



BOARD SIZE AND LIQUIDITY OF MANUFACTURING FIRMS IN NIGERIA: MODERATING ROLE OF FIRM SIZE

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Abstract

Liquidity as a component of financial management essentially enables a company to meet short-term obligations, seize financial or business opportunities and handle uncertainties. This study examined the effect of board size on the liquidity of manufacturing firms in Nigeria, with a moderating role of firm size. The period of the study is from 2009 to 2023. The study population consist of thirty-one (31) listed manufacturing firms. The study used a purposive sampling technique to arrive at a sample size of ten (10) listed manufacturing firms and with the support of a filtering criteria. Data were sourced secondarily by using content analysis of annual reports and accounts of listed manufacturing firms. The data collected were analyzed using multiple regression technique. The study found that board size has a significant negative effect on the liquidity of listed manufacturing firms in Nigeria. Furthermore, the moderating role of firm size on the effect of board size on liquidity was discovered to be negatively significant. Therefore, the study recommended that listed manufacturing firms should deemphasis on the size of board members that are saddled with responsibility of taking liquidity decisions.

Keywords: board size, firm size, liquidity, manufacturing firms, Nigeria

1. Introduction

Liquidity is a critical aspect of financial management which is integral to a manufacturing firm's ability to navigate uncertainties, capitalize on business or financial opportunities, and meet short-term obligations. According to Pandey (2009), while excessive liquidity is also undesirable and may be the result of poor management of current assets, a weak liquidity situation endangers the company's solvency and ability to meet its financial obligations. The position of a weak liquidity usually calls for prompt action from management to address and resolve disparities in the company's liquidity position.

Understanding how board size affects liquidity practices in manufacturing firms not only contributes to the broader discourse on corporate governance but also addresses the specific challenges of a dynamic and rapidly evolving economy (Asemota, 2023; Dahiyat et al. 2021). Board size poses a greater management control for the company and a wider range of perspectives on liquidity may be possible with a large board. However, the presence of numerous members in a board might cause a delay in reaching a consensus, which can lead to longer response times and more difficulties in making decisions (Sadou et al., 2017).

Firm size can moderate the relationship between board size and liquidity in Nigerian manufacturing firms. Variables such as total assets, revenue, and market capitalization describe

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the size of a firm and they influence the complexity of an organization's operations, the availability of resources, and decision-making process of managers. The impact of board size on liquidity varies, depending on the size of the manufacturing company. An adequate liquidity level of these manufacturing firms could promote financial stability in the companies as it is a critical aspect of running a successful firm in any clime (Vu et al. 2020). Therefore, with the board functioning properly to maintain an adequate liquidity of the firms, the firm size is bound to grow making it difficult to fail. Hence, it is imperative to examine how firm size modifies the association between board size and liquidity (Obiora et al., 2021).

The emphasis on the manufacturing sector is particularly pertinent, given its pivotal role in the nation's economic development and the growing recognition of the imperative for effective governance practices in sustaining and enhancing corporate liquidity. This study aims to provide nuanced insights into how board size at the highest levels of corporate leadership influences liquidity.

Previous studies focused on board characteristics and other economic, financial and socio-political factors but not specifically on the effect of board size and the liquidity of listed manufacturing firms in Nigeria (Salawudeen & Dandago, 2020; Adegbogun & Igbekoyi, 2020). Furthermore, to fill the literature gap as most past studies were focused on other countries and not the Nigerian manufacturing sector (Ummah & Yuliana 2023; Taristy et al. 2022). Unlike prior studies, their focus was on board characteristics and other firm's financial performance analysis (Ojo 2021; Iliyasu 2020; Aifuwa 2019).

The few studies that had a similar focus on board size and liquidity of manufacturing firms failed to use a moderating variable, hence this study introduced the firm size as a moderating variable (Agwu & Ogbulu 2020; Ajibolade 2020). Secondly, the methodological gap was achieved with a robust data set being used in the methodology section of the study (Agwu & Ogbulu 2020; Ajibolade 2020; Akintoye & Ayanda 2019; Alhassan & Ibrahim 2019).

