROA and ROE. However, inventory turnover is only significant to ROE. On the relationship of financial leverage with profitability, the ratio of total debt to total assets is significantly positively related to both ROA and ROE. The ratio of long-term debt to total equity is an insignificant positive determinant of ROA, but relates to ROE significantly and positively. Finally, the ratio of total operating expenses to total revenue reveals a significant negative relationship with ROA while its association with ROE is insignificant negative.

5.3 Test of Hypotheses

Presented in Table 5.2 is the summary of the hypotheses testing under the FEM regression estimates. As Table 5.2 reveals, hypothesis 1a is not supported for both ROA and ROE. The association between the current ratio and profitability (ROA and ROE) is positive which is in the same direction with the expected sign. However, the result is not supported because is not a significant predictor of profitability. This strength of the variable in predicting profitability seems to be in line with the submission by Kamath (1989) and Ejelly (2004) that both current ratio and cash gap are handicapped in predicting the cash flow pattern of firms. In relation to the peculiarity of manufacturing with their unique liquidity compared to other sectors, particularly in the kind of their inventories, which comprises raw materials, work in progress and finished goods, the current ratio is not a strong measure of their liquidity. However, the direction of the findings is in line with the stakeholder theory that liquidity is positively associated with financial performance. This

finding is in line with the studies by Nasruddin (2006), Borhan et al. (2014), Xu and Banchuenvijit (2014) and Mwangi and Murigu (2015).

The findings on the cash gap support hypothesis 1b by reporting a significant positive relationship between the cash gap and both the ROA and ROE. This finding is in line with the study by Khalifa and Shafii (2013). The research hypothesis is supported for both ROA and ROE. The significance of the findings in predicting profitability agrees with the position of Eljelly (2004) that cash gap is a powerful tool in predicting the cash flow pattern of an organisation. These research findings reveal that an aggressive credit policy which could result in low cash gap is not profitable to Nigerian manufacturing firms. The aggressiveness in credit policy may result in loss of customers and probably reduces sales revenue. As the stakeholder theory reveals that stakeholder oriented management is positively associated with financial performance. And among the firm's stakeholders are the customers and creditors. Additionally, the higher cash gap could result from lower days in account payable. This connotes the prompt settlement of account payable which is the primary concern of the creditors as revealed by the stakeholder theory. Therefore, the findings of this research indicate that the higher the cash gap the higher the profitability.

The empirical findings on the asset turnover show that it is positive, but insignificantly associated with ROA and ROE. The positive direction of the funding is in line with the expected sign. This is in line with the submission by Bajkowski (1999) that asset turnover increases profitability. However, the results are not in support of the hypothesis 2a because it is not a significant predictor of profitability. This is a hint that Nigerian

manufacturing firms are less efficient in asset utilization. This is contrary to the stakeholder theory that efficient asset management improves profitability. Additionally, hypothesis 2b is also not supported because of the finding direction and the insignificance of the relationship. The findings reveal that the inventory turnover ratio is insignificantly negatively associated with both ROA and ROE. This is contrary to the research the expected direction. This finding is consistent with the studies that inventory turnover is negatively associated with profitability by Khalifa and Shafii (2013) and Innocent et al. (2013). These research findings reveal that Nigerian manufacturing firms are not efficient in generating profitability via inventory turnover.

Table 5.2 shows that hypothesis 3a is supported for the both measure of profitability (ROA and ROE). The findings from H3a show that the ratio of total debt to total asset is significantly positively associated with ROA and ROE. This is consistent with the findings by Delen et al. (2013) that financial leverage is positively associated with profitability. The finding also agrees with the agency theory that debt financing is introduced to improve firms' financial performance and reduce the conflict of interest between the managers and the owners. Further, hypothesis 3b is not supported under ROA because the relationship between the ratio of long-term debt to total equity is not significant. The Ratio of LDTE is positively associated with ROA which is in line with the expected sign but not significant. However, the finding is supportive of the research hypothesis under ROE. This is because the relationship between the ratio of LDTE and ROE is a significant positive relationship. This is in line with the submission by Modigliani and Miller (1968) that firms can make profit from debt financing in a taxation

economy via tax shield. This study also agrees with the agency theory that debt financing improves financial performance. Further, this research finding is consistent with the studies by Abor (2005), Delen, et al. (2013) and John (2014).

Additionally, the empirical results from management competency measured via the ratio of total operating expenses to total revenue reveals that the increasing operating expenses does not result to an increase in profitability. The research hypothesis four (H4) is not supported as presented in Table 5.2 for both ROA and ROE. This is because Table 4.12 and Table 4.13 present that the ratio of total operating expenses to total revenue is negatively associated ROA and ROE which is contrary to the expected positive relationship. While the ratio of TOTR is a significant predictor of ROA, it is insignificant in predicting ROE. The result from this study is a clue that the managements of the Nigerian manufacturing firms are not doing enough to earn profit from increasing operating expenditure. This finding supports the research by Ku et al. (2010) that one of the factors contributing to the problems of Nigerian manufacturing firms is management incompetence. The outcome of this study is contrary to the normative aspect of the agency theory that expresses a positive relationship between increasing agency cost and profitability. This finding is also in contrast with the findings by Ongore and Kusa (2013) Mwangi and Murigu (2015).

Table 5. 2
Summary of Hypotheses Testing (FE Regression)

Hypothesis	Hypothesis paths	Expected Sign	Results	
			ROA (Table 4.11)	ROE (Table 4.12)
H1a	CR ➞ profitability	+	Not supported	Not supported
H1b	CR ➞ profitability	+	Supported	Supported
H2a	ATOV ➞ profitability	+	Not supported	Not supported
H2b	ITOV ➞ profitability	+	Not supported	Not supported
H3a	TDTA ➞ profitability	+	Supported	Supported
H3b	LDTE ➞ profitability	+	Not supported	Supported
H4	TOTR ➞ profitability	+	Not supported	Not supported

Note: ROA is return on assets; ROE is return on equity; CR is current ratio; CG is cash gap; ATOV is asset turnover; ITOV is Inventory turnover; TDTA is total debt to total asset ratio; LDTE is the long-term Debt to total equity ratio and TOTR is total operating expenses to total revenue.
Hypothesis is highly supported if p-value is <0.01, moderately supported if p-value is <0.05, marginally supported if p-value is <0.10, and not supported is p-value is >0.10

5.4 Discussion of the Sensitivity Analysis of Good and Poor Performance

This study also aims to carry out the sensitivity analysis of the two categories of firms as used in this research to enhance in-depth analysis. The results are as presented Table 4.16 and Table 4.17. From the findings, it was discovered that good performing firms maintained a moderate level of liquidity as compared to the firms in the poor performing. As revealed by the minimum and the maximum level of liquidity by both categories, it was discovered that firms classified as poor performance are characterised with very low liquidity and some with excessive liquidity. From the findings of this study, liquidity associates with profitability positively. However, Nusruddin 2006 and Gill et al. 2010 studied that profitability increases with the increasing liquidity to an optimal level and

decreases thereafter. This can be said to be the case with the good performance and poor performance firms.

