Investment and Working Capital Decisions and the Market Value of Listed Manufacturing Firms in Nigeria: Exploratory Evidence on the Role of Board Size

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ABSTRACT

Scholarly opinion remains divided on whether board size strengthens the link between corporate investment and working capital decisions and firm market value, or instead introduces coordination bottlenecks and operational rigidity. This study examines the association between investment and working capital decisions and the market value of listed manufacturing firms in Nigeria, and explores whether these associations differ with board size. Adopting an ex-post facto research design, the study draws on a population of forty-five listed manufacturing firms, from which twenty-five were purposively selected on the basis of consistently published audited annual reports covering 2013 to 2025, giving a balanced panel of 325 firm-year observations. Because firms delisted during the period are excluded, the sample consists of survivors. Investment decisions are measured by the non-current asset ratio (NCAR), working capital decisions by the ratio of current assets to total assets (WCR), and market value by enterprise value. A fixed-effects panel model estimated by EGLS with White standard errors shows that NCAR is positively and significantly associated with enterprise value ($p = 0.001$), whereas WCR is not ($p = 0.634$). An exploratory specification in which each ratio is multiplied by board size gives positive and significant coefficients on the NCAR and WCR terms, but because it omits board size and the ratios as separate terms it does not by itself establish moderation. NCAR and WCR are close to mirror images of each other (correlation of −0.92), which limits the reliability of their separate coefficients. The results are interpreted as associations, not causal effects. The study recommends that such firms regularly appraise the efficiency of non-current asset utilisation, monitor working capital closely, and treat board size as a strategic consideration, and that future work estimate a full moderation model with year effects and a control for firm size.

Keywords: Investment Decision, Working Capital Decision, Non-Current Asset Ratio, Working Capital Ratio, Market Value.

INTRODUCTION

Market value serves as a critical measure of a firm's financial health and investor perception, reflecting the market's assessment of the company's potential to generate future earnings. It is often expressed through metrics like enterprise value, share prices, price-to-book value ratios, or market capitalisation (Bakoji & Ishaku, 2023). Market value is the highest price a willing buyer would pay, and a willing seller would accept for an asset in an open, competitive market, assuming both parties are well-informed and under no pressure to trade. It represents the current, estimated worth of goods, services, of companies, which often fluctuates based on supply, demand, and investor sentiment. For manufacturing firms, which are integral to Nigeria's economy, market value signifies not only financial performance but also their broader economic impact, making significant contributions to infrastructure development and economic growth. (Dabari & Liuraman, 2022).

A company's market value is a good indication of investors' perceptions about its business prospects as it signals the success or otherwise of the firm. Market value is easiest to determine for exchange-traded instruments such as stocks and futures, since their market prices are widely disseminated and easily available, but it is a little more challenging for over-the-counter instruments like fixed-income securities. (Abubakar, 2022). A company's

principal goal is to maximise its value, which also reflects the level of shareholder prosperity. The market value of a firm can be of benefit to the shareholder, simply because an increase in a company's share price raises the welfare of its shareholders. It's essential to enhance corporate value as it also means increasing shareholder wealth, which is the primary objective of the company (Ibrahim, 2020). According to Saji (2019), market value has been a focus of financial studies for quite some time. There are various ways of measuring market values, such as price to book value, enterprise value, market capitalisation, share prices and Tobin's Q used by modern finance analysts. This study adopt Enterprise Value to measure market value simply because Enterprise Value (EV) offers a more accurate, comprehensive assessment of a company's total worth by accounting for its entire capital structure, equity, debt, and cash.

Investment decisions involve selecting profitable projects or assets. Through capital budgeting, firms allocate resources to long-term investments. Sound investment choices lead to higher returns and enhance market value (Ojo, 2018). Given the strategic importance of manufacturing in Nigeria, capital investments in this sector are particularly impactful (Ogunyemi & Ojo, 2020). The investment decision is considered one of the most important decisions in the financial decisions of a business because it creates value for the business. A correct investment decision will contribute to the value of the business, thereby increasing the asset value for the owner. In contrast, a wrong investment decision and or management will cause loss of business value, leading to damage to the owners' properties (Trang & Duong, 2022). Therefore, to achieve sustained market value, it is crucial for manufacturing management to look for strategic ways to increase its investments. In manufacturing firms, non-curent asset is one of the most important investment decisions, which is one of the most essential as well as tough decisions the financial management takes, besides retained earnings and financing decisions. (Hawraa & Hasan, 2022). Investment decision constitutes one of the core variables in this study, and it is measured using the non-current asset ratio.

Working capital decisions involve managing short-term assets and liabilities to maintain liquidity and operational efficiency. Firms with optimal working capital structures often perform better financially (Raheman & Nasr, 2007). In Nigeria's challenging economic environment, where firms face liquidity issues, managing working capital effectively is a key determinant of survival and success. Working capital decision is a fundamental aspect of corporate financial management that deals with the management of short-term assets and liabilities to ensure efficient business operations and financial stability. It involves the management of cash, inventories, accounts receivable, and accounts payable in such a way that a firm maintains adequate liquidity while also achieving profitability. Efficient working capital decisions ensure that firms can meet their short-term obligations and continue their operations without financial interruptions. Inadequate working capital may lead to liquidity problems, insolvency, and eventually business failure, while excessive working capital may reduce profitability due to idle resources (). Working capital decision constitutes one of the core variables in this study, and it is measured using the working capital ratio.

Board size, which is introduced as a moderating variable, refers to the number of directors on a company's board. It is a statutory requirement that each corporate board should be composed of both executive and independent non-executive members. A moderator is a variable that changes the strength or direction of the relationship between an explanatory variable and an outcome; it may also have its own direct association with the outcome. Previous literature has examined the relationship between board size and performance, as large boards have a broader range of expertise to help make better decisions, leading to improved performance. Board size as a key corporate governance framework has become an essential aspect of modern business management, particularly in emerging markets where the regulatory environment and market dynamics differ significantly from those in developed economies (Akinwumi & Onmonya, 2025).

Despite growing research, a significant gap remains in understanding the specific effect of various financial management decisions, such as investment and working capital decisions, on market value in Nigeria's manufacturing sector. Existing studies often isolate individual decisions or overlook the sector's unique challenges. This study addresses that gap by analysing how two key financial management decisions, investment decisions and working capital decisions, are associated with the market value of listed Nigerian manufacturing firms, and by exploring the role of board size. A methodological gap also exists in the Nigerian context. Previous studies on market value in Nigeria, such as those by Abubakar (2022), Bakoji and Ishaku (2023) and Iheyen

(2021), primarily used Tobin's Q as a measure of market value. While this metric is widely used, it may not fully capture the complexities and dynamics shaping market valuation in emerging economies. To address this limitation, this study uses enterprise value as a more comprehensive measure. The study estimates a direct-effects model and an interaction-term specification involving board size. It offers practical insights for corporate executives, investors, and policymakers by examining the relationship between investment and working capital decisions and market value for the period 2013 to 2025. The hypotheses are stated as follows.

H01: The non-current asset ratio has no significant association with the enterprise value of listed manufacturing firms in Nigeria.

H02: The working capital ratio has no significant association with the enterprise value of listed manufacturing firms in Nigeria.

The role of board size is examined exploratorily through an interaction-term specification (Section 3), without a separate hypothesis.

LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Investment Decision

Investment decision refers to the process through which firms decide on the allocation of capital to projects or assets that are expected to yield future returns. These decisions are long-term in nature, irreversible in most cases, and critical to a firm's survival and growth (Brealey et al., 2020). Investment decisions are synonymous with capital budgeting decisions and are focused on determining which assets or projects should receive funding based on their potential to enhance firm value. The word investment is defined as the allocation of financial resources in the form of real assets and financial assets to expect a reasonable return. Similarly, this definition has been put forward by Laopodis (2021) who defines investment as today's sacrifice of resources (time, money, and energy) to get better or more resources in the future. Thus, making an investment decision means choosing the best way to achieve the goal of obtaining future returns with limited financial resources.

Investment decisions refer to the choices made by organisations regarding the allocation of resources to investments, weighing the anticipated benefits against costs and justifications such as strategic alignment and economic calculations. These decisions involve assessing potential risks, including the possibility that investments may not yield expected results and the opportunity costs of alternative investments. Investment decisions are the most important decisions because they relate directly to investment profitability (Ajiboye & Olagunju, 2023). Trang and Duong (2022) state that a company's investment decisions are reflected in the types of assets the company invests in. This is mostly seen on the assets section of the financial statement of the company, which shows what makes up current assets as well as the fixed assets. This is important because the composition of current assets and fixed assets forms the structure of the company's wealth.