In order to fill this gap, this study examines the effect of board size on the liquidity of listed manufacturing firms in Nigeria. To examine this study, the following research questions were raised in order to establish findings:

- (i) How does board size affect the liquidity of listed manufacturing firms in Nigeria?
- (ii) What is the moderating role of firm size on the effect of board size on the liquidity of listed manufacturing firms in Nigeria?

The main objective of this study is to examine the effect of board size on the liquidity of listed manufacturing firms in Nigeria while ascertaining the moderating role of firm size on the effect of board size on the liquidity of listed manufacturing firms in Nigeria. Based on these objectives, the following hypotheses were formulated and tested:

H₀₁: Board size has no significant effect on the liquidity of the listed manufacturing firms in Nigeria.

H₀₂: Firm size does not significantly moderate the effect of board size on the liquidity of listed manufacturing firms in Nigeria

The choice of manufacturing sector for this study was made based on the availability of ample size of data from the numerous firms existing in the sector and has their necessary financial information present on the Nigerian Exchange website and past researchers have considered the

sector beneficial in their research (Adegboyegun & Igbekoyi 2020; Owolabi et al. 2021; Muhammed & Salawudeen 2020). The findings of this study would hold implications for policymakers, corporate leaders, and stakeholders keen on fostering sustainable and inclusive governance practices within the fabric of Nigeria's manufacturing sector.

2. Literature Review

This section discusses the concepts, theories and empirical reviews of liquidity, board size and the moderating role of firm size in relation to the listed manufacturing firms in Nigeria.

Conceptual Review

Liquidity

According to (McDaniel et al., 2012), liquidity refers to the ease of converting assets into cash, which is crucial for a company's market value. It is influenced by factors such as after-tax operating cash flows, the liquidity of its securities, debt, and equity. Changes in liquidity can significantly impact the pricing of corporate stocks and bonds. Liquidity management is essential for a business's financial wellbeing, as it helps control daily operations, meet responsibilities, and maximize profit and shareholder wealth. Barako et al., (2016) suggested that research on liquidity is important for both internal and external analysts, as it is closely linked to a company's daily operations. Liquidity is measured using the current ratio, which measures current assets against current liabilities.

Board size

Board size refers to the number of directors on a board of directors that are responsible for strategic decisions, monitoring management and ensuring shareholder interests are prioritized (Gill & Mathur, 2011). The size of a firm, industry and ownership structure are key factors in determining the optimal board size. Smaller firms typically have smaller boards, while larger firms typically have larger boards. The ideal board size is a topic of ongoing debate due to technical improvements, governmental changes and global trends.

Some studies suggest smaller boards are more productive, while others argue larger boards offer a variety of viewpoints and ensure accountability (Akinwale & Ajide, 2019; Musa & Aifuwa, 2020; Obaje et al., 2021). The size of a board is influenced by a company's bylaws, external factors, and shareholder preferences. The corporate governance code for Nigeria outlines the size of a board, stating that it should be proportional to the complexity and size of a firm's operations. However, arguments abound that a large board size can impose stronger scrutiny but also make oversight processes useless (Gill & Mathur, 2011).

Firm Size

The concept of company size pertains to the proportional magnitude of an enterprise's activities, which is commonly measured in terms of total assets, sales, or workforce size. Nigerian manufacturing firms frequently use fixed asset values, workforce counts, and total revenue to estimate their size (Olawale et al., 2017). In Nigeria, a company's annual income or turnover is a common indicator of its size. The Nigerian small and medium firm's development agency (SMEDAN) defines small firms as those having yearly revenues of less than 100 million naira, while medium-sized businesses have annual earnings between 100 million and 999 million naira.

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It is crucial to state that the manufacturing sector or industry may have an impact on how firms are classed according to size. For example, in the manufacturing sector, a company's size could be dictated by its fixed asset value, workforce size, or other factors that are more crucial to its business operations. In general, a company's size has a big impact on its ability to access financial markets, profitability, and risk profile. Larger companies can have a competitive advantage over smaller ones, since they usually have greater financial and political clout (Oshinowo et al., 2022). However, larger businesses could also be more vulnerable to market shifts or economic shocks, as well as additional rules and compliance obligations.

Furthermore, the value of the company's financial assets is used to calculate firm size. Since larger businesses tend to be more diversified, they are more likely to have higher returns and lower levels of risk (Serrasqueiro & Nunes, 2008; Yang & Chen, 2009). Large companies also have economies of scale that attract additional investment and raise the price of the company's market share.