Further, the study exposes that the poor performance firms are highly geared compared to the good performance firms. The position of the agency theory is that there is an optimal level of debt financing. The theory posits that profitability increases to an optimal level of debt. This indicates that excessive debt financing could decrease profitability as experienced by poor performance firms. Additionally, Bajkowski (1999) submitted that underutilization or overutilization of assets could affect firms' performance negatively. These are also revealed from the sensitivity analysis of the two groups. Finally, the ratio of operating expense of the poor performance firms is higher than the good performance firms. But the ratio of the total operating expenses to total revenue is associated with profitability negatively. Perhaps, this might have contributed to the performance of the firms in the both groups. The results from the poor performance firms have clearly pictured signs of business failure and financial distress as noted by Jan and Ou (1995).

Therefore, the level of performance of the two groups and the nature of their internal organization factors is in line with the position of the signalling theory that the success or failure of firms could be revealed via the level of their financial ratios. This is because Beaver (1966) and Bell et al. (2008) revealed that signalling theory helps in assessing the financial health of firms through financial ratios.

5.5 Contribution of the Study

This study focused on the manufacturing firms listed in the NSE to examine the relationship between their internal organizational factors and financial performance over a period of five years. The research was conducted based on the three theories such as stakeholder theory, agency theory and signalling theory. It was aimed that practically the study will be of help to the management of the firms.

5.5.1 Theoretical Contribution

The study reveals the inherent benefit from firms' liquidity on profitability. Maintaining efficient liquidity will be of interest to the stakeholders (e.g. customers and creditors) and will increase firms' profitability. Efficient utilization of firms' assets which constitutes the interests of the firm's stakeholders improves profitability (Bajkowski, 1999). This study contributes to stakeholder theory's position that stakeholders-oriented management is positively associated with financial performance as submitted by Freeman (1984), Jones (1995), Harrison et al. (2010).

Further, the view of the agency theory that debt financing improves profitability is supported by this study, particularly the ROE which is the primary concern of the firm's owners. The findings of this study are in line with the agency theory that profitability increases with debt to an optimal level of debts (Jensen & Meckling, 1976; Zeckhauser & Pratt, 1985; Maria & Victoria, 2013). Finally, Ross (1977), Morris (1987), Spence (2002)

and Tuvadaratragool (2013) studied that signalling theory helps in identifying the success or failure of business organisations through financial ratios. This study contributes to this theory from the perspectives of the sensitivity analysis of the good performance and poor performance firms. This has clearly signalled the failure of the poor performance firms via their excessive ratios as compared to the good performance firms. This evidently indicates to firms that certain level of ratios could result in negative earnings or otherwise.

5.5.2 Practical Contribution

The study will be of immense benefit to the management of Nigerian manufacturing firms in managing their internal organizational factors to improve financial performance. The study will aid in the transformation of the manufacturing sector for a sustainable growth and operate as a reference for perfection in the efficient management of the resources at their disposal. The findings of this research were drawn based on the statistical results and recommendations derived logically from the findings. The findings of this study will be beneficial to the owners and other stakeholders of the Nigerian manufacturing firms. The findings will help the Nigerian manufacturing firms to improve on their profitability. The study reveals a significant positive relationship between cash gap and profitability. This indicates to the firms that the adherence to a strict credit policy which reduces the cash gap may be injurious to the firms' profitability. Also, the study reveals that moderate levels of liquidity are better because excessive and low levels of liquidity could result in low or poor performance.

The firms will benefit from the fact that their assets were not efficiently utilised over the period. The findings reveal that asset turnover is positively, but insignificantly associated with profitability. This is supportive of the previous studies that the assets of Nigerian manufacturing firms are underutilised. Additionally, the firms are not earning from inventory turnover, rather insignificantly decreases profitability. On the issues of firms' mode of financing, the study finds that financial leverage is significantly and positively associated with profitability. This shows that the financial constraints as one of the problems of the Nigerian manufacturing firms could be solved via debt financing. However, the firms should be mindful of the optimal level of debt because the study finds that highly geared firms earned low/negative profitability.

Additionally, the increasing operating expenses resulted in decreasing profitability. The findings reveal that the ratio of total operating expense to total revenue is significantly negatively associated with profitability. This indicates that the management must put the firms' operating expenses in check by identifying and removing non-value added expenses to improve profitability. The study finds that the firms with negative earning consumed larger portion of their revenue as operating expenses compared to those firms with positive earnings.

The application of the research findings and recommendation will improve the financial performance of the Nigerian manufacturing firms. The improvement in profitability will attract more investment in the sector. Also, the improvement in profitability will increase revenue generation for the government through company income tax. This is because the higher the profit for the company, the higher the company income tax since taxation is

charged as a percentage of the company profit. Finally, more investments will provide additional employment opportunity, because the scope of operation may increase with increasing investment which will demand more hands. This will help in addressing increasing unemployment rate in Nigeria.

5.6 Limitation and Suggestion for Future Research

This study was conducted on the manufacturing firms listed in Nigerian Stock Exchange (NSE). The firms' annual reports were examined to determine the association between their internal organisational factors and financial performance. The study does not cover Nigerian manufacturing firms that are not listed on NSE. This is because their annual reports are not readily available like the listed firms. Therefore, this may limit the generalisation of the research findings to those firms uncovered in this research. It is recommended for the future studies to also examine the stewardship reports of those firms to see the comparison between their financial performance and that of the listed firms covered in this study.