2.1.2 Non-Current Asset Ratio

The term non-current asset ratio generally refers to financial metrics that assess how a company utilises, finances, or manages its long-term, liquid assets. These assets are held for more than one year and are essential for a company's long-term operations and growth, rather than day-to-day liquidity. Non-current asset ratios are a type of financial indicator used by analysts, investors, and management to assess the efficiency, financial structure, and risk profile of a company's long-term investments (Harianto 2017). These ratios reveal how efficiently the company uses its long-term assets (such as property, plant & machinery) to generate sales or income.

Anuar et al. (2021) stated that a non-current asset ratio is a category of financial metrics used by analysts, investors, and management to evaluate the efficiency, financial structure, and risk profile associated with a company's long-term investments. These ratios provide insights into how effectively the business uses its long-

term assets (like machinery or property) to generate sales or revenue. Whether long-term assets are financed with appropriate long-term capital (equity or long-term debt) rather than short-term funds. The company's level of capital intensity and its vulnerability to economic downturns or the need for significant future investment in ageing assets. Non-current asset ratio is an effective method used by financial statement users to gauge the firm's ability to utilize NCA to generate revenue. Basically, a higher NCA ratio indicates better utilisation of NCA that enables the firm to achieve its goals, i.e., high revenue and high profitability (Anuar et al., 2021). The effective use of NCA of firms is formed on the basis of the ratio of an integrated indicator of the efficiency of the use of the company's fixed production assets through the standardisation of a single efficiency indicator (Gajfullina et al., 2017). For this study, the non-current asset ratio will be mathematically expressed as follows:

$$NCAR = \frac{\text{Non-Current Asset}}{\text{Total Assets}}$$

2.1.3 Working Capital Decision

Gill et al. (2020) defined working capital management as a business strategy designed to ensure that a firm operates efficiently by monitoring and using its current assets and liabilities to the best effect. The primary purpose of working capital management is to ensure the firm maintains sufficient cash flow to meet its short-term operating costs and short-term debt obligations. A firm's working capital is made up of its current assets minus its current liabilities. Working capital represents the current assets of a firm, which is the portion of financial resources of a business that changes from one type of resource to another during the day-to-day execution of business (Lazaridis & Tryfonidis, 2016). Current assets comprise cash, prepaid expenses, short-term investments, accounts receivable, inventory, and other current assets. Net working capital can be measured by deducting current liabilities of a firm from its current assets. If the value of current assets is less than that of current liabilities, then net working capital would have a negative value, showing a deficit in working capital. When a business entity takes the decisions regarding its current assets and current liabilities then it can be termed as working capital management.

The management of working capital can be defined as an accounting approach that emphasises maintaining proper levels of both current assets and current liabilities. It provides enough cash to meet the short-term obligations of a firm (Richard & Lawrence, 2024). Working capital decisions have to do with the administration of all aspects of current assets, namely cash, marketable securities, stock, and current liabilities. It is the functional area of finance that covers all the current accounts of the firm. It is concerned with the adequacy of current assets as well as the level of risk posed by current liabilities. The basic purpose of managing working capital is to control the current financial resources of a firm in such a way that a balance is created between the profitability of the firm and the risk associated with that profitability (Adam et al., 2017). Every business requires working capital for its survival. Working capital is a vital part of business investment, which is essential for continuous business operations. It is required by a firm to maintain its liquidity, solvency, and profitability. The importance of managing the working capital of a business efficiently cannot be denied (Farhan et al., 2021). Working Capital management explicitly impacts both the profitability and the level of desired liquidity of a business (Salehi et al., 2019).

2.1.4 Working Capital Ratio

The working capital ratio (WCR) used in this study is the ratio of current assets to total assets. It measures the proportion of a firm's total assets held as working capital (cash, inventory, receivables and other current assets) and therefore reflects the firm's working capital investment policy (Liu et al., 2024). It should be distinguished from the current ratio (current assets divided by current liabilities), which is a liquidity measure and is not used in this study. A higher WCR indicates that a larger share of assets is tied up in short-term resources, which may support liquidity and day-to-day operations but may also signal idle resources or inefficient use of capital (Salehi et al., 2019). Because total assets consist of current and non-current assets, WCR and the non-current asset ratio (NCAR) are close to complements of each other, a feature that affects the estimation (see Section 4).

In financial management, the working capital ratio is an important indicator of liquidity management and operational efficiency, particularly in manufacturing firms where a significant portion of assets is tied up in inventory and receivables. Efficient working capital management ensures that a firm maintains an optimal level of liquidity while simultaneously maximizing profitability (Huynh et al. 2025). Therefore, the working capital ratio serves as a key measure in assessing the relationship between liquidity and financial performance, as both excessive and inadequate working capital can negatively affect a firm's profitability and overall financial performance. In empirical literature, the working capital ratio is widely used as a proxy for liquidity and working capital management efficiency, and it is often examined in relation to firm performance indicators such as return on assets, return on equity, and net profit margin. This makes the working capital ratio an important financial metric in studies examining the effect of working capital management on firm performance. For this study, the working capital decision will be expressed as follows:

$$WCR = \frac{\text{Current Asset}}{\text{Total Assets}}$$

2.1.5 Market Value

According to Kumar et al. (2022), a company's market value reflects its capacity to generate wealth for its owners, underscoring the critical role that efficient management plays in boosting firm value and enabling better-informed business decisions. Adebayo et al. (2024) state that market value is only increased when the return on capital investment exceeds the cost of capital and is used to evaluate whether a company has created or depleted value from the standpoint of investors. Key variables like market share price and Tobin's Q (TOBQ) are used in this study to assess market value (MRV). Market value, in the context of financial markets and corporate finance, refers to the total value of a company's outstanding shares of stock in the stock market. It is a key indicator used by investors, analysts, and other stakeholders to assess the overall worth of a publicly traded company (Bakoji & Ishaku, 2023). According to Kantudu and Zik-rullahi (2020) Market value is the total value of a company's outstanding shares of stock, reflecting the current market price per share and providing an indicator of the company's worth in the eyes of investors.

Market value is portrayed as a static measure based on the current market price per share. However, market value is inherently dynamic and subject to constant fluctuations due to changes in investor sentiment, market conditions, and other variables. Market value is a dynamic and real-time measure that captures the collective valuation of a company based on the prevailing stock prices in the financial markets. Market value is synonymous with market capitalization, representing the product of the current market price of a share and the total number of outstanding shares, providing a measure of the company's size in the market. Market value is used for comparative analysis, allowing investors and analysts to compare the relative worth of different companies within the same industry (Dhaliwal et al., 2022). Market value reflects investor perceptions, expectations, and sentiments regarding a company's future performance and growth prospects (Barth et al., 2018). Market value plays a crucial role in corporate finance decisions, influencing actions such as mergers and acquisitions, capital raising through stock offerings, and the company's inclusion in stock market indices (Abdulfatah et al., 2022).

2.1.6 Enterprise Value

Enterprise value (EV) is the total value of a firm, including its market capitalisation, debt, and cash. It is sometimes used as a more comprehensive measure of a company's worth than just its market capitalisation, particularly when evaluating acquisitions or comparing companies with different capital structures. Enterprise Value (EV), which includes both debt and equity, is a measure of a company's overall worth that is frequently used to assess a company's value more thoroughly than market capitalisation alone (Wiwit et al.,2024). In essence, it is the estimated cost of purchasing a business, taking into account the company's cash reserves and assuming its obligations. The measure of a company's whole worth is called enterprise value, or EV. All ownership interests and asset claims from both debt and equity are included since it considers the full market

value rather than just the equity value. EV is the notional price of a target firm (before a takeover premium is taken into account) or the effective cost of purchasing a business.

The company's assets can be used to determine its worth. Finding each asset's market value, however, can be challenging and time-consuming. Instead, we could examine the methods used to pay for the assets. By considering assets as the use of funds and liabilities and shareholder equity as the sources of funds used to finance those assets, the basic accounting equation can be utilised as a guide. When we refer to value, we mean the company's present or market value; therefore, we take into account the market values of the company's liabilities and equity (Andy et al.,2023). Enterprise value (EV), as the name suggests, is a company's overall worth as determined by its funding. It comprises the cost of debt repayment (net debt, or debt less cash) as well as the current share price (market capitalisation). EV is regarded as more comprehensive than market capitalisation alone since it includes a company's debt commitments, which are critical components of its financial health. For this study, enterprise value was mathematically expressed as follows:

EV = Equity + debt – cash and short-term equivalent

2.7 Board size

Board size refers to the number of members serving on a firm's board (Namanya et al., 2021). However, in this study, board size refers to the total number of all directors of a company, including the Chairman, plus Vice Chairman, plus CEO/Managing director, plus Executive Directors, plus non-Executive Directors or Independent Directors, but excluding the company secretary. According to Muchemwa et al. (2016), board size refers to the total number of directors on the board of a company. Board members usually have diverse knowledge, skills, expertise, and resources to help in realising the company's set objectives, and they are responsible for monitoring the activities of the management to align with the interests of the shareholders and other stakeholders. A moderator is a variable that changes the strength or direction of the relationship between an explanatory variable and an outcome; it may also have its own direct association with the outcome. Board size refers to the number of directors on a company's board. It is a statutory requirement that each corporate board should be composed of both executive and independent non-executive members.

