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THE INFLUENCE OF FINANCIAL BEHAVIOUR AND FINANCIAL PLANNING ON INVESTMENT DECISIONS AMONG SMES IN KANO METROPOLIS, NIGERIA

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Abstract

Purpose: Small and Medium Enterprises (SMEs) has a major role in economic growth and employment creation in Nigeria. However, the successful investments of SMEs in Kano Metropolis are often suboptimal and this is blamed for weak financial behaviour and poor financial planning. This study examines the relationship and the impact of financial behaviour and financial planning to investment decision among SMEs in Kano Metropolis. It also examines whether the investment decisions differ according to gender, annual turnover and years in business.

Design/methodology/approach: A quantitative cross-sectional approach to study was used with the aid of a structured questionnaire, administered to owners and managers of retail SMEs that operate in Sabon Gari and Kantin Kwari markets. From a population of 11,000 SMEs, a sample size of 386 was calculated by using the formula by Taro Yamane with adjustment of non-response. A total of 366 valid responses were obtained. Data were analysed using descriptive statistics, correlation analysis and Structural Equation Modelling (SEM) using the statistical software package of SPSS and AMOS.

Findings: The results show that financial behaviour and financial planning have positive and statistically significant relationships with SME investment decisions where financial planning has a greater effect. In contrast, investment decisions did not significantly differ across gender, annual turnover nor years of operation. The results indicate that internal financial competencies, rather than demographic characteristics or firm-specific characteristics, could be the crucial determinant of the investment decision in SMEs.

Originality/value: This study adds to the SME finance literature by showing that behavioural financial competencies are more important to investment decisions compared to demographic and firm level characteristics of the user in the context of Nigerian SMEs.

Keywords: Financial Behaviour, Financial Planning, Investment Decision, SMEs, Kano Metropolis.

1. Introduction

1.1 Background to the Study: Small and Medium Entails (SMEs) have been extensively known as a significant contributor to economic growth, creation of employment as well as alleviation of poverty, especially in developing economies. In Nigeria, SMEs represent a high percentage of business institutions and are a major factor in the country production, revenues and expansion of the market. In Kano Metropolis, SMEs of retailists control the business activities in major urban areas and in Kano, retailists serve as central participants in trade, distribution as well as informal jobs (SMEDAN & NBS, 2021). Although SMEs have become important in economies, issues concerning their sustainability, growth, and viability in the long run still exist, which is in most cases associated with flaws in investment decision-making. Investment decisions make the SMEs focus on the limited financial resources to their investment in growing the business, acquiring assets, adopting technology and diversifying the market. Even though access to finance has long been discussed as one of the biggest limitations on SME investment, recent scholarship is finding internal financial practises and behavioural-based factors to play an increasing role in determining investment returns (Lusardi and Mitchell, 2014). At this, the financial behaviour and financial planning, have become important mechanisms by which the financial knowledge can be converted into effective investment decisions by the owners and managers of SMEs.

Financial behaviour are monitored financial practises that can be identified as income budgeting, record keeping, savings, borrowing, and financial monitoring. Good financial behaviour supports financial control and offers sound data on the assessment of investment opportunity (OECD/INFE, 2018; Potrich, Vieira, and Kirch, 2016). In comparison, financial planning reflects forward-looking operations pertaining to growth planning, capital budgeting, and contingency preparation, which play out allowing SMEs to co-ordinate investment decision making with those made on a long-term basis, as well as dealing with uncertainty and risk (van Rooij, Lusardi, and Alessie, 2012; Adomako, Danso, and Damoah, 2016). Within the economic environment of high volatility and, mostly, the informal economy like retail sector in Kano Metropolis, the interplay among financial behaviour and financial planning and investment decision making is paramount. Retail SMEs in large markets like Kantin Kwari and Sabon Gari tend to make investment choices on poor conditions of limited formal financial training, informal use of financial systems as well as market and policy uncertainty. The literature on behavioural finance indicates that the quality of decision made can be improved through disciplined financial behaviour which reduces the level of information asymmetry and cognitive bias, and weak financial behaviour may lead to liquidity constraints and suboptimal investment performance (OECD/INFE, 2018; Potrich et al., 2016). Even though empirical studies have shown that SMEs that are involved in structured financial planning tend to pursue productive investments and perform better (Adomako et al., 2016), the current SME research in Nigeria has concentrated mostly on financial knowledge and access to finance. There have been slight considerations on behavioural and planning aspects directing investment decisions, especially in the case of Kano Metropolis, which ranks the

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largest economic activity of retail SMEs but exist under the umbrella of informal and semi-formal institutional frameworks (SMEDAN & NBS, 2021). It is in response to this gap that this research paper seeks to examine how the financial behaviour and financial planning affect investment decisions in SMEs in Kano Metropolis, Nigeria as an instrument of Structural Equation Modelling (SEM) to identify the interplay of the constructs employed.