Additionally, the focus of this research was to the firms' stewardship reports which are majorly concentrated on the internal affairs as assessed through financial ratios of the firms in relation to their profitability. It is noteworthy that all the firms are not wholly owned by Nigerian citizens. However, apart from the examined internal organisational variables, the firms' ownership and ownership structures might have some effects on the

affairs of the firms, and the internal organisational factors that affect firms' performance cannot be exhausted in a single research. Therefore, the effects of firm ownership and ownership structure on the financial performance of Nigerian manufacturing firms are recommended for future studies.

Finally, the variables as used in this research are purely book values as presented in the firms' financial statements. The firms' financial performance might have some predictive power on their share prices and/or the other way round. In addition, the inflation and interest rates might have a moderating role on the firms' internal variables and financial performance. These were not considered in this study. It is recommended for future study to examine the firms' market variables and their financial performance and the role of inflationary trend and the interest rate on the financial performance of Nigerian manufacturing firms.

5.7 Conclusion of the Study

Essentially, this research examined the association between internal organizational factors, namely liquidity efficiency (current ratio and cash gap), business operating efficiency (assets turnover and inventory turnover), financial leverage (total debts to total assets ratio and fixed interest debts to total equity) and management competency (ratio of total operating expenses to total revenue) and financial performance of Nigerian manufacturing firms listed in Nigerian Stock Exchange (NSE). The study examined the five-year annual reports of the firms comprise years 2011, 2012, 2013, 2014 and 2015.

More specifically, the study as discussed earlier in the research summary was motivated by the poor performance of Nigerian manufacturing firms over time. The literatures related to the firms' performance by previous scholars were majorly focused on the general economic and political factors. Whereas, the specific internal organisational factors/variables were given little attention. This study will enhance the understanding of internal organisational factors/variables influencing financial performance of the firms.

Although, there are unique potentials in Nigerian firms as regard the economic, political and business environments to entice both local and foreign investors provided their investments could be managed optimally. The result from the hypothesis testing supports the facts that firms could earn profits from maintaining moderate and efficient liquidity and at the same time derive benefit from debt financing. Additionally, proper asset utilisation could enhance profit maximisation while the total operating expenses should be kept minimal. This study proved that stakeholders' interests could be attained currently by maximisation firms earning and maintain efficient liquidity. Further, the fact that debt interest increases agency cost does not invalidate the inherent benefit from debt financing, among which is a tax shield from debt interest. This is because financial leverage is a significant positive determinant of profitability.

Finally, the critical examination of the firms under the two groups has served as signals for firms to keep their variables and their peculiar ratios under watch and control to enhance earnings maximisation.

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APPENDICES

Appendix A: Interpretation of firms' dummy variables

ROA (Model 1) dummy variables interpretation

S/N	Firms' Dummies	Coefficient	Interpretation of dummies coefficients
1	Seven-Up Nigeria Plc.	-0.700418	The model's constant coefficient -0.700418 is the intercept of Seven-Up Plc. that was omitted from dummies.
2	Academic Press Nigeria Plc.	0.062616	The firm's intercept is 0.062616 relative to Seven-Up Plc.'s intercept
3	AG Leventis Nigeria Plc.	0.047244	The firm's intercept is 0.047244 relative to Seven-Up Plc.'s intercept
4	Aluminium ext. Industries Nig. Plc.	0.081668	The firm's intercept is 0.081668 relative to Seven-Up Plc.'s intercept
5	Ashaka Cement Nig. Plc.	0.029192	The firm's intercept is 0.029192 relative to Seven-Up Plc.'s intercept
6	Austin Laz & Company Nig. Plc.	0.068082	The firm's intercept is 0.068082 relative to Seven-Up Plc.'s intercept
7	Avon Crowncaps & Container Nig. Plc.	-0.034743	The firm's intercept is -0.034743 relative to Seven-Up Plc.'s intercept
8	Berger Paints Nig. Plc.	0.124135	The firm's intercept is 0.124135 relative to Seven-Up Plc.'s intercept
9	Beta Glass Plc.	0.044049	The firm's intercept is 0.044049 relative to Seven-Up Plc.'s intercept
10	BOC Gases Nigeria Plc.	0.157593	The firm's intercept is 0.157593 relative to

			Seven-Up Plc.'s intercept
11	Cadbury Nigeria Plc.	0.048874	The firm's intercept is 0.048874 relative to Seven-Up plc.'s intercept
12	Chemical and Allied Product Nig. Plc.	0.442222	The firm's intercept is 0.442222 relative to Seven-Up Plc.'s intercept
13	Capital Oil Plc.	-0.043343	The firm's intercept is -0.043343 relative to Seven-Up Plc.'s intercept
14	CCNN Plc.	0.092004	The firm's intercept is 0.092004 relative to Seven-Up Plc.'s intercept
15	Champion Breweries Plc.	-0.076902	The firm's intercept is -0.076902 relative to Seven-UP Plc.'s intercept
16	Chellarams Nigeria Plc.	-0.087176	The firm's intercept is -0.087176 relative to Seven-Up Plc.'s intercept
17	Conoil Nigeria Plc.	-0.098491	The firm's intercept is -0.098491 relative to Seven-Up plc.'s intercept
18	Cutix Nig. Plc.	0.130709	The firm's intercept is 0.130709 relative to Seven-Up Plc.'s intercept
19	Dangote Cement Plc.	0.110687	The firm's intercept is 0.110687 relative to Seven-Up Plc.'s intercept
20	Dangote Flour Mill Nig. Plc.	-0.125763	The firm's intercept is -0.125763 relative to Seven-Up Plc.'s intercept
21	Dangote Sugar Refinery Nig. Plc.	0.026216	The firm's intercept is 0.026216 relative to Seven-Up Plc.'s intercept
22	DN Meyer Nigeria Plc.	0.07184	