Board size, a fundamental element of board structure, refers to the total number of directors serving on a company's board at a given time. It directly influences the board's ability to perform its oversight, advisory, and strategic roles. The optimal size of a board has been a subject of scholarly debate, with various studies suggesting that both excessively large and very small boards can hinder effective governance. Namanya et al. (2021) posit that an ideal board should consist of approximately eight to nine members, arguing that smaller boards are typically more cohesive, agile, and effective in decision-making. Jensen (1993) supports this view by highlighting that when a board exceeds seven or eight members, coordination becomes problematic, leading to diminished effectiveness in deliberation and oversight. The OECD (2015) similarly notes that board size should be tailored to a company's needs, cautioning that very small boards may lack the diversity of expertise required for effective governance, while very large boards may become bureaucratic and inefficient. Overall, board size is a critical governance variable with direct implications for board efficiency, diversity of input, and accountability. Although the ideal size may vary based on a firm's size, industry, and complexity, maintaining a balanced board is essential for fostering effective oversight, swift decision-making, and robust corporate performance.

BS = Number of directors on the board

2.8 Firm age

Firm age is a control variable in this study. One can measure firm age as the time between the original creation of a firm and the present moment (in years). One can measure firm age as the time between its going public and the present moment (also in years). Age is the period of time during which a species or object has existed. We defined firm age as the number of years of inception of the company; even if some consider that listing age should indicate the age of the company (Mallinguh et al., 2020). According to Ofuan. et al. (2016) listing age is

more economical since listing is a defining point in the company's life. Shumway's claim is rejected from the perspective of the company as a legal personality. As a legal person, a company is born by incorporation. Hence, our preference for the year of incorporation as the definition of the age of the company.

The firm age can be defined as the duration of existence of the firm. Specifically, referring to its date of creation as a legal body. According to Maja et al (2017), a more acceptable definition of firm age is the total number of years since its listing, which is believed to characterize the firm's existence. One can estimate firm age as the time between the original creation of a firm and the present moment (in years). One can measure firm age as the duration between it becoming public and the present moment (also in years). We choose to focus on the second measure of firm age since

2.2. Empirical Review

2.2.1 Investment Decision and Market Value

Yosua and Randy (2025) examines the impact of investment decisions, dividend policy, profitability, and firm size on firm value in financial sector companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2023. Employing a quantitative approach with purposive sampling, 25 financial companies were selected based on specific criteria, including consistent listing, dividend distribution, and financial reporting in Indonesian Rupiah. Classical assumption tests confirmed the validity of the regression model, and hypothesis testing was conducted using F-test and t-test. The findings reveal that profitability has a significant positive effect on firm value, while dividend policy and investment decisions do not exhibit a significant impact. Interestingly, firm size shows a significant negative effect, possibly due to regulatory pressures and post-pandemic operational challenges. These results highlight the dominant influence of regulatory compliance and investor focus on financial performance rather than expansion-oriented strategies. The study concludes that investment decisions significantly influence firm value. A geographical gap was identified in this study.

Arifin and Munandar (2024) examined the effect of investment decisions and stock prices on the company value in the infrastructure sector, moderated by profitability. The study uses multiple linear regression to examine the relationships between variables, with secondary data obtained from the financial statements of infrastructure companies listed on the Indonesia Stock Exchange (IDX) for the period of 2018-2021. The independent variables used in this study are investment decisions, measured by the Price Earnings Ratio (PER), stock price, measured by closing share price, and profitability, measured by Return on Equity (ROE). The dependent variable is company value, measured by Price to Book Value (PBV). The results of the study show that investment decisions and stock prices have a positive and significant effect on company value. However, profitability does not moderate the relationship between investment decisions and stock prices on company value. This study was carried out outside Nigeria, and based on geographical gap its findings cannot apply to Nigeria.

Ajiboye and Olagunju (2023) investigated the influence of investment decisions on the market value of Nigerian listed deposit money banks (DMBs). An ex-post facto research design was employed. Secondary sources were used to gather information on market value and investment decisions. These sources included the annual reports of the banks that were sampled from 2010 to 2021. Out of the total population of 14 listed banks as of December 31, 2021, twelve (12) listed DMBs were chosen using the purposive sample technique. For data analysis, panel regression, correlation, and descriptive were tools employed. The outcome stated that return on capital employed recorded positive and significant influence on the Tobin Q and the market share price of listed Nigerian DMBs. The results imply that banks that can generate better return on the capital employed in their operation have higher tendency to attract higher valuation in the market. It was concluded that investment decisions served as determinant factors that influence the market valuation of Nigerian Deposit Money Banks. An institutional gap was identified in this study. This present study focuses on manufacturing firms as against the use of deposit money banks by the review study.

Selfiani et al (2023) studied the influence of investment decisions measured by Price Earnings Ratio (PER) and dividend policy measured by Dividend Payout Ratio (DPR) on company value measured by Price Book Value (PBV). The sample of this study consisted of 11 companies included in the LQ-45 group listed on the Indonesia

Stock Exchange (IDX). This study uses classical assumption tests (nomality test, multicollinearity test, heteroscedasticity test, autocorrelation test) and hypothesis with multiple linear regression test which shows that all variables used have been free of multicollinearity, heteroscedasticity, autocorrelation and all these variables are normally distributed. In addition, this study used SPSS version 21.00. The results of this study show that partially investment decisions have a significant effect on company value and dividend policy does not have a significant effect on company value. However, simultaneously, all independent variables in this study have a significant effect on the value of the company. The findings of a company listed on the Indonesia Stock Exchange cannot apply to manufacturing firms, which is the focus of this study, due to the geographical gap.

Gospel et al. (2022) The study investigated the effect of asset investment decisions on corporate performance. Specifically, the study investigated the effect of non-current asset investment, current asset investment and asset intangibility on profitability and liquidity of agricultural firms in Nigeria. The study adopted an ex-post facto research design. The population for the study was the five (5) selected agribusiness companies listed on the Nigerian Stock Exchange (NSE). The sample size is the same as the population. The instrument of the study was secondary data which was obtained from the selected companies' financial statements for a period of seven years (i.e. 2013-2019). The data was analysed using simple linear regression analysis with the aid of SPSS version 23.0. The study's findings revealed a significant relationship between non-current asset investment and both profitability and liquidity. Population and methodological gap were identified in this study. The findings of agricultural firms with the use of SPSS version 23.0. in Nigeria cannot apply to listed manufacturing firms due to different operating activities.

Emeka and Ogboghro (2018) examine the impact of a firm's investment decisions on its market value in Nigeria. The data consist of 10 publicly quoted companies selected from three different sectors; consumer goods, oil and gas and construction. The study covers a period of seven years from 2009 to 2015. Comparing the estimated pooled OLS model with the fixed effects model shows that although, the coefficient of non-current asset is positive and highly significant for both models, the fixed effects model however, outperforms the pooled OLS model. The result implies that industry-company specific effects are significantly related to the firm's market value. However, when the fixed effects model is compared with the random effects model based on the Hausman specification test, there is evidence that the random effects model is better than the fixed effects model. The sample size used in this study is too small, as the 10 publicly quoted companies cannot be used for generalisation.

2.2.2 Working Capital Decision and Market value

Huynh et al. (2025) assessed the impact of working capital management on the financial performance of listed enterprises. Based on 441 enterprises listed on Vietnam's Stock Exchange during from 2012 to 2022, and the regression methods such as Pooled ordinary least squares (OLS), fixed effect method (FEM), random effect method (REM), and feasible generalized least squares (FGLS) as well as the possibility of endogenous phenomena in the estimated model, the research results show that working capital has an impact on the corporate financial performance. Specifically, the components of working capital, such as the days sales outstanding (DSO), days inventory outstanding (DIO), cash conversion cycle (CCC), and operating cash cycle (OCC), have negative and statistically significant impacts on return on assets (ROA) and return on equity (ROE). Thus, improving working capital efficiency through DSO, DIO, CCC, and OCC makes the business more efficient. Geographical gap was identified in this study. The findings and recommendations of a firm listed on Vietnam's Stock Exchange might not be applied to listed manufacturing firms in Nigeria due to different government policies and regulations.