Theoretical Review

The relevant theories that this study reviewed are the resource dependency theory and the theory of corporate liquidity. The Resource Dependency Theory was propounded by Pfeffer and Salancik's in 1978. The theory suggests that board members benefit from their unique identities and abilities. The resource dependency theory promulgates the need for diversified board that utilizes the potentials of the board to maximize productivity in the firms (Khatib et al., 2022 & Awino, 2015). A larger board size provides wealth of resources, skills, and knowledge, while smaller board size has less wealth. The resource dependency theory to emphasize the importance of equipped boards that maximize board members' potential for the firm's benefit (Oludele et al., 2016).

The Theory of Corporate Liquidity is predicated on the assumption that a company's decision to allocate cash flows is influenced by its access to capital markets and the significance of future investments (Almeida et al., 2002). Financially limited businesses save a positive percentage of their cash flows, while unrestrained ones do not. Companies with better investment prospects may incur higher expenses due to financial hardship, so they hold larger amounts of cash as alternatives to cash holdings (Awino, 2015).

Empirical Review

Several empirical studies reviewed bother on liquidity, board size, and firm size of listed manufacturing firms.

Board Size and Liquidity

Awino (2015) examined the relationship between board structure and liquidity of listed companies in the Nairobi Stock Exchange. The aim of their investigation was to ascertain the correlation between the board structure and liquidity of publicly traded corporations on the Nairobi Stock Exchange (NSE). All of the companies listed at the NSE made up the study's population. Their study made use of the census survey. The annual reports of these companies provided secondary data, which was gathered and regression analysis was employed to ascertain the correlation between board structure and liquidity. According to their study, the proportion of women on the board has a small but positive relationship with listed companies' liquidity, whereas the proportion of independent directors and board members in the audit committee has a negative

but insignificant effect on listed companies' liquidity. The report advises shareholders of companies eager to increase their companies' liquidity to place less emphasis on the board structure as a way to bolster the company's liquidity position. Although their study was done in Kenya, lessons abound therein for the Nigerian firms, as their study suggested that firms reduced their emphasis on the board size in order to boost their liquidity.

Ikueze and Ursula (2017) carried out a study on the effect of corporate governance and cash holdings of manufacturing companies in Nigeria. Their study used data from five Nigerian listed manufacturing companies' observations from 2012 to 2015 to evaluate the impact of corporate governance on cash holding. The following aspects of cash holdings were looked at in order to meet the goal of their study. The factors that affected the board included its age, size, ownership, education level, female board members and the compensation for board members positively impacted cash holdings, the ownership and size of the board had an adverse effect on cash holding. They also found that the ownership of the board was also a factor in determining the amount of cash held by Nigerian manufacturing enterprises. Consequently, a firm's cash holdings increased in proportion to the directors' interest in purchasing shares of that company. A distinct addition to policy, practice, and theory: In order to increase the dividend payout and provide shareholders with more incentive, the research suggested that manufacturing companies reassess their dividend policies once a year.

Yusoff (2017) carried out research on the effect of liquidity and solvency on profitability: the case of public-listed consumer product companies in Malaysia. The study found that one of the most important financial elements necessary for a smooth operation, especially in preserving business performance, has been the ideal level of liquidity and solvency. Liquidity and debt structure are two closely related financial components that successful businesses typically modify to optimize their hedging strategy and enhance the firm's value. As a result, paying close attention to these two factors will assist businesses in lowering their bankruptcy-related expenses and lowering their risk of experiencing financial hardship. If the illiquidity issue is not resolved, the company's obligations will surpass its assets, resulting in insolvency. For larger companies, the stability of the business can be guaranteed by keeping a healthy level of liquidity. Therefore, the purpose of their study was to investigate how debt and liquidity affects the profitability of large companies in Malaysia's consumer products industry.