			The firm's intercept is 0.07184 relative to Seven-Up Plc.'s intercept
23	Eternal Oil Plc.	-0.082667	The firm's intercept is -0.082667 relative to Seven-Up Plc.'s intercept
24	Evans Medical Nig. Plc.	0.028979	The firm's intercept is 0.028979 relative to Seven-Up Plc.'s intercept
25	Fidson Health Care Nigeria	0.061921	The firm's intercept is 0.061921 relative to Seven-Up Plc.'s intercept
26	First Aluminium Nigeria Plc.	-0.047042	The firm's intercept is -0.047042 relative to Seven-Up Plc.'s intercept
27	Flour Mills Nigeria Plc.	-0.080392	The firm's intercept is -0.080392 relative to Seven-Up plc.'s intercept
28	Forte Oil Plc.	-0.171827	The firm's intercept is -0.171827 relative to Seven-Up Plc.'s intercept
29	FTN Cocoa Processors Plc.	0.067049	The firm's intercept is 0.067049 relative to Seven-Up Plc.'s intercept
30	GlaxoSmithKline Consumer Nig. Plc.	0.064260	The firm's intercept is 0.064260 relative to Seven-Up Plc.'s intercept
31	Guinness Nigeria Plc.	0.045534	The firm's intercept is 0.045534 relative to Seven-Up Plc.'s intercept
32	Honeywell Flour Mill Plc.	-0.019795	The firm's intercept is -0.01979 relative to Seven-Up Plc.'s intercept
33	International Breweries Plc.	0.032322	The firm's intercept is 0.032322 relative to

			Seven-Up Plc.'s intercept
34	Lafarge Nigeria Plc.	0.018013	The firm's intercept is 0.018013 relative to Seven-Up Plc.'s intercept
35	Livestock Feed Nigeria Plc.	0.025380	The firm's intercept is 0.02538 relative to Seven-Up Plc.'s intercept
36	Longman (Learn Africa) Nigeria Plc.	0.140705	The firm's intercept is 0.140705 relative to Seven-Up Plc.'s intercept
37	May and Baker Nigeria Plc.	0.026514	The firm's intercept is 0.026514 relative to Seven-Up Plc.'s intercept
38	McNichols Consolidated Plc.	-0.063974	The firm's intercept is -0.06397 relative to Seven-Up Plc.'s intercept
39	Morrison Industries Plc.	0.063481	The firm's intercept is 0.063481 relative to Seven-Up Plc.'s intercept
40	MRS Oil Nigeria Plc.	-0.090919	The firm's intercept is -0.090919 relative to Seven-Up Plc.'s intercept
41	NASCON Allied Plc.	0.170144	The firm's intercept is 0.170144 relative to Seven-Up Plc.'s intercept
42	Neimeth Int'nal Pharmaceutical Plc.	0.054373	The firm's intercept is 0.054373 relative to Seven-Up Plc.'s intercept
43	Nestle Nigeria Plc.	0.119505	The firm's intercept is 0.119505 relative to Seven-Up Plc.'s intercept
44	Nigerian Breweries Plc.	0.045699	The firm's intercept is 0.045699 relative to Seven-Up Plc.'s intercept
45	Nigerian Enamelware Plc.	0.040251	

			The firm's intercept is 0.040251 relative to Seven-Up Plc.'s intercept
46	Nigerian Germany Chemical plc.	0.081031	The firm's intercept is 0.081031 relative to Seven-Up Plc.'s intercept
47	Nigerian Ropes Plc.	-0.119088	The firm's intercept is -0.119088 relative to Seven-Up Plc.'s intercept
48	Northern Nig. Flour Mills Plc.	-0.033556	The firm's intercept is -0.033556 relative to Seven-Up Plc.'s intercept
49	Oando Plc.	-0.163042	The firm's intercept is -0.163042 relative to Seven-Up Plc.'s intercept
50	Okomu Palm Oil Plc.	0.112698	The firm's intercept is 0.112698 relative to Seven-Up Plc.'s intercept
51	Omatek Venture Nig. Plc.	0.104087	The firm's intercept is 0.104087 relative to Seven-Up Plc.'s intercept
52	Paints & coasting Manufacturers Plc.	0.126877	The firm's intercept is 0.126877 relative to Seven-Up Plc.'s intercept
53	Pharma Deko Nigeria Plc.	0.20815	The firm's intercept is 0.20815 relative to Seven-Up Plc.'s intercept
54	Portland Paint Nigeria Plc.	0.052129	The firm's intercept is 0.052129 relative to Seven-Up Plc.'s intercept
55	Premier Paints Plc.	0.002403	The firm's intercept is 0.002403 relative to Seven-Up Plc.'s intercept
56	Presco Nigeria Plc.	0.082532	The firm's intercept is 0.082532 relative to

			Seven-Up Plc.'s intercept
57	PZ Industries Nigeria Plc.	-0.035008	The firm's intercept is -0.035008 relative to Seven-Up Plc.'s intercept
58	Studio Press Nigeria Plc.	-0.026166	The firm's intercept is -0.026166 relative to Seven-Up Plc.'s intercept
59	Thomas Wyatt Nig. Plc.	0.173884	The firm's intercept is 0.173884 relative to Seven-Up Plc.'s intercept
60	Tripple Gee & Company Plc.	0.079940	The firm's intercept is 0.07994 relative to Seven-Up Plc.'s intercept
61	Unilever Nigeria Plc.	0.034661	The firm's intercept is 0.034661 relative to Seven-Up Plc.'s intercept
62	Union Disco Salt Plc.	-0.053751	The firm's intercept is -0.053751 relative to Seven-Up Plc.'s intercept
63	University Press Nigeria Plc.	0.148077	The firm's intercept is 0.148077 relative to Seven-Up Plc.'s intercept
64	UAC Nigeria Plc.	0.460507	The firm's intercept is 0.460507 relative to Seven-Up Plc.'s intercept
65	Vita-Foam Nigeria Plc.	0.026124	The firm's intercept is 0.026124 relative to Seven-Up Plc.'s intercept
66	Vono Products Plc.	0.090092	The firm's intercept is 0.090092 relative to Seven-Up Plc.'s intercept