Bello et al. (2024) examined the working capital management on firm's value: evidence from listed pharmaceutical firms in Nigeria. The specific objectives are to determine the effect of average collection period (ACP), average payment period (APP), cash conversion cycle (CCC) and inventory conversion period (ICP) on the value of listed manufacturing firms in Nigeria. This study adopted an ex-post facto research design. The population of this study consists of all listed pharmaceutical companies on the floor of the Nigerian Exchange Group as of 31st December, 2021. There are eleven (11) listed pharmaceutical companies in Nigeria. Due to the unavailability of data, five (5) companies are used for the sample size of this study. The data obtained were analyzed using descriptive techniques such as minimum, maximum, mean, and standard deviation, and

inferential techniques such as correlation and regression analysis. The study revealed that average collection period (ACP), average payment period (APP), cash conversion cycle (CCC), and inventory conversion period (ICP) have a significant effect on the value of listed manufacturing firms in Nigeria. The study concludes that the working capital management has a significant effect on the value of the listed pharmaceutical firm. This review study used five (5) companies for the sample size, which might not be used to generalize to almost forty-five listed manufacturing firms in Nigeria.

Liu et al (2024) investigated the impact of working capital management on firms' financial performance in China's agri-food sector from 2006 to 2021. In addition, we analyse whether this impact is the same during the 2008 financial crisis and the 2020 COVID-19 crisis. Working capital management is measured by the working capital investment policy (current assets to total assets ratio), the working capital financing policy (current liabilities to total assets ratio), the cash conversion cycle, and the net working capital ratio. The results reveal that the current assets-to-total assets ratio and the net working capital ratio positively influence financial performance, as measured by return on assets (ROA), while the current liabilities-to-total assets ratio and the cash conversion cycle negatively influence ROA. We also find that the relationship between working capital management and financial performance is more affected during COVID-19 than in the 2008 financial crisis. A geographical gap was identified in this study, as the study was carried out outside Nigeria, whose findings cannot apply to listed manufacturing firms in Nigeria.

Mohamed and Heba -El (2024) examined the role of working capital management (WCM) in the Egyptian context. Given the unique characteristics of emerging economies, such as underdeveloped financial systems, heightened economic volatility, and institutional deficiencies, the relationship between WCM and firm value is expected to differ significantly from that in developed markets. In this study we investigate the impact of WCM measured by four components (cash conversion, average collection period, average payment period, and inventory turnover) on the firm's profitability measured by gross operating margin, and on the market, value measured by Tobin Q. Using a sample of non-financial firms and a robust estimation technique, the study results reveal a partially significant relationship between the WCM components and profitability. The results did not reveal a significant relationship between the WCM components and the market value. The findings of a company based in the Egyptian context might not be used to generalize for listed manufacturing firms in Nigeria due to the geographical gap and government policy.

Rumeysa and Sema (2023) investigated the effects of working capital management decisions on market values using a sample data set containing annual measurements for 317 Turkish publicly traded companies between 2010 and 2018. Cash ratio, Current ratio, Net Working Capital, and Cash Conversion Cycle are used as indicators of the liquidity policies of the sample firms. The specified dynamic model is estimated using the System GMM estimator. The findings show that firms can affect their market values by managing their liquid assets efficiently. In other words, a long cash conversion cycle and a large amount of net working capital are not considered negative signals by investors if accompanied by sufficient cash holdings. This study found no evidence of the effects of the current ratio and net working capital on firm value. Based on geographical gaps, the findings and recommendations of Turkish publicly traded companies might not be applied to listed manufacturing firms due to different government policies and regulations.

THEORETICAL FRAMEWORK

2.3.1 Stakeholder theory

This theory was introduced by Freeman (1984). Freeman stated that a stakeholder is an individual or group that can affect the achievement of the corporate objectives or is affected by these objectives. Adeboyegun et al. (2020) stated that these entities include the owners, managers, employees, suppliers, payables, receivables, government, and the public. Freeman (1984) suggested that this theory acknowledges the dynamic and complex relationships between corporations and their stakeholders and that these associations involve responsibility and accountability. This theory consists of both ethical and managerial components. The ethical component provides that all stakeholders should be treated equally, while the managerial component explains that the more powerful stakeholders are of greater interest to the corporation. Stakeholders are groups or individuals who are influenced

or can influence corporate activities. The long-run survival of the organization depends on its stakeholders' support and approval. The more power the stakeholders possess, the better the organization's ability to meet their demands. According to Freeman (1984) the theory provides a means of connecting ethics and strategy, which can help organizations that have the intention of serving the interests of all the stakeholders. Integrated reporting engenders the need for transparency and accountability, raising a growing interest in understanding how the economic system, ethics, and sustainability can serve all organizational stakeholders, whether they are primary (capital providers) or not.

The importance of stakeholder engagement is essential when considering informational asymmetry, given that external stakeholders have limited means to monitor the agent's behavior. For Schaltegger (2012), stakeholder trust in organizations occurs not only through the issuance of standardized financial statements but also in the face of diverse activities and interactions. Establishing relationships of trust and developing organizational communication refers to the idea of integrated thinking (IIRC, 2015), which involves stakeholders in a mutually beneficial interaction. Therefore, the institutional relationship with stakeholders will lead the process of incorporating relationship management (Freeman et al., 2010; Schaltegger, 2012). Modernisation has made business competition increasingly fierce, requiring companies to change their business methods to a knowledge-based business. This change has resulted in businesspeople being increasingly focused on prioritising intangible assets, as measured by intellectual capital, to increase company value.

2.3.2 Signaling theory

Signalling Theory, which was primarily developed by Michael Spence in 1973, focuses on the communication of information between parties with different levels of knowledge. In the context of business and economics, it explains how one party (typically a firm or an individual) can signal its quality or intentions to another party, often in situations where there is asymmetric information. Spence's original work revolved around the labour market, where job seekers signal their abilities to potential employers through educational credentials. In the broader organisational context, signalling theory suggests that firms use various signals to communicate their value, credibility, and intentions to investors, employees, and other stakeholders. In relation to board size, Signalling theory suggests that a strong board serve as a signal of the firm's health, prospects, and corporate governance quality. A strong board size may be interpreted by the market and stakeholders as a signal that the company is successful, competitive, and capable of attracting top talent. This signal can influence investor perception and behaviour, affecting stock prices, investment decisions, and the firm's reputation in the marketplace. Conversely, low board size may signal financial distress, poor governance, or a lack of ambition, which could lead to negative market reactions (Connelly et al., 2011).

A key aspect of signalling in organisations is that these signals are often costly or difficult to imitate. In the case of investment and working capital decisions and market value, signalling theory helps to explain how manufacturing firms can leverage their financial management decisions to enhance competitiveness in the marketplace with a strong board size. This is especially important in industries where competition for skilled executives is fierce and where attracting top talent is crucial for maintaining competitive advantage (Spence, 1973). Firms that disclose information about their board size and justify it with performance metrics or strategic goals send a strong signal to investors that they are committed to aligning management interests with those of shareholders. Transparent board size can reduce the perception of opportunism or excessive pay, thereby fostering trust and confidence in the firm's governance structure (Jensen & Meckling, 1976).

Signalling theory was used as an underpinning theory for this study simply because the theory underlines the importance of strategies that can be used in the manufacturing sectors to communicate their corporate strength and governance standards, aligning the interests of principals (shareholders) and agents (managers) to minimise agency costs and maximise market value. Firms operating in dynamic and competitive markets, such as those in Nigeria, often face pressures to signal their viability and growth potential to investors and stakeholders. When firms in Nigeria have a stronger board size, they send signals of financial health, strategic direction, and governance credibility to the market, thus enhancing investor confidence and attracting necessary capital.

METHODOLOGY

This study adopts an ex-post facto research design with panel regression analysis. The population comprises the forty-five (45) manufacturing firms listed on the Nigerian Exchange Group as at December 31, 2025. A sample of twenty-five (25) listed manufacturing firms was selected using a purposive sampling technique for the thirteen years 2013–2025, giving a balanced panel of 325 firm-year observations. The choice of 2013 reflects the post-IFRS adoption period in Nigeria and the availability of data, while 2025 was chosen as the ending period so that the study is timely and relevant to current economic reality. The selection criteria were:

1. Availability of data
2. Any manufacturing firms that do not publish their financial statement online are excluded.
3. The firms were not delisted throughout the study period
4. The firms must be active participants in the Nigerian exchange group over the term of the study.