Vu et al. (2020) in their study determinants of liquidity in manufacturing firms examined the factors that affected firm's liquidity in manufacturing companies listed in Vietnam. The board's size, independence, age, and returns were examined. They measured the firm's solvency using a variety of criteria, such as the cash conversion cycle, quick ratio, and cash ratio. As a result, three econometric models were constructed to evaluate theories put out by scholars to explain the connection between the aforementioned components and liquidity measurements. The data set of manufacturing companies listed between 2015 and 2019 on the Ho Chi Minh City Stock Exchange was utilized in their study. A sample of one hundred and thirty-nine companies and six hundred and thirty-three observations was used. Their findings indicates that in manufacturing companies, the board size, firm size, board independence, and profitability are all negatively connected with the net operating cycle, but the cash ratio and quick ratio are positively correlated with these factors.

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Consequently, larger companies can contribute to increased capital management efficiency through having larger boards with more independent members. There is no proof that the firm's age and solvency metrics, or the cash conversion cycle and profitability, are related. Although their study was carried out in Vietnam there are learning points for the Nigerian manufacturing firms as there is usually a universal purpose of firms in going into business, which is to maximize profit and minimize losses. Hence, the activities of the board and management that achieved it could be looked at by other firms to ascertain how they accomplished it and necessary inferences made. However, like (Ikueze & Ursula 2017; Yusof 2017) they adopted the same approach this study used in calculating liquidity but their study's methodology should have been obtained from a minimum of ten years for a more robust result, rather than the five years period they used.

Badu and Appiah (2017) explored the impact of corporate board size on the performance companies. They further sought to find a statistically significant and favorable relationship between board size and business success. The data obtained from 2010 to 2020 was examined using the Ex post facto research via return on asset and profit margin. They found that board size, audit quality and audit committee size significantly impacted on a company's profitability and proposed that the government and the relevant authorities propagate legislation on governmental and institutional ownership which will enhance and regulate corporate performance. Although their study was on board and firm performance, inferences from their study can be beneficial to this study based on the fact that they had established that there is a favorable relationship between board size and business success. Therefore, a further enquiry into board size and liquidity can be done based on the fact of an already existing relationship between the variables as evidenced by their study because for a firm's liquidity to be thriving there should be a profitable performance by the company.

Oludele et al. (2016) carried out a study on the impact of board size on the financial performance of listed manufacturing companies in Nigeria. Thirty-four companies were purposefully chosen among 74 enterprises in Nigeria's manufacturing industry. Both primary and secondary data were employed in the investigation. While primary data was gathered via a questionnaire from 170 respondents chosen from the thirty-four chosen companies, secondary data was taken from the selected companies published financial statements. Their findings suggested that the financial performance of Nigerian listed industrial companies is positively correlated with the size of their boards. As a result, the study suggested that the listed manufacturing businesses' boards be expanded, with the amount of the increase determined by the complexity and kind of operation of each individual company. Consequently, their study aligns with both (Badu & Appiah, 2017 and Oludele, et al. 2016) that are of the opinion that board size positively impacts performance and this is possible because the liquidity of such firms was properly managed by the appropriate board size.

Gill and Marthur (2011) investigated the effects of corporate liquidity, board size, and the CEO (Chief Executive Officer) duality on Canadian service organizations' profitability. A sample of seventy-five Canadian service companies that were listed between 2008 and 2010 on the Toronto Stock Exchange (TSX) were chosen. Co-relational and non-experimental research designs were used in their study. Their findings suggest that a larger board size, or a greater number of directors, has a detrimental effect on Canadian service companies' profitability. They also found that the CEO duality and company liquidity positively impacts the profitability of Canadian service

organizations. Additionally, the profitability of Canadian service organizations is positively impacted by firm expansion and size. Although their study was carried out in Canada, there is a learning point for the Nigerian manufacturing sector which is that large board size is detrimental to the profitability of the firm and with this knowledge Nigerian firms can be guided on the number of board members that is optimal for efficiency. However, their study sample of three years is small considering that most past studies have sample data ranging ten years and above (James 2020; Badu & Appiah, 2017).