Model 2 (ROE) Dummy Variables interpretation

S/N	Firms' Dummies	Coefficient	Interpretation of dummies coefficients
1	Seven-Up Nigeria Plc.	-3.222910	The model's constant coefficient -3.222910 is the intercept of Seven-Up Plc. that was omitted from dummies
2	Academic Press Nigeria Plc.	0.248685	The firm's intercept is 0.248685 relative to Seven-Up Plc.'s Intercept
3	AG Leventis Nigeria Plc.	0.170320	The firm's intercept is 0.170320 relative to Seven-Up Plc.'s Intercept
4	Aluminium ext. Industries Nig. Plc.	0.215809	The firm's intercept is 0.215809 relative to Seven-Up Plc.'s intercept
5	Ashaka Cement Nig. Plc.	0.085566	The firm's intercept is 0.085566 relative to Seven-Up Plc.'s intercept
6	Austin Laz & Company Nig. Plc.	0.422665	The firm's intercept is 0.422665 relative to Seven-Up Plc.'s intercept
7	Avon Crowncaps & Container Nig. Plc.	-0.076616	The firm's intercept is -0.076616 relative to Seven-Up Plc.'s intercept
8	Berger Paints Nig. Plc.	0.528475	The firm's intercept is 0.528475 relative to Seven-Up Plc.'s intercept
9	Beta Glass Plc.	0.073887	The firm's intercept is 0.073887 relative to Seven-Up Plc.'s intercept
10	BOC Gases Nigeria Plc.	0.637855	The firm's intercept is 0.637855 relative to Seven-Up Plc.'s intercept
11	Cadbury Nigeria Plc.	0.131747	

			The firm's intercept is 0.131747 relative to Seven-Up plc.'s intercept
12	Chemical and Allied Product Nig. Plc.	1.154208	The firm's intercept is 1.154208 relative to Seven-Up Plc.'s intercept
13	Capital Oil Plc.	0.064997	The firm's intercept is 0.064997 relative to Seven-Up Plc.'s intercept
14	CCNN Plc.	0.220027	The firm's intercept is 0.220027 relative to Seven-Up Plc.'s intercept
15	Champion Breweries Plc.	0.201330	The firm's intercept is 0.201330 relative to Seven-UP Plc.'s intercept
16	Chellarams Nigeria Plc.	-0.646441	The firm's intercept is -0.646441 relative to Seven-Up Plc.'s intercept
17	Conoil Nigeria Plc.	-0.374205	The firm's intercept is -0.374205 relative to Seven-Up plc.'s intercept
18	Cutix Nig. Plc.	0.434081	The firm's intercept is 0.434081 relative to Seven-Up Plc.'s intercept
19	Dangote Cement Plc.	-0.098381	The firm's intercept is -0.098381 relative to Seven-Up Plc.'s intercept
20	Dangote Flour Mill Nig. Plc.	-0.533855	The firm's intercept is -0.533855 relative to Seven-Up Plc.'s intercept
21	Dangote Sugar Refinery Nig. Plc.	-0.194526	The firm's intercept is -0.194526 relative to Seven-Up Plc.'s intercept
22	DN Meyer Nigeria Plc.	0.431230	The firm's intercept is 0.431230 relative to

			Seven-Up Plc.'s intercept
23	Eternal Oil Plc.	-0.434489	The firm's intercept is -0.434489 relative to Seven-Up Plc.'s intercept
24	Evans Medical Nig. Plc.	0.414643	The firm's intercept is 0.414643 relative to Seven-Up Plc.'s intercept
25	Fidson Health Care Nigeria	0.437598	The firm's intercept is 0.437598 relative to Seven-Up Plc.'s intercept
26	First Aluminium Nigeria Plc.	-0.117202	The firm's intercept is -0.117202 relative to Seven-Up Plc.'s intercept
27	Flour Mills Nigeria Plc.	-0.452953	The firm's intercept is -0.452953 relative to Seven-Up plc.'s intercept
28	Forte Oil Plc.	-0.795969	The firm's intercept is -0.795969 relative to Seven-Up Plc.'s intercept
29	FTN Cocoa Processors Plc.	0.515472	The firm's intercept is 0.515472 relative to Seven-Up Plc.'s intercept
30	GlaxoSmithKline Consumer Nig. Plc.	0.209875	The firm's intercept is 0.209875 relative to Seven-Up Plc.'s intercept
31	Guinness Nigeria Plc.	0.074400	The firm's intercept is 0.074400 relative to Seven-Up Plc.'s intercept
32	Honeywell Flour Mill Plc.	-0.127469	The firm's intercept is -0.127469 relative to Seven-Up Plc.'s intercept
33	International Breweries Plc.	0.057809	The firm's intercept is 0.057809 relative to Seven-Up Plc.'s intercept

34	Lafarge Nigeria Plc.	-0.138075	The firm's intercept is -0.138075 relative to Seven-Up Plc.'s intercept
35	Livestock Feed Nigeria Plc.	0.096232	The firm's intercept is 0.096232 relative to Seven-Up Plc.'s intercept
36	Longman (Learn Africa) Nigeria Plc.	0.707135	The firm's intercept is 0.707135 relative to Seven-Up Plc.'s intercept
37	May and Baker Nigeria Plc.	0.217857	The firm's intercept is 0.217857 relative to Seven-Up Plc.'s intercept
38	McNichols Consolidated Plc.	-0.454807	The firm's intercept is -0.454807 relative to Seven-Up Plc.'s intercept
39	Morrison Industries Plc.	0.894016	The firm's intercept is 0.894016 relative to Seven-Up Plc.'s intercept
40	MRS Oil Nigeria Plc.	-0.388733	The firm's intercept is -0.388733 relative to Seven-Up Plc.'s intercept
41	NASCON Allied Plc.	0.316286	The firm's intercept is 0.316286 relative to Seven-Up Plc.'s intercept
42	Neimeth Int'nal Pharmaceutical Plc.	0.605318	The firm's intercept is 0.605318 relative to Seven-Up Plc.'s intercept
43	Nestle Nigeria Plc.	0.250054	The firm's intercept is 0.250054 relative to Seven-Up Plc.'s intercept
44	Nigerian Breweries Plc.	0.028804	The firm's intercept is 0.028804 relative to Seven-Up Plc.'s intercept
45	Nigerian Enamelware Plc.	0.162603	The firm's intercept is 0.162603 relative to