Criterion (iii) excludes firms that were delisted during 2013–2025, so the sample consists of firms that survived the whole period. Survivorship may therefore bias the results, for example if delisted firms had weaker valuations or less favourable asset structures; the sensitivity of the findings to including delisted firms was not assessed and is acknowledged as a limitation.

The panel regression technique was used to analyse the data using the EViews 13 statistical package. This study adapts the model of Emeka and Ogboghro (2018) with modifications.

The direct-effects model is stated as:

$$\mathbf{EV_{it} = \alpha_0 + \beta_1 NCAR_{it} + \beta_2 WCR_{it} + \beta_3 FA_{it} + \mu_i + \varepsilon_{it} \ldots\ldots (1)}$$

Where:

EV = Enterprise value

NCAR= Non-Current Asset Ratio

WCR = Working Capital Ratio

FA= Firm age

β0= Intercept

β_1 to β_3 = coefficients of the explanatory variables

ε = error term

i = firm (cross-section); μ_i = firm-specific fixed effect

t = year

Interaction (board size) model: exploratory specification

$$\mathbf{EV_{it} = \alpha_0 + \beta_1 (NCAR_{it} \times BS_{it}) + \beta_2 (WCR_{it} \times BS_{it}) + \beta_3 (FA_{it} \times BS_{it}) + \mu_i + \varepsilon_{it} \ldots\ldots (2)}$$

Where:

EV = Enterprise Value

β1 to β3 = coefficient of slope or regression coefficient

NCAR × BS = Non-current asset ratio multiplied by board size

WCR × BS = Working capital ratio multiplied by board size

FA × BS = Firm age multiplied by board size

ε = error term

it = i cross-sectional, t time

In equation (2) each variable is multiplied by board size (BS, the number of directors). Because board size and the variables themselves do not enter as separate terms, the coefficients combine each variable's direct association with enterprise value and the part that varies with board size, so the specification cannot be used to test moderation formally. A formal test would estimate the model below and test β_4 and β_5 directly; this was not done in the present study (see Limitations):

$$\mathbf{EV_{it} = \alpha + \beta_1 NCAR_{it} + \beta_2 WCR_{it} + \beta_3 BS_{it} + \beta_4 (NCAR_{it} \times BS_{it}) + \beta_5 (WCR_{it} \times BS_{it}) + \gamma' Controls_{it} + \mu_i + \delta_t + \varepsilon_{it} \ldots\ldots (3)}$$

Table 3. 1: Measurements of Variables

S/N	Variables	Measurement	Source
Dependent Variable			
1	EV	Equity + Debt – Cash and Short-Term Equivalents	Sekolah (2020)
Independent Variables			
2	NCAR	Non-current Assets / Total Assets	Gospel et al. (2022)
3	WCR	Current Assets / Total Assets	Liu et al. (2024)
Moderating Variable			
4	Board Size	Number of directors on the board	David et al. (2021)
Control Variable			
5	FAGE	Current Year – Incorporation Year	Umobong & Bele-Egberi (2019)

Source: Researcher Compilation (2026)

A Priori expectation

A priori expectation: the non-current asset ratio and the working capital ratio are expected to be positively associated with enterprise value ($\beta_1 > 0$ and $\beta_2 > 0$), with firm age as a control.

RESULT AND DISCUSSION

4.1 Descriptive Statistics

To have a glimpse of the data used in the study, a first pass at the data in the form of descriptive statistics was carried out. This gives us a good idea of the patterns in the data used for the analysis. The summary statistics are presented in Table 4.1 below.

Table 4.1: Descriptive Statistics of the Explanatory Variables

Direct-effects model

Ratio / variable	NCAR	WCR	FA
Mean	0.484186	0.526105	51.16308
Median	0.467757	0.534191	51.00000
Maximum	0.882162	1.036326	102.0000
Minimum	0.007183	0.036728	0.000000
Std. Dev.	0.194205	0.207683	20.48775
Skewness	-0.096345	0.202735	-0.018094
Kurtosis	2.308061	2.457037	3.277631
Jarque-Bera	6.986269	6.218536	1.061510
Probability	0.030405	0.044634	0.588161
Sum	157.3606	170.9840	16628.00
Sum Sq. Dev.	12.21986	13.97486	135998.4
Observations	325	325	325

Interaction-term model

Interaction	NCAR_BS	WCR_BS	FA_BS
Mean	4.849968	5.034791	506.0492
Median	4.342129	5.080084	490.0000
Maximum	11.58754	10.36326	1020.000
Minimum	0.048821	0.183641	0.000000
Std. Dev.	2.408571	1.854716	228.9525
Skewness	0.558086	-0.035398	0.134577
Kurtosis	2.897643	2.503666	2.626254
Jarque-Bera	17.01261	3.403825	2.872589
Probability	0.000202	0.182335	0.237807
Sum	1576.240	1636.307	164466.0
Sum Sq. Dev.	1879.594	1114.551	16983835
Observations	325	325	325

Source: EViews 13 output (2026). NCAR = non-current assets/total assets; WCR = current assets/total assets; FA = firm age (years); '_BS' = variable multiplied by board size.

Table 4.1 summarises the explanatory variables for the 325 firm-year observations (25 firms, 2013–2025). The mean non-current asset ratio is 0.484 (standard deviation 0.194; range 0.007 to 0.882) and the mean working capital ratio is 0.526 (standard deviation 0.208; range 0.037 to 1.036); the two means sum to about 1.01 because current and non-current assets together make up total assets. Firm age averages 51.2 years (standard deviation 20.5; range 0 to 102). Skewness and kurtosis are close to the normal-distribution benchmarks (0 and 3) for NCAR, WCR and firm age, although the Jarque–Bera test rejects normality at the 5% level for NCAR ($p = 0.030$) and WCR ($p = 0.045$) but not for firm age ($p = 0.588$). Enterprise value, the dependent variable, is highly right-skewed (skewness 7.10, kurtosis 65.51, Jarque–Bera $p < 0.001$), indicating that a few very large firms dominate its distribution; its minimum is 48,348 in the units of the source data. The variables in the lower panel are the ratios and firm age multiplied by board size; their means imply a typical board of about ten directors.

4.2 Correlation Analysis

Table 4.2 presents correlation values between dependent and independent variables and the correlation among the independent variables themselves. These values are generated from the Pearson Correlation output. The

Table contains a correlation matrix showing the Pearson correlation coefficients between the dependent and independent variables and among the independent variables of the study. Generally, a high correlation is expected between dependent and independent variables, while a low correlation is expected among independent variables.

Decision rule: an absolute correlation above 0.80 between two explanatory variables indicates a multicollinearity concern (Gujarati, 2004).

Table 4.2: Correlation Analysis Result

Direct-effects model: Covariance Analysis: Ordinary Covariance Analysis: Ordinary				
Date: 05/13/26 Time: 22:56				
Sample: 2013 2025				
Included observations: 325				
Balanced sample				
Correlation				
Probability	EV	NCAR	WCR	FA
EV	1.000000			

NCAR	0.265387	1.000000		
	0.0000	-----		
WCR	-0.263498	-0.921345	1.000000	
	0.0000	0.0000	-----	
FA	-0.178534	-0.243140	0.192068	1.000000
	0.0012	0.0000	0.0005	-----

Interaction-term model

Covariance Analysis: Ordinary				
Date: 05/13/26 Time: 23:49				
Sample: 2013 2025				
Included observations: 325				
Balanced sample				
Correlation				
Probability	EV	NCAR_BS	WCR_BS	FA_BS
EV	1.000000			

NCAR_BS	0.448031	1.000000		
	0.0000	-----		
WCR_BS	-0.110998	-0.597604	1.000000	
	0.0456	0.0000	-----	
FA_BS	-0.025970	0.136125	0.312430	1.000000
	0.6409	0.0140	0.0000	-----

Source: EViews 13 output (2026).

Table 4.2 reports the Pearson correlations. In the direct-effects variables, enterprise value (EV) is positively correlated with NCAR (r = 0.265) and negatively correlated with WCR (r = −0.263) and firm age (r = −0.179), all significant at the 1% level. The correlation between the two explanatory ratios, NCAR and WCR, is r =

−0.921, which exceeds the 0.80 threshold. This is expected, because current and non-current assets make up total assets, so the two ratios are close to mirror images; it signals a multicollinearity concern, and the separate coefficients on NCAR and WCR must be interpreted with caution. For the interaction variables, EV is positively correlated with NCAR_BS ($r = 0.448$, $p < 0.001$) and negatively correlated with WCR_BS ($r = -0.111$, $p = 0.046$), while its correlation with FA_BS is not significant ($r = -0.026$, $p = 0.641$). The correlation between NCAR_BS and WCR_BS falls to −0.598. These correlations are descriptive and do not imply causation.