Sanyaolu et al. (2021) conducted a study titled gender diversity and dividend policy: the moderating role of board independence found that liquidity crisis was the main cause of bank failure in Nigeria, with the liquidity ratio for the current year significantly influenced by the prior year's liquidity. Board size had a negative but negligible impact on liquidity management, while board independence had a significant but unfavorable impact. They concluded that corporate governance significantly affects the liquidity management of Nigerian Deposit Money Banks and suggested that directors should be selected based on their qualifications and capacity to understand and direct bank operations. Their study focused on board gender, board size and liquidity management, however, this study could get some insight from their study since both studies have similar variable but different sector. They established the positive role that board size plays in the liquidity of an enterprise, which could be applicable to the manufacturing firms because the board oversight functions are pertinent in all sectors that seeks to efficiently manage their resources and maximize profit, hence there are learning points from their study.

Obaje et al. (2021) carried out research on the moderating effect of firm size on the relationship between board structure and firm financial performance. Using secondary data from 2012 to 2019. Their findings indicated that the return on assets of Nigeria's quoted deposit money banks was only somewhat negatively impacted by board size, which is determined by firm size. Their study suggested that firm size should be adequately considered when determining the number of board members and the number of women on the board of directors of deposit money banks in Nigeria. However, their findings which were carried out in the banking sector when applied to the manufacturing firms could be useful because both the banking and manufacturing sector are established to judiciously utilize liquidity and maximize profit (Sanyaolu et al. 2021).

Firm Size and Liquidity

Taristy et al. (2022) conducted a study on manufacturing companies: the effect of liquidity and corporate governance on financial performance with firm size as a moderator. They found that in order to assess the degree of attainment of predefined goals, as well as to identify management required policies, financial performance is crucial. The purpose of their study was to examine how ownership structure and liquidity, with firm size acting as a moderating factor, affected the manufacturing companies listed on the IDX in 2020–2021 and their financial performance. For research sampling, 87 companies were collected using the purposive sample method, which were analyzed using the regression analysis. Their study's findings indicate that liquidity significantly improves financial performance. However, institutional and managerial ownership have no effect on financial performance because those companies' ownership structures are dominated by institutional investors, which negatively affects their ability to align the interests of shareholders outside of management.

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Their study had used only two years data obtained from 87 firms. Although the number of firms are sufficient but same cannot be said about the number years which is really small when compared to similar studies using surplus number of years (James 2020; Badu & Appiah 2017, Selven et al., 2022, Mejabi, 2022). The choice of a fewer number could have impacted their findings as more data generated from many more years could have impacted their findings otherwise. Notwithstanding, their findings are similar to (Obaje et al. 2021) but the number of years and the sector used in their studies differs significantly.

James (2020) in a study titled liquidity, size and firm value: evidence from Nigerian economy, examined the impact of firm size and liquidity on firm value for 34 Nigerian listed companies between 2007 and 2016. Market value per share was used to determine the company's value, but the natural logarithm of total assets and the ratio of current assets to current liabilities are used to determine a company's liquidity and size. Their study's findings demonstrated that firm liquidity has no discernible impact on market value per share, refuting the claim that decisions about liquidity are among the most crucial corporate financial decisions in terms of their impact on firm market value. Nonetheless, despite the fact that there is a negative link, the results support the hypothesis that business size significantly affects firm market value. Consequently, their study recommends that corporate investors in Nigeria to favor smaller businesses over larger ones.

3. Methodology

This study investigates board size and liquidity of listed manufacturing firms in Nigeria. Drawing on a comprehensive dataset spanning from 2009-2023, it employs the multiple regression statistical analyses to unravel the intricate relationships between board size and various liquidity metrics. The population of this study consists of thirty-one (31) manufacturing firms listed in the Nigerian Exchange (NGX) Group as at 31st December, 2023. This study adopted purposive sampling technique with the aid of a filtering criteria to arrive at a suitable sample size of ten (10) listed firms to represent the population. The basis of filtering the samples to arrive at the sample size includes firms that are listed on the NGX Group on or before 31st December 2009, firms must remain listed throughout the period of the study, and availability of annual financial report throughout the study period (Adediran & Iyoha, 2020; Adeoye & Ayodeji, 2020). The study used the secondary data extracted via content analysis, primarily from the annual reports of the sampled companies as found in the Nigerian Exchange Group website. Multiple regression was used with the aid of STATA 15 for the purpose of analyzing the data.

Model Specification

This study adapted the model specified in the study carried out by Selven et al. (2022) because of the similarity in both studies data analysis techniques.