			Seven-Up Plc.'s intercept
46	Nigerian Germany Chemical plc.	0.302493	The firm's intercept is 0.302493 relative to Seven-Up Plc.'s intercept
47	Nigerian Ropes Plc.	-0.165918	The firm's intercept is -0.165918 relative to Seven-Up Plc.'s intercept
48	Northern Nig. Flour Mills Plc.	-0.249499	The firm's intercept is -0.249499 relative to Seven-Up Plc.'s intercept
49	Oando Plc.	-1.436960	The firm's intercept is -1.436960 relative to Seven-Up Plc.'s intercept
50	Okomu Palm Oil Plc.	0.399716	The firm's intercept is 0.399716 relative to Seven-Up Plc.'s intercept
51	Omatek Venture Nig. Plc.	0.679908	The firm's intercept is 0.679908 relative to Seven-Up Plc.'s intercept
52	Paints & coasting Manufacturers Plc.	0.470866	The firm's intercept is 0.470866 relative to Seven-Up Plc.'s intercept
53	Pharma Deko Nigeria Plc.	1.010075	The firm's intercept is 1.010075 relative to Seven-Up Plc.'s intercept
54	Portland Paint Nigeria Plc.	0.434048	The firm's intercept is 0.434048 relative to Seven-Up Plc.'s intercept
55	Premier Paints Plc.	-3.010052	The firm's intercept is -3.010052 relative to Seven-Up Plc.'s intercept
56	Presco Nigeria Plc.	0.312840	The firm's intercept is 0.312840 relative to Seven-Up Plc.'s intercept

57	PZ Industries Nigeria Plc.	-0.215413	The firm's intercept is -0.215413 relative to Seven-Up Plc.'s intercept
58	Studio Press Nigeria Plc.	-0.258791	The firm's intercept is -0.258791 relative to Seven-Up Plc.'s intercept
59	Thomas Wyatt Nig. Plc.	0.736704	The firm's intercept is 0.736704 relative to Seven-Up Plc.'s intercept
60	Tripple Gee & Company Plc.	0.387241	The firm's intercept is 0.387241 relative to seven-Up Plc.'s intercept
61	Unilever Nigeria Plc.	0.275132	The firm's intercept is 0.275132 relative to Seven-Up Plc.'s intercept
62	Union Disco Salt Plc.	3.109630	The firm's intercept is 3.109630 relative to Seven-Up Plc.'s intercept
63	University Press Nigeria Plc.	0.602982	The firm's intercept is 0.602982 relative to Seven-Up Plc.'s intercept
64	UAC Nigeria Plc.	2.324440	The firm's intercept is 2.324440 relative to Seven-Up Plc.'s intercept
65	Vita-Foam Nigeria Plc.	0.179675	The firm's intercept is 0.179675 relative to Seven-Up Plc.'s intercept
66	Vono Products Plc.	0.747501	The firm's intercept is 0.747501 relative to Seven-Up Plc.'s intercept

Appendix B: Outcomes of FE regression equation estimation

Outcome of fixed effect model without dummy variables

Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/28/16 Time: 12:53
Sample: 2011 2015
Periods included: 5
Cross-sections included: 66
Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.656921	0.515748	-1.273726	0.2039
CR	0.001862	0.003438	0.541402	0.5887
CG	7.08E-06	2.97E-06	2.386460	0.0177
ATOV	0.012227	0.012096	1.010842	0.3131
ITOV	-1.13E-05	0.000169	-0.066973	0.9467
TDTA	0.028091	0.012663	2.218433	0.0274
LDTE	0.001617	0.001342	1.205271	0.2292
TOTR	-0.132259	0.053734	-2.461376	0.0145
FS	0.030710	0.022693	1.353249	0.1772
SGR	-3.10E-07	0.000144	-0.002147	0.9983

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.741530	Mean dependent var	0.036994
Adjusted R-squared	0.666523	S.D. dependent var	0.127516
S.E. of regression	0.073637	Akaike info criterion	-2.182620
Sum squared resid	1.382716	Schwarz criterion	-1.319190
Log likelihood	435.1324	Hannan-Quinn criter.	-1.838211
F-statistic	9.886143	Durbin-Watson stat	2.369265
Prob(F-statistic)	0.000000		

Dependent Variable: ROE
Method: Panel Least Squares
Date: 12/28/16 Time: 12:54
Sample: 2011 2015
Periods included: 5
Cross-sections included: 66

Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.043942	3.323391	-0.915914	0.3606
CR	0.009007	0.022156	0.406507	0.6847
CG	4.18E-05	1.91E-05	2.188598	0.0295
ATOV	0.081266	0.077945	1.042607	0.2981
ITOV	-0.000263	0.001089	-0.241230	0.8096
TDTA	0.006471	0.081596	0.079309	0.9368
LDTE	0.154515	0.008646	17.87146	0.0000
TOTR	-1.046613	0.346252	-3.022693	0.0028
FS	0.141304	0.146232	0.966302	0.3348
SGR	-0.000710	0.000931	-0.762768	0.4463

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.661128	Mean dependent var	0.036642
Adjusted R-squared	0.562788	S.D. dependent var	0.717620
S.E. of regression	0.474505	Akaike info criterion	1.543626
Sum squared resid	57.41447	Schwarz criterion	2.407056
Log likelihood	-179.6983	Hannan-Quinn criter.	1.888036
F-statistic	6.722916	Durbin-Watson stat	2.073057
Prob(F-statistic)	0.000000		

Outcome of fixed effect model with dummy variables

Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/28/16 Time: 12:29
Sample: 2011 2015
Periods included: 5
Cross-sections included: 66
Total panel (balanced) observations: 330

ROA=C(1)+C(2)*CR+C(3)*CG+C(4)*ATOV+C(5)*ITOV+C(6)*TDTA+C(7)
*LDTE+C(8)*TOTR+C(9)*FS+C(10)*SGR+C(11)*D2+C(12)*D3+C(13)
*D4+C(14)*D5+C(15)*D6+C(16)*D7+C(17)*D8+C(18)*D9+C(19)*D10
+C(20)*D11+C(21)*D12+C(22)*D13+C(23)*D14+C(24)*D15+C(25)
*D16+C(26)*D17+C(27)*D18+C(28)*D19+C(29)*D20+C(30)*D21

+C(31)*D22+C(32)*D23+C(33)*D24+C(34)*D25+C(35)*D26+C(36)
*D27+C(37)*D28+C(38)*D29+C(39)*D30+C(40)*D31+C(41)*D32
+C(42)*D33+C(43)*D34+C(44)*D35+C(45)*D36+C(46)*D37+C(47)
*D38+C(48)*D39+C(49)*D40+C(50)*D41+C(51)*D42+C(52)*D43
+C(53)*D44+C(54)*D45+C(55)*D46+C(56)*D47+C(57)*D48+C(58)
*D49+C(59)*D50+C(60)*D51+C(61)*D52+C(62)*D53+C(63)*D54
+C(64)*D55+C(65)*D56+C(66)*D57+C(67)*D58+C(68)*D59+C(69)
*D60+C(70)*D61+C(71)*D62+C(72)*D63+C(73)*D64+C(74)*D65
+C(75)*D66