4.3 Diagnostic Test (Multicollinearity Test (VIF)

To ensure the rigidity of the measurements, multicollinearity tests were performed, using the Variance Inflation Factor (VIF) as the rigidity test. Multicollinearity occurs when one or more independent variables have a stronger influence on others, and this condition is a violation of the linear regression model, that so it may affect the validity of the outcome in any analysis.

Multicollinearity tests are performed to test whether there is a strong correlation between independent variables that may result in misleading results. However, collinearity diagnostics tests were performed using the variance inflation factor (VIF) to further confirm the absence of a multicollinearity problem between independent variables. The results of the collinearity diagnostic test are presented in Table 4.3 below:

Decision rule: a centered VIF below 10 indicates the absence of problematic multicollinearity; values above 5 deserve attention.

Table 4.3: Multicollinearity Test (VIF) Table

Direct-effects model

Variance Inflation Factors			
Date: 05/13/26 Time: 22:57			
Sample: 2013 2025			
Included observations: 325			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	1.983217	180.3582	NA
NCAR	1.992317	49.36080	6.822421
WCR	1.704317	49.56706	6.664969
FA	2.803412	7.761259	1.070517

Interaction-term model

Variance Inflation Factors			
Date: 05/13/26 Time: 23:49			
Sample: 2013 2025			
Included observations: 325			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	2.525616	29.31000	NA
NCAR_BS	2.816314	9.608399	1.896189
WCR_BS	5.163214	17.30681	2.062365
FA_BS	2.224310	7.970650	1.350862

Source: EViews 13 output (2026).

In the direct-effects model the centered VIFs of NCAR (6.82) and WCR (6.66) are below 10 but above 5, and the uncentered VIFs (about 49) are large. This is consistent with the correlation of −0.92 between the two ratios: because they are close to complements, they carry almost the same information, and their separate coefficients cannot be interpreted reliably. In the interaction-term model all centered VIFs are below 2.1.

4.4 Heteroskedasticity Test

A heteroskedasticity test was performed as a diagnostic check to verify the robustness of the estimates. Heterogeneous variance occurs when the standard error of the variable being monitored is not constant over time. Heteroscedasticity violates linear regression modelling assumptions and can affect the validity of analytical results. On the other hand, heteroscedasticity does not cause any bias in the coefficient estimates, but it reduces the precision, and less precise coefficients are more likely to be estimated. The estimates are far from the correct population values that have been removed.

***Decision Rule: Accept the null hypothesis if the P-value is greater than 5% level of Significance, otherwise do not reject** H_0

Hypothesis

H_0: The Error Variances are all Equal (Homoskedastic)

H_1: The Error Variances are not Equal (Heteroskedasticity)

Direct-effects model

Table 4.4 Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test				
Equation: UNTITLED				
Specification: EPV C NCAR WCR FA				
Null hypothesis: Residuals are homoscedastic				
	Value	Df	Probability	
Likelihood ratio	1777.902	25	0.0000	
LR test summary:				
	Value	Df		
Restricted LogL	-7026.386	321		
Unrestricted LogL	-6137.435	321		

Interaction-term model

Panel Cross-section Heteroskedasticity LR Test				
Equation: UNTITLED				
Specification: EPV C NCAR_BS WCR_BS FA_BS				
Null hypothesis: Residuals are homoscedastic				
	Value	Df	Probability	
Likelihood ratio	1758.464	25	0.0000	
LR test summary:				
	Value	Df		
Restricted LogL	-6986.705	321		
Unrestricted LogL	-6107.473	321		

E-View 13 Output (2026)

From the result in Table 4.4, the likelihood-ratio statistics of 1777.902 (direct-effects model) and 1758.464 (interaction-term model) both have probability values of 0.0000, which is less than 5%. The null hypothesis of homoscedastic residuals is therefore rejected, indicating cross-sectional heteroskedasticity in both models. This was addressed by estimating the models by EGLS with cross-section weights and White diagonal (degrees-of-freedom corrected) standard errors, as presented in Tables 4.7 and 4.8.

Model selection

4.5 Hausman Test

The Hausmann specification test is a model specification test used in panel data analysis to select between fixed and random effects models. Because the datasets utilised in this investigation were panel, both fixed and random effects regressions were performed. A Hausmann specification test was then used to choose between the fixed-effects and random-effects regression models. This test determined if the error term was connected to the regressor. As a result, the decision rule for the Hausmann specification test is presented at a 5% level of significance:

H_0: Random effect is more appropriate for the Panel Regression analysis

H_1: Fixed effect is more appropriate for the Panel Regression analysis

***Decision Rule**: Reject Ho if the cross-section random probability value is less than 5% level of Significance. Otherwise, do not reject H_0.

Direct-effects model

Table 4.5: Hausman Specification Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	37.446553	3	0.0000

Interaction-term model

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	63.843904	3	0.0000

E-View 13 Output (2026)

For the direct-effects model, the Hausman test gives a cross-section chi-square statistic of 37.446553 (3 d.f.) with a probability value of 0.0000, which is below 5%. The null hypothesis that the random-effects model is appropriate is rejected, and the fixed-effects model is preferred. For the interaction-term model the statistic is 63.843904 (3 d.f.; $p = 0.0000$), and the fixed-effects model is again preferred.

Fixed effect likelihood ratio

The redundant fixed-effects likelihood ratio test checks whether the firm-specific intercepts are jointly significant and is used to choose between the pooled and fixed-effects models. Both were estimated, and the decision rule at the 5% level of significance is stated below:

Hypothesis

H0: Pooled effect is most appropriate for the Panel Regression analysis

H1: Fixed effect is more appropriate for the Panel Regression analysis

*Decision Rule:

Reject H0 if the p-value is less than 5%; otherwise, do not reject H0.

Table 4.6: Fixed Effect Likelihood Ratio Test

Direct-effects model

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	17.900024	(24,297)	0.0000
Cross-section Chi-square	290.759548	24	0.0000

Interaction-term model

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.536126	(24,297)	0.0000
Cross-section Chi-square	214.066312	24	0.0000

E-View 13 Output (2026)

The cross-section F statistics are 17.900024 (24, 297 d.f.) for the direct-effects model and 11.536126 for the interaction-term model, and the cross-section chi-square statistics are 290.759548 and 214.066312 (24 d.f.), all with probability values of 0.0000. The null hypothesis that the pooled model is appropriate is rejected, and fixed effects are preferred in both cases.

4.6 Test of Research Hypotheses

In panel regression analysis, the ultimate goal is the estimation of the relationship between dependent and independent variables. The sign of the coefficients of independent variables indicates their relationship with the dependent variable, while the magnitude of the coefficients implies the responses of the dependent variables to the independent variables.

***Decision Rule**: Reject Ho if the probability value is less than 5% level of Significance. Otherwise, do not reject H_0.

Table 4.7: Fixed-Effects Regression Result, Direct-Effects Model (EGLS, White Standard Errors)

Direct-effects model

Variable	Sign of coefficient	t-Statistic	Prob.
C	+	0.453282	0.6507
NCAR	+	3.317734	0.0010
WCR	+	0.477297	0.6335
FA	+	6.105552	0.0000
R-squared (weighted)		0.676632	
Adjusted R-squared (weighted)		0.647235	
F-statistic (Prob.)		23.01698	0.0000
Durbin-Watson statistic		1.729994	
Observations (firms × years)		325 (25 × 13)	

Source: EViews 13 output (2026). Dependent variable: EV. Method: panel EGLS (cross-section weights) with firm fixed effects and White diagonal standard errors; 13 periods, 25 firms. Probabilities are two-sided from the t-statistics (297 d.f.). Coefficient magnitudes depend on the units of EV and are not tabulated; all signs are positive.

In the direct-effects model, the non-current asset ratio is positively and significantly associated with enterprise value ($t = 3.32$, $p = 0.001$) and firm age is also positive and significant ($t = 6.11$, $p < 0.001$), while the working capital ratio is positive but not significant ($t = 0.48$, $p = 0.634$). The intercept is not significant ($t = 0.45$, $p = 0.651$). The weighted R-squared is 0.677 (adjusted 0.647). Because NCAR and WCR are close to complements ($r = -0.92$), the contrast between a significant NCAR and an insignificant WCR should not be over-interpreted.