$ER_{it} = \alpha_0 + \beta_1 DiBit + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 PFit + \varepsilon_{it}$ - - - - - (1). However, there are some modifications in the variables used to accommodate this study variables. The model used is expressed mathematically as follows in Equations 2 and 3: $L_{i,t} = \alpha + \beta_2 BSz_{i,t} + e$ - - - - - (2); where L is the value of the dependent variable; α , the constant term; β , the coefficient of the function. BSz is the value of independent variable; e is the error term. Thus, regression equation becomes; $L_{it} = \alpha + \beta_1 BSize_{i,t} + \beta_2 FSz + \beta_3 (BSize \times FSz)_{i,t} + e$ - - - - - (3); where L is Liquidity; BSz is Board Size; FSz is Firm Size.

Variable Measurement, Definition and Sources

Table 1

Variables, Definition, Measurement and Sources

Variables	Definition	Measurement	Sources
Dependent Variable			
Liquidity (L)	It is the ease that an asset can be converted into cash. An asset is considered liquid if it is easy to buy and sell	It is measured in terms of current asset divided by current liability.	Okoro (2020); Amarjit (2011); James (2020)
Moderating Variable			
Firm size (FSz)	The natural log of total assets.	The natural log of total assets.	Mardessi&Fourati (2020); Nguyen et al. 2021, Amarjit (2011) James (2020); Dahiyat et al. (2021)

Source: Field Work, 2024

In analyzing the data, the study adopts a descriptive statistic that describes the basic variables that defines this study. Consequently, it made available simple summaries about the sample and the measures in relations to the mean, minimum, maximum, standard deviation, kurtosis and skewness. Additionally, the study adopts a panel data estimation technique to examine the effect of board size on the liquidity of listed manufacturing firms that will take care of heterogeneity associated with the listed manufacturing firm by allowing for individual specific variables.

Due to the panel nature of this study, a multiple regression technique will be used. Diagnostic and Pre-Estimation Test, Test for Normality of Residuals, Test for Coefficient of Determination, Multicollinearity Test, Heteroskedasticity Test, Outliers Test, Linearity and Additivity Test, Model Specification Test and Hausman Test.

4. Results and Discussion

This section examines data analysis and interpretation using descriptive and normal data test statistics. The results of the model estimations and the conclusions obtained from the testing of the hypothesis are then presented and the findings are analyzed.

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Table 2

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Lr	150	1.320909	.4927367	.1748	2.8078
Bsize	150	9.02	2.420466	5	15
Fsize	150	10.20227	1.733337	5.99	13.87

Source: STATA 15 outputs (2024)

From Table 2, the liquidity as the dependent variable of the study shows a minimum and maximum values of 0.1748 and 2.8078 respectively. Also, the mean value of the liquidity of listed manufacturing companies in Nigeria is 1.320909 with the standard deviation of 0.4927367. This means there is low level of dispersion from the liquidity data of the study. The board size, which is the independent variable, displays a minimum and maximum value of 5 and 15 respectively, having its average at 9.02 and standard deviation of 2.420466 respectively.

Table 3

Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
FSize	1.54	0.648156
BSize	1.54	0.648156
Mean VIF	1.54	

Source: STATA 15 outputs (2024)

From table 3, No multicollinearity problem is evident because VIF is below 10 and the tolerance value is less than 1 (one), shows that the independent variable is appropriate and well fitted into the model. The normality test conducted revealed that the data are normally distributed, given that the p-values are insignificant at 5% for the study's variables. Multicollinearity test also revealed that the variables are not affected by multicollinearity due to the fact that the tolerance values are higher than 0.10 and the VIF is less than 10. Heteroskedasticity test revealed that there is no existence of heteroskedasticity and the Hausman specification test indicates that random effect could be applied on the models.

Table 4

Correlation Results

Variable	Lr	Bsize	Fsize
Lr	1.0000		
Bsize	-0.2625	1.0000	
	0.0012		
Fsize	-0.2402	0.5932	1.0000
	0.0031	0.0000	

Source: STATA 15 outputs (2024)

The results from table 4 expatiate the relationship amongst the variables. It shows how board size and the moderating firm size inter-relate with the firms' liquidity. From the result, 1% change in board size could result in a 1.0000 change in the liquidity. This reveals that board size has a significantly positive effect on the liquidity of manufacturing firms in Nigeria.