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.700418	0.571516	-1.225544	0.2215
C(2)	0.001862	0.003438	0.541402	0.5887
C(3)	7.08E-06	2.97E-06	2.386460	0.0177
C(4)	0.012227	0.012096	1.010842	0.3131
C(5)	-1.13E-05	0.000169	-0.066973	0.9467
C(6)	0.028091	0.012663	2.218433	0.0274
C(7)	0.001617	0.001342	1.205271	0.2292
C(8)	-0.132259	0.053734	-2.461376	0.0145
C(9)	0.030710	0.022693	1.353249	0.1772
C(10)	-3.10E-07	0.000144	-0.002147	0.9983
C(11)	0.062616	0.093839	0.667272	0.5052
C(12)	0.047244	0.067027	0.704849	0.4815
C(13)	0.081668	0.098314	0.830680	0.4069
C(14)	0.029192	0.055105	0.529756	0.5967
C(15)	0.068082	0.121382	0.560892	0.5754
C(16)	-0.034743	0.068905	-0.504210	0.6145
C(17)	0.124135	0.085377	1.453969	0.1472
C(18)	0.044049	0.061137	0.720497	0.4719
C(19)	0.157593	0.089421	1.762365	0.0792
C(20)	0.048874	0.050167	0.974216	0.3309
C(21)	0.442222	0.076712	5.764681	0.0000
C(22)	-0.043343	0.100927	-0.429450	0.6680
C(23)	0.092004	0.059496	1.546391	0.1233
C(24)	-0.076902	0.087344	-0.880445	0.3794
C(25)	-0.087176	0.056326	-1.547704	0.1229
C(26)	-0.098491	0.048719	-2.021606	0.0443
C(27)	0.130709	0.097729	1.337464	0.1823

C(28)	0.110687	0.058357	1.896715	0.0590
C(29)	-0.125763	0.051874	-2.424381	0.0160
C(30)	0.026216	0.048200	0.543904	0.5870
C(31)	0.071840	0.097733	0.735066	0.4630
C(32)	-0.082667	0.058144	-1.421752	0.1563
C(33)	0.028979	0.083338	0.347736	0.7283
C(34)	0.061921	0.065340	0.947671	0.3442
C(35)	-0.047042	0.069868	-0.673298	0.5014
C(36)	-0.080392	0.052096	-1.543149	0.1240
C(37)	-0.171827	0.048052	-3.575822	0.0004
C(38)	0.067049	0.121331	0.552614	0.5810
C(39)	0.064260	0.051562	1.246266	0.2138
C(40)	0.045534	0.048308	0.942579	0.3468
C(41)	-0.019795	0.049754	-0.397853	0.6911
C(42)	0.032322	0.058608	0.551485	0.5818
C(43)	0.018013	0.048343	0.372605	0.7098
C(44)	0.025380	0.079037	0.321121	0.7484
C(45)	0.140705	0.085506	1.645562	0.1011
C(46)	0.026514	0.071873	0.368895	0.7125
C(47)	-0.063974	0.062143	-1.029467	0.3042
C(48)	0.063481	0.129763	0.489204	0.6251
C(49)	-0.090919	0.047506	-1.913823	0.0568
C(50)	0.170144	0.064247	2.648270	0.0086
C(51)	0.054373	0.090338	0.601888	0.5478
C(52)	0.119505	0.048061	2.486522	0.0135
C(53)	0.045699	0.055114	0.829178	0.4078
C(54)	0.040251	0.091546	0.439683	0.6605
C(55)	0.081031	0.083410	0.971486	0.3322
C(56)	-0.119088	0.121915	-0.976816	0.3296
C(57)	-0.033556	0.074601	-0.449804	0.6532
C(58)	-0.163042	0.062769	-2.597482	0.0099
C(59)	0.112698	0.064153	1.756713	0.0802
C(60)	0.104087	0.105988	0.982072	0.3270
C(61)	0.126877	0.087891	1.443574	0.1501
C(62)	0.208150	0.098888	2.104906	0.0363
C(63)	0.052129	0.085638	0.608712	0.5433
C(64)	0.002403	0.136289	0.017635	0.9859
C(65)	0.082532	0.065061	1.268536	0.2058
C(66)	-0.035008	0.047495	-0.737089	0.4617
C(67)	-0.026166	0.074758	-0.350008	0.7266
C(68)	0.173884	0.149149	1.165845	0.2448
C(69)	0.079940	0.113086	0.706900	0.4803
C(70)	0.034661	0.046941	0.738389	0.4610
C(71)	-0.053751	0.566038	-0.094960	0.9244
C(72)	0.148077	0.090351	1.638916	0.1025
C(73)	0.460507	0.114540	4.020505	0.0001

C(74)	0.026124	0.059364	0.440058	0.6603
C(75)	0.090092	0.113601	0.793056	0.4285

R-squared	0.741530	Mean dependent var	0.036994
Adjusted R-squared	0.666523	S.D. dependent var	0.127516
S.E. of regression	0.073637	Akaike info criterion	-2.182620
Sum squared resid	1.382716	Schwarz criterion	-1.319190
Log likelihood	435.1324	Hannan-Quinn criter.	-1.838211
F-statistic	9.886143	Durbin-Watson stat	2.369265
Prob(F-statistic)	0.000000		

Dependent Variable: ROE
Method: Panel Least Squares
Date: 12/28/16 Time: 12:31
Sample: 2011 2015
Periods included: 5
Cross-sections included: 66
Total panel (balanced) observations: 330