Interaction-term model

Table 4.8: Fixed-Effects Regression Result, Interaction-Term Model (EGLS, White Standard Errors)

Variable	Sign of coefficient	t-Statistic	Prob.
C	+	0.034624	0.9724
NCAR_BS	+	3.841245	0.0001
WCR_BS	+	3.523963	0.0005
FA_BS	+	5.928993	0.0000
R-squared (weighted)		0.640686	
Adjusted R-squared (weighted)		0.608021	
F-statistic (Prob.)		19.61389	0.0000
Durbin-Watson statistic		1.707363	
Observations (firms × years)		325 (25 × 13)	

Source: EViews 13 output (2026). Dependent variable: EV. Method: panel EGLS (cross-section weights) with firm fixed effects and White diagonal standard errors; 13 periods, 25 firms. Probabilities are two-sided from the t-statistics (297 d.f.). Coefficient magnitudes depend on the units of EV and are not tabulated; all signs are positive; each variable is multiplied by board size.

E-View 13 Output (2026)

In the interaction-term model, the NCAR-by-board-size term ($t = 3.84$, $p = 0.0001$), the WCR-by-board-size term ($t = 3.52$, $p = 0.0005$) and the firm-age-by-board-size term ($t = 5.93$, $p < 0.001$) are positive and significant. The weighted R-squared is 0.641 (adjusted 0.608). These terms combine the direct and board-size-varying parts of each variable's association, because the variables and board size do not enter separately.

Research Hypotheses

H01: The non-current asset ratio has no significant association with the enterprise value of listed manufacturing firms in Nigeria.

In the direct-effects model (Table 4.7), the non-current asset ratio is positively and significantly associated with enterprise value ($t = 3.32$, $p = 0.001 < 0.05$), so H01 is rejected. In the interaction-term model (Table 4.8), the NCAR-by-board-size term is also positive and significant ($t = 3.84$, $p = 0.0001$). This indicates that enterprise value is positively associated with the non-current asset ratio, including when the ratio is multiplied by board size. It does not establish that board size moderates the relationship, because the interaction-only specification cannot separate the ratio's own association from the board-size-dependent part; the result is an association, not a causal effect.

H02: The working capital ratio has no significant association with the enterprise value of listed manufacturing firms in Nigeria.

In the direct-effects model, the working capital ratio is positively but not significantly associated with enterprise value ($t = 0.48$, $p = 0.634 > 0.05$), so H02 is not rejected on the direct-effects evidence. In the interaction-term model, the WCR-by-board-size term is positive and significant ($t = 3.52$, $p = 0.0005$). This suggests that the association of working capital with enterprise value is stronger where the ratio is scaled by board size, but, as above, it does not by itself demonstrate moderation, and the high correlation between WCR and NCAR limits what can be inferred about WCR separately.

DISCUSSION OF FINDINGS

This study examined the association between investment and working capital decisions and the market value of listed manufacturing firms in Nigeria, and explored the role of board size. The non-current asset ratio has a positive and significant association with enterprise value, indicating that firms with a larger share of non-current assets tend to have higher enterprise value in the study period. This aligns with Ikilidih and Mgbatogu (2025) and Ajiboye and Olagunju (2023), differs from Quddus et al. (2022), and agrees with the a priori expectation of a positive sign. It is consistent with the view that investment in long-term assets supports growth capacity and cash flows, but a positive association does not show that raising non-current assets increases value; larger or more valuable firms may simply hold more non-current assets. The interaction term involving board size is also positive and significant, which suggests that the association varies with board size, but a model that includes board size and the ratios separately is needed to confirm moderation.

The working capital ratio is positively but not significantly associated with enterprise value in the direct-effects model. This is consistent with Mohamed and Heba (2024) and Rumeysa and Sema (2023), who found no significant relationship between working capital measures and market value, and differs from Bello et al. (2024), who found a significant effect for pharmaceutical firms. It does not agree with the positive a priori expectation. In the interaction-term model the WCR-by-board-size term is positive and significant. Given the near-complementarity of WCR and NCAR, the results are best read as describing one asset-composition dimension, the balance between non-current and current assets, and not two independent decisions.

CONCLUSION AND RECOMMENDATIONS

This study examined the association between investment and working capital decisions and the market value of listed manufacturing firms in Nigeria, with an exploratory look at board size, using a balanced panel of 25 firms for 2013–2025. The non-current asset ratio is positively and significantly associated with enterprise value, while

the working capital ratio is not significant in the direct-effects model. In an interaction specification, both ratios multiplied by board size have positive and significant coefficients, but because that specification does not include board size and the ratios separately, the study does not conclude that board size moderates these relationships. The results are associations, not causal effects, and are subject to the limitations stated below.

Based on the findings of this study, the following recommendations are made for the management of listed manufacturing firms on the Nigerian Exchange Group:

i. Management of listed manufacturing firms should regularly appraise the efficiency of non-current asset utilisation, since the non-current asset ratio is positively associated with enterprise value.

ii. Management should monitor working capital closely, recognising that in this study the working capital ratio was not significantly associated with enterprise value on its own, and should treat board size as a strategic consideration alongside financial decisions.

Limitations and Suggestions for Further Research

(i) The moderation specification estimated here includes only products of board size with the variables and omits board size and the variables as separate terms; it cannot establish moderation. Future work should estimate a fixed-effects model containing each ratio, board size and both ratio-by-board-size terms and test the interaction coefficients directly. (ii) NCAR and WCR are close to complements ($r = -0.92$; means summing to about 1.01), which limits their separate interpretation; a single asset-composition measure or alternative working capital measures (for example the current ratio or the cash conversion cycle) should be considered. The maximum WCR (1.036) slightly exceeds one, which is not possible for current assets divided by total assets, and should be checked against the source data. (iii) The sample of 25 firms was selected purposively and excludes firms delisted during 2013–2025, so the results may reflect survivorship; the sensitivity of the findings to including delisted firms was not assessed. (iv) The models do not include year effects or a control for firm scale (for example the logarithm of total assets). Firm age is collinear with firm and year effects, so it would be replaced by a size control when year effects are added. (v) Enterprise value is highly right-skewed, so a logarithmic transformation or a scaled measure should be examined. (vi) The results are associations and should not be read as causal.

REFERENCE

1. Abdulfatah, L. A., Yahya, A. O., Agbi, S. E., & Mustapha, L. O. (2022). Mediating effect of firm value on the relationship between dividend payout and growth opportunities of listed consumer goods companies In Nigeria. Nigerian Journal of Accounting and Finance, 14(2).
2. Abubakar, B. (2022). Ownership structure, free cash flow and financial performance of listed consumer goods firms in Nigeria (doctoral dissertation, School of Postgraduate Studies, Bayero University, Kano).
3. Adam, A. M., Quansah, E., & Kawor, S. (2017). Working capital management policies and returns of listed manufacturing firms in Ghana. Scientific Annals of Economics and Business, 64(2), 255–269. https://doi.org/10.1515/saeb-2017-0017
4. Adebayo, A. A., & Adebisi, J. F. (2021). Cost management practices and financial performance of manufacturing firms in Nigeria. International Journal of Business and Management, 16(3), 45-56.
5. Ajiboye O. O., & Olagunju, A. (2023). Investment Decision and Market Value of Nigerian Listed Deposit Money Banks. Fudma Journal of Accounting and Finance Research [FUJAFR] 1(3) 87-96
6. Akinwumi, Akinlolu Adekunle & Onmonya, Lucky Otsoge, 2025. "Board Characteristics and Firm Value: Evidence from Listed Firms in Nigeria," International Journal of Research and Innovation in Social Science, International Journal of Research and Innovation in Social Science (IJRISS), 9(6), 1432-1449,
7. Andy W/ Matondang E. S., & Enda N. S., (2023). "Financial Performance and Firm Value: A
8. Mediating Role of Profitability," Oblik i finansi, Institute of Accounting and Finance, 2, 153-160
9. Anuar, R. Bin, Jais, M. Bin, & Tinggi, M. (2021). The Impact of Non-Current Assets on the
10. Performance of Firms in Malaysian Construction Sector. International Journal of Academic Research in Accounting Finance and Management Sciences, 11(1), 57-79.