1.2 Problem Statement: Although the centrality of Small and Medium Enterprises (SMEs) in the retail economy of Nigeria is indisputable, there is still a limit to its growth due to an unending vulnerability of the enterprise in investment decision making. Most of the retail SMEs in Kano Metropolis have low cases of productive investment, poor asset acquisition tactics, and business growth despite being in a commercially vibrant environment. These trends are indicative of the possibility of other factors other than the availability of finance impacting investment performance. A major issue is that there is only little empirical information on the role of financial behaviour and financial planning in influencing investment decisions made by SME owners and managers. Despite the fact that past research has determined that financial literacy influences business performance, little has been done to understand how financial knowledge is translated into everyday and strategic investment choices like behavioural and planning (Lusardi and Mitchell, 2014). Practically, most SME operators are dependent on informal financial behaviours and are not engaged in formal planning activities and also arrive at investment decisions on an intuitive rather than a systematic financial basis.

Moreover, much of the empirical research of SME investment behaviour has been based on a bivariate or regression models, and not sufficient to yield the degree of interrelations between the variables of financial behaviour, financial planning and the investment decision making. Surveys that explore investment decisions made by SMEs have been more focused on capital and macroeconomic considerations and few behavioural finance schools of thought (Njoroge, 2013; Adomako and Danso, 2014). Therefore, the lack of multivariate techniques that could have been used to elucidate the previous results like Structural Equation Modelling (SEM) has limited the explanatory nature of previous research. In the framework of Kano Metropolis retail SMEs have to work in the environment of high competition and uncertainty, this dearth of empirical evidence about the behavioural and planning factors of investment choices is a substantial research gap. This paper fills the gap by empirically studying the effect of financial behaviour and financial planning on investment decision of SMEs in Kano metropolis, Nigeria, in a thorough analysis through the use of SEM which is a methodologically rigorous study.

1.3 Research Objectives: The broad objective of this study is to examine the role of financial behaviour and financial planning in shaping investment decisions among Small and Medium Enterprises (SMEs) in Kano Metropolis, Nigeria. Specifically, the study seeks to:

1. To compare the difference between male and female SME owners/managers in their investment decisions in Kano Metropolis.
2. To compare differences across Annual Turnover Categories and Years of Operation Categories on investment decisions among SMEs in Kano Metropolis.
3. To determine the relationship between financial behaviour, financial planning, and investment decisions among SMEs in Kano Metropolis.
4. To examine the influence of financial behaviour and financial planning on investment decisions among SMEs in Kano Metropolis.

These objectives are structured to support both comparative analysis (gender, turnover, years of operation) and relational/causal analysis using correlation analysis and Structural Equation Modeling (SEM).

1.4 Research Questions: In line with the stated objectives, the study addresses the following research questions:

1. Is there a significant difference between male and female SME owners/managers in their investment decisions in Kano Metropolis?
2. Do Annual Turnover Categories and Years of Operation Categories significantly influence investment decisions among SMEs in Kano Metropolis?
3. What is the relationship between financial behaviour, financial planning, and investment decisions among SMEs in Kano Metropolis?
4. To what extent do financial behaviour and financial planning influence investment decisions among SMEs in Kano Metropolis?

The research questions are formulated to guide empirical investigation using descriptive statistics, independent sample t-test, one-way ANOVA, correlation analysis, and SEM.

1.5 Research Hypotheses: To facilitate empirical testing, the following null hypotheses were formulated and tested at an appropriate level of significance:

H_{01}: There is no significant difference between male and female SME owners/managers in their investment decisions in Kano Metropolis.

H_{02}: Annual Turnover Categories and Years of Operation Categories do not significantly influence investment decisions among SMEs in Kano Metropolis.

H_{03}: There is no significant relationship between financial behaviour, financial planning, and investment decisions among SMEs in Kano Metropolis.

H_{04}: Financial behaviour and financial planning do not significantly influence investment decisions among SMEs in Kano Metropolis.

These hypotheses are directly aligned with the study objectives and are empirically tested using SPSS (t-test, ANOVA, correlation analysis) and AMOS (Structural Equation Modeling) to ensure robust and comprehensive statistical inference.

1.6 Significance of the Study: This paper offers knowledge to theory, factual data, policy-making, and management. Theoretically, it builds on the works of financial literacy and behavioural finance by elucidating the interplay between financial behaviour and financial planning in decision-making among SMEs with respect to investment decisions. Although available literature has attentively, to a large degree, focused on financial knowledge and access to finance, the planning and behavioural processes by which financial literacy is converted into action investment decisions have gone underproposed (Lusardi and Mitchell, 2014; OECD/INFE, 2018).