ROE=C(1)+C(2)*CR+C(3)*CG+C(4)*ATOV+C(5)*ITOV+C(6)*TDTA+C(7)*LDTE+C(8)*TOTR+C(9)*FS+C(10)*SGR+C(11)*D2+C(12)*D3+C(13)*D4+C(14)*D5+C(15)*D6+C(16)*D7+C(17)*D8+C(18)*D9+C(19)*D10+C(20)*D11+C(21)*D12+C(22)*D13+C(23)*D14+C(24)*D15+C(25)*D16+C(26)*D17+C(27)*D18+C(28)*D19+C(29)*D20+C(30)*D21+C(31)*D22+C(32)*D23+C(33)*D24+C(34)*D25+C(35)*D26+C(36)*D27+C(37)*D28+C(38)*D29+C(39)*D30+C(40)*D31+C(41)*D32+C(42)*D33+C(43)*D34+C(44)*D35+C(45)*D36+C(46)*D37+C(47)*D38+C(48)*D39+C(49)*D40+C(50)*D41+C(51)*D42+C(52)*D43+C(53)*D44+C(54)*D45+C(55)*D46+C(56)*D47+C(57)*D48+C(58)

*D49+C(59)*D50+C(60)*D51+C(61)*D52+C(62)*D53+C(63)*D54
+C(64)*D55+C(65)*D56+C(66)*D57+C(67)*D58+C(68)*D59+C(69)
*D60+C(70)*D61+C(71)*D62+C(72)*D63+C(73)*D64+C(74)*D65
+C(75)*D66

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-3.222910	3.682756	-0.875135	0.3823
C(2)	0.009007	0.022156	0.406507	0.6847
C(3)	4.18E-05	1.91E-05	2.188598	0.0295
C(4)	0.081266	0.077945	1.042607	0.2981
C(5)	-0.000263	0.001089	-0.241230	0.8096
C(6)	0.006471	0.081596	0.079309	0.9368
C(7)	0.154515	0.008646	17.87146	0.0000
C(8)	-1.046613	0.346252	-3.022693	0.0028
C(9)	0.141304	0.146232	0.966302	0.3348
C(10)	-0.000710	0.000931	-0.762768	0.4463
C(11)	0.248685	0.604682	0.411265	0.6812
C(12)	0.170320	0.431908	0.394343	0.6937
C(13)	0.215809	0.633521	0.340649	0.7336
C(14)	0.085566	0.355085	0.240974	0.8098
C(15)	0.422665	0.782164	0.540380	0.5894
C(16)	-0.076616	0.444015	-0.172552	0.8631
C(17)	0.528475	0.550154	0.960594	0.3377
C(18)	0.073887	0.393958	0.187550	0.8514
C(19)	0.637855	0.576216	1.106973	0.2693
C(20)	0.131747	0.323268	0.407548	0.6839
C(21)	1.154208	0.494321	2.334935	0.0203
C(22)	0.064997	0.650354	0.099940	0.9205
C(23)	0.220027	0.383381	0.573914	0.5665
C(24)	0.201330	0.562831	0.357710	0.7209
C(25)	-0.646441	0.362956	-1.781045	0.0761
C(26)	-0.374205	0.313938	-1.191970	0.2344
C(27)	0.434081	0.629750	0.689291	0.4913
C(28)	-0.098381	0.376045	-0.261620	0.7938
C(29)	-0.533855	0.334269	-1.597084	0.1115
C(30)	-0.194526	0.310591	-0.626310	0.5317
C(31)	0.431230	0.629774	0.684738	0.4941
C(32)	-0.434489	0.374672	-1.159650	0.2473
C(33)	0.414643	0.537014	0.772127	0.4408
C(34)	0.437598	0.421039	1.039329	0.2996
C(35)	-0.117202	0.450220	-0.260321	0.7948
C(36)	-0.452953	0.335699	-1.349286	0.1784
C(37)	-0.795969	0.309642	-2.570608	0.0107

C(38)	0.515472	0.781836	0.659310	0.5103
C(39)	0.209875	0.332255	0.631669	0.5282
C(40)	0.074400	0.311289	0.239006	0.8113
C(41)	-0.127469	0.320607	-0.397587	0.6913
C(42)	0.057809	0.377662	0.153071	0.8785
C(43)	-0.138075	0.311512	-0.443240	0.6580
C(44)	0.096232	0.509299	0.188951	0.8503
C(45)	0.707135	0.550986	1.283400	0.2005
C(46)	0.217857	0.463140	0.470391	0.6385
C(47)	-0.454807	0.400438	-1.135772	0.2571
C(48)	0.894016	0.836170	1.069180	0.2860
C(49)	-0.388733	0.306124	-1.269857	0.2053
C(50)	0.316286	0.413997	0.763982	0.4456
C(51)	0.605318	0.582122	1.039847	0.2994
C(52)	0.250054	0.309699	0.807410	0.4202
C(53)	0.028804	0.355143	0.081106	0.9354
C(54)	0.162603	0.589907	0.275642	0.7830
C(55)	0.302493	0.537478	0.562800	0.5741
C(56)	-0.165918	0.785599	-0.211200	0.8329
C(57)	-0.249499	0.480718	-0.519014	0.6042
C(58)	-1.436960	0.404475	-3.552653	0.0005
C(59)	0.399716	0.413391	0.966919	0.3345
C(60)	0.679908	0.682966	0.995522	0.3204
C(61)	0.470866	0.566355	0.831396	0.4065
C(62)	1.010075	0.637218	1.585132	0.1142
C(63)	0.434048	0.551835	0.786554	0.4323
C(64)	-3.010052	0.878224	-3.427432	0.0007
C(65)	0.312840	0.419242	0.746203	0.4562
C(66)	-0.215413	0.306052	-0.703846	0.4822
C(67)	-0.258791	0.481729	-0.537213	0.5916
C(68)	0.736704	0.961089	0.766531	0.4441
C(69)	0.387241	0.728706	0.531409	0.5956
C(70)	0.275132	0.302483	0.909580	0.3639
C(71)	3.109630	3.647453	0.852548	0.3947
C(72)	0.602982	0.582206	1.035684	0.3013
C(73)	2.324440	0.738074	3.149332	0.0018
C(74)	0.179675	0.382531	0.469701	0.6390
C(75)	0.747501	0.732024	1.021143	0.3082

R-squared	0.661128	Mean dependent var	0.036642
Adjusted R-squared	0.562788	S.D. dependent var	0.717620
S.E. of regression	0.474505	Akaike info criterion	1.543626
Sum squared resid	57.41447	Schwarz criterion	2.407056
Log likelihood	-179.6983	Hannan-Quinn criter.	1.888036
F-statistic	6.722916	Durbin-Watson stat	2.073057
Prob(F-statistic)	0.000000		

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