Table 5

Regression results

Sources	SS	Df	MS	Numbers of obs = 150	
Model	2.89059614	2	1.44529807	F(2, 147)	= 6.38
Residual	33.2850286	147	.226428766	Prob> F	= 0.0022
Total	36.1756247	149	.242789428	R-Squared	= 0.0799
				Adj R-Squared	= 0.0674
				Root MSE	= .47585

Lr	Coef.	Std.Err.	T	P> I t	[95% Conf.	Interval]
Size	-.0376965	.0200048	-1.88	0.061	-.0772307	.0018376
FSize	-.0370474	.0279351	-1.33	0.187	-.0922537	.0181588
-cons	2.0389	.2329939	8.75	0.000	1.5784	2.49935

Source: STATA 15 outputs

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The regression result from table 5 revealed that the coefficient of determination R –squared (R²), shows that the impact of the independent variable on the dependent variable is 10%. This simply means that all the variables combined have a total impact of 10% on the liquidity. The remaining 90% impact comes from other variables not included in the model.

The result from table 5 shows that board size, have a negative significant effect on the liquidity of the selected listed manufacturing firms in Nigeria at a P-value of 0.061, while firm size has a negative significant effect on the liquidity of the selected listed manufacturing firms in Nigeria reporting with P-value of 0.187. This means that a 1 % change in any of the variables will lead to a proportionate increase / decrease in the level of liquidity. For example, a 1% increase in firm size will lead to a -.037 increase in liquidity. Also, a 1% decrease in board size, will have a negative coefficient of – .037 which will lead to a lower liquidity.

Deducing from the above analysis it was found that there is a significantly negative effect of board size on liquidity and it agrees with (Obaje et al. 2021; Vu et al. 2020), hence in disagreement with the study of (Akinwale & Ajide 2019) that found a significantly positive effect. While firm size moderations on the effect of the board on liquidity, was found to be insignificant, tallying with the study of (taristy et al. 2022) that found that firm size cannot moderate liquidity. Subsequently, opposing the findings of (Oshinowo et al. 2022), that found that firm size moderates liquidity.

These results are consistent with the resource dependency theory, which postulates that the distinct identities and skills of board members are advantageous. Larger boards offer greater richness in terms of resources, expertise and experience than smaller boards. Similar studies that adopted the resource dependency theory in the past are (Khan & Rehman 2020).

5. Conclusion and Recommendations

This study ascertains that there is a significantly negative effect of board size on the liquidity of listed manufacturing firms in Nigeria. It concludes that board size has a negative significant effect on liquidity of manufacturing firms in Nigeria. Therefore, the study recommended that listed manufacturing firms should deemphasis the size of board members that are saddled with responsibility of taking liquidity decisions as it could result in unnecessary utilization of resources which could affect the liquidity of the company. Hence, a sizeable number of board members are advised. The moderating role of firm size on firms portends that there is a negative significant effect of firm size on liquidity.

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Appendix A1

Population and Sample Size (*) of the Study

1. Berger Paint Plc (#)
2. Beta Glass Plc
3. Cadbury NigPlc
4. CAP Plc (*)
5. Cement Company of Northern NigPlc
6. Champion Breweries Plc (#)
7. CUTIX Plc (*)
8. Dangote Cement Plc
9. Dangote Flour Plc
10. Dangote Sugar Plc (*)
11. Enamel Ware NigPlc
12. First Aluminum Plc
13. Flour Mills Nig. Plc
14. Guinness NigPlc (*)
15. Honeywell Flour Mill Plc (*)
16. International Breweries Plc
17. Larfarge Africa Plc (WAPCO)
18. Livestock FeedsPlc (*)
19. Meyers plc
20. Morrison Industries Plc (#)
21. Nascon Allied Plc (#)
22. Nestle NigPlc (*)
23. Nigerian Breweries Plc
24. Okomu Oil Palm Plc
25. Portland Paints/ Products (#)
26. Premeiere Paints Plc
27. PZ Cussons (*)
28. Unilever Nig. Plc
29. Union Dicon Salt
30. UACN (*)
31. Vita Foam Plc (*)

Key: (*) – Sampled Company

(#) – Companies with no women on board

Source: Field work 2023