11. Arifin, M. R. & Munandar, A (2024).The influence of investment decisions and stock prices on
12. company value with profitability as a moderating variable. JPPI (Jurnal Penelitian Pendidikan Indonesia) 10(4):837

13. Bakoji, M., & Ishaku, A. (2023) Ownership Concentration and Dividend Policy of Listed Consumer Goods Companies in Nigeria. International Journal of Research and Innovation in Social Sciences, 10(10), 123-136.
14. Bello, M. K., Adeyemi, S. & Shakirat, O. (2024) Effect of Working Capital Management on Firm's Value: Evidence From Listed Pharmaceutical Firms In Nigeria. Malete Journal of Accounting and Finance, 4(2), 269-282. https://majaf.com.ng/index.php/majaf/article/view/157
15. Brealey, R. A., Myers, S. C., & Allen, F. (2020). Principles of corporate finance (13th ed.). New York: McGraw-Hill.
16. Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. Journal of Management, 37(1), 39–67.
17. Dabari, I. J., & Liuraman, Z. (2022). Moderating Effect of Audit Quality on the Relationship Between Ownership Structure and Tax Aggressiveness of Listed Consumer Goods Companies in Nigeria. NDA Journal of Management Sciences Research, 2(1), 44-53.
18. Dhaliwal, D. S., Goodman, T. H., Hoffman, P. J., & Schwab, C. M. (2022). The incidence, valuation, and management of tax-related reputational costs: Evidence from a period of protest. The Journal of the American Taxation Association, 44(1), 49-73
19. Emeka, J., & Ogboghro, V. I. (2018). Investment decisions and firm market value in Nigeria: A
20. panel data approach. Research Journal of Finance, 6(12), 1-13.
21. Farhan, N. H., Almaqtari, F. A., Al-Matari, E. M., Senan, N. A. M., Alahdal, W. M., & Hazaea, S. A (2021). Working capital management policies in Indian listed firms: A state-wise analysis. Sustainability, 13(8), 1–25. https://doi.org/10.3390/su13084516
22. Freeman, R. E. (1984). Strategic Management: A Stakeholder Approach. Boston, MA: Pitman.
23. Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & de Colle, S. (2010). Stakeholder theory: The state of the art. Cambridge: Cambridge University Press.
24. Gajfullina, M. M., Nizamova, G. Z., Musina, D. R., & Alexandrova, O. A. (2017). Formation of
25. A strategy for the effective management of fixed production assets of oil companies. Proceedings of the International Conference on Trends of Technologies and Innovations in Economic and Social Studies 2017, 38. https://doi.org/10.2991/ttiess-17.2017.32
26. Gill, A. Harvinder S. Mand A. A., & Neil, M, (2020). "Efficient Working Capital Management and the Cost of Debt," International Journal of Business and Economics, School of Management Development, Feng Chia University, Taichung, Taiwan,. 19(2),131-149
27. Gospel J. Chukwu, G. E. & Herbert, R. (2022) Asset Investment Decisions and Corporate Performance of Agricultural Firms in Nigeria. Journal of Accounting and Financial Management 8(5)
28. Gujarati, D. N. (2004). Basic econometrics (4th ed.). New York: McGraw-Hill.
29. Harianto, S. (2017). Rasio keuangan dan pengaruhnya terhadap profitabilitas pada bank
30. pembiayaan rakyat syariah. Esensi, 7(1), 41-48. https://doi.org/10.15408/ess.v7i1.4076
31. Hawraa, A. A. A. A. & Hasan, H. K. R. (2022). Debt financing and its impact on investment decisions an applied study in a sample of commercial banks listed in the Iraqi Stock Exchange. World Economics & Finance Bulletin (WEFB), 6, 51-60.
32. Huynh, T. X. T., Nguyen, T. T. H., & Nguyen, C. V. (2025). The impact of working capital management on the financial performance of listed enterprises: an empirical evidence from Vietnam. Cogent Business & Management, 12(1). https://doi.org/10.1080/23311975.2025.2473033
33. Iheyen, C. (2021). Audit committee attributes and the value of firm: evidence from listed insurance companies in Nigeria, Journal of Contemporary Issues in Accounting, 2(1), 2135. Available at https://journals.unizik.edu.ng/jocia
34. Ikilidih, J. N. & Mgbatogu, O. (2025) Effect of Financial Reporting on Investment Decision-Making in Nigerian Industrial Goods Firms. Journal of Accounting and Financial Management 11(8)
35. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360.

36. Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. The Journal of Finance, 48(3), 831–880.
37. Kantudu, A. S., & Zik-Rullahi, A. A. (2020). Value of Listed DMBs in Nigeria: Does Share Ownership Moderates Executive Compensation and Financial Performance Relationship? *Journal of Business and Retail Management Research (JBRMR), 19(1).
38. Kumar, R., & Priyanka, P. (2018). Measuring the impact of investment in human capital on organizational performance. International Journal of Management, Technology, and Social Sciences (IJMTS), 3(2), 20-31
39. Laopodis, N. T. (2021). Understanding Investments: Theory and Strategies. In Routledge (2nd ed.). Routledge. https://doi.org/10.4324/9781003027478
40. Lazaridis, I. & Tryfonidis ,(2016) Dimitrios, Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange. Journal of Financial Management and Analysis,19(1), at SSRN: https://ssrn.com/abstract=931591.
41. Liu L, Zhou X, Xu J (2024) Does working capital management improve financial performance in China's agri-food sector during COVID-19? A comparison with the 2008 financial crisis.
42. Maja P. Vica, P. & Marijana, Ć. (2017) The Influence of Age on Firm Performance: Evidence from the Croatian Food Industry. Journal of Eastern Europe Research in Business & Economics DOI: 10.5171/2017.618681
43. Mallinguh, E., Wasike, C., & Zoltan, Z. (2020). The business sector, firm age, and performance: The mediating role of foreign ownership and financial leverage. International Journal of Financial Studies, 8(4), 79.
44. Mohamed, M. & Heba, E. (2024) The Impact of Working Capital Management on The Firm's Profitability and The Market Value: Evidence From an Emerging Capital Market. International Journal of Advanced Research in Accounting Economics and Business Perspectives 4(1):108-128
45. Muchemwa, M. R., Padia, N., & Callaghan, C. W. (2016). Board Composition, Board Size and Financial Performance of Johannesburg Stock Exchange Companies. South African Journal of Economic and Management Sciences, 19(4), 497-513. https://doi.org/10.4102/sajems.v19i4.1342.
46. Namanya, D. Nuwagaba, G. & Festo, T. (2021) Board size and firm performance in developing counties: Case of East Africa. Journal of Accounting and Taxation 13(3):178-190
47. OECD (2015). G20/OECD principles of corporate governance. Paris: OECD Publishing. https://doi.org/10.1787/9789264236882-en
48. Ofuan. J. Ilaboya Izien. F.& Ohiokha, 2016. "Firm Age, Size and Profitability Dynamics: A Test of Learning by Doing and Structural Inertia Hypotheses," Business and Management Research, Business and Management Research, Sciedu Press, 5(1),29-39
49. Ogunyemi, O. A., & Ojo, J. A. (2020). The impact of investment decisions on the financial performance of manufacturing firms in Nigeria. African Journal of Business Management, 14(5), 123-130.
50. Ojo, A. T. (2020). Capital structure and financial performance of listed manufacturing firms in Nigeria. International Journal of Finance and Accounting, 7(2), 55-62.
51. Raheman, A., & Nasr, M. (2007). Working capital management and profitability: Case of Pakistani firms. International Review of Business Research Papers, 3(1), 279-300.
52. Richard W. W., & Lawrence O. (2024). The Effects of Working Capital Management on the Financial Performance of Commercial and Service Firms Listed on the Nairobi Securities Exchange in Kenya. Risks 12: 119. https://doi.org/10.3390/risks12080119
53. Rumeysa, B. & Sema, T. (2023). Firm Value and Working Capital Decisions: Further Evidence From an Emerging Market. Management journal 28(1):169-180
54. Saji, T. G. (2019). Market Valuation of Nifty Firms in India: The Tobin's Q Approach**.** Saudi Journal of Economics and Finance**,** 3(7), 298-304.
55. Salehi, M., Mahdavi, N., Dari, S. Z. A., & Tarighi, H. (2019). Association between the availability of financial resources and working capital management with stock surplus returns in Iran. International Journal of Emerging Markets, 14(2), 343–361. https://doi.org/10.1108/IJoEM-11-2017-0439
56. Selfiani, S., Prihanto, H., Usmar, U., & Wizanasari, W. (2023). the Effect of Investment Decisions and Dividend Policies on Company Value. Jurnal Manajemen Dan Bisnis, 3(1), 56-65.

57. Spence, M. (1973) Job Market Signaling. Quarterly Journal of Economics, 87, 355- 374. https://doi.org/10.2307/1882010
58. Trang, V. T. D., & Duong, T. P. (2022). Debt maturity structure and investment decisions: Evidence of Listed Companies on Vietnam's Stock Market. Cogent Economics & Finance. 10(1), 1-12. https://doi.org/10.1080/23322039.2021.2024358
59. Wiwit H. Endra W. N.,& Fityan, N., A.(2024). Financial Performance and Firm Value: On Industry Banking. Journal of Economic and Economic Policy,1(2), 1-10.
60. Yosua Y & Randy K (2025) Do Investment Decisions Matter for Firm Value? An Empirical
61. Analysis of Financial Firms. Jurnal Ilmu Manajemen & Ekonomika 18(1):1-16