1.7 Scope and Context of the Study: There is a conceptual focus, geographical coverage and methodological approach that limits this study. In concept, the independent variables will be financial behaviour and financial planning although investment decision will be the dependent variable. The financial literacy variables like financial knowledge and financial attitude are also beyond the prerogative of this paper with a view to ensuring logical concentration and consistency with the objectives that are given (OECD/INFE, 2018). The study will be limited to Kano Metropolis, which is located in the Kantin Kwari Market and Sabon Gari Market where a majority of retail SMEs are based. These markets are significant commercial places where the level of concentration of SME activities is high. The unit of analysis includes SME owners and managers since they are the ones who directly make financial management decisions and investments in their businesses (SMEDAN & NBS, 2021). Methodologically, the research will have the quantitative cross-sectional survey research design on the basis of primary data collected on a structured questionnaire. Analytics is carried out with the help of SPSS and AMOS, based on the descriptive statistics, independent sample t-test, one-way ANOVA, correlation, and Structural Equation Modelling (SEM). Based on that, the results are explained in terms of the limitations that a cross-sectional data implies and should not be considered causal other than in terms of the statistical associations provided by the tools of analytical use (Hair et al., 2021).

2. Literature Review and Theoretical Framework

2.1 Conceptual Review

2.1.1 Financial Behaviour

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Financial behaviour can be described as visible financial behaviours and decision patterns touching on saving, budgeting, debt management, and investment decisions. In the context of SMEs, the concept of financial behaviour is the practical implementation of financial literacy, which transforms financial knowledge into practical and strategic decisions that determine the viability and expansion of a business (Ndaghu et al., 2022). It is always evidenced empirically that healthy financial behaviour not only enhances more financial control but also leads to quality investment decisions amongst SMEs. Handayani (2023) demonstrates that financial discipline makes businesses more persistent and Bamidele et al. (2024) establish that financial behaviour is a major predictor of financial performance in the case of Nigerian SMEs. It is also in the behavioural finance literature that it is pointed out that financial knowledge is directly related to financial behaviour which then relates to investment outcomes. Mongan et al. (2025) reveal that risk behaviour contributes a very critical mediating force between financial literacy and investment choices, implying that the lack of financial knowledge cannot work on its own without instilled behavioural actions. In the same manner, Dr. Naveen Prasadula (2024) establishes similar findings indicating a bad financial behaviour exacerbates poor financial decisions made in a financial unstable state. Poor financial behaviour has been linked to the poor allocation of capital and poor investment performance in emerging economies (Ndaghu et al., 2022), which highlights the fact that it is a major downside to the determinants of SME investment choices.

2.1.2 Financial Planning: Financial planning includes the structured operations that include determining financial objectives, making predictions on the need of cash flow management, resource allocation, risk management, and assessing the investments to be used to guarantee business sustainability. In the case of SMEs, financial planning is a strategic tool that connects financial literacy with successful investment decisions (Ndaghu et al., 2022). The empirical literature suggests that SMEs having an organised system of financial planning exhibit higher discipline and strength concerning their investment funds. Muliana (2025) discovers that financially literate SME operators also make more rational investment decisions mainly because of better planning and evaluation abilities and that Molosiwa and Holland (2025) reveal that better budgeting, improved debt management and improved evaluation and assessment are the results of financial planning. On the other hand, poor financial planning has also been associated with the lack of liquidity, wasteful capital allocation, and risk of business failure. Ekayani et al. (2024) claim that the impact of financial literacy on sustainability in business is noteworthy when they are mediated by access to capital a process in heavily dependent connexion with financial planning quality. On the same tone, Singh et al. (2025) claim that financial planning will help SMEs to align the financing options with its operational requirements and the expansion targets. Such findings bring to the fore the applicability of financial planning as an imperative driver of investment decisions and especially in informal and semi-formal SMEs like Kano Metropolis.

2.1.3 Investment Decision among SMEs: Investment decision-making is the process whereby SMEs make financial outlay on resources or projects that are likely to pay off in the form of returns on the economy at a later date. Such decisions play a central role in the survival, growth, and competitiveness of SMEs to survive particularly in resource-restricted settings. It has been empirically observed that as much as the financial literacy has a positive effect on the quality of investment decisions, the behavioural and planning aspects are also conclusive. Muliana (2025) determines a unidirectional connexion between financial literacy and the quality of investment decisions, and Mongan et al. (2025) have described that the risk behaviour of investors provides a significant mediating value to investment outcomes. Poor financial behaviour and failure to plan adequately has been attributed to weak investment choices among the SMEs in the African and Nigerian context (Bamidele et al., 2024; Ndaghu et al., 2022). Alfa et al. (2023) also demonstrate that demographic variables like gender interact with the dimension of financial literacy in determining the future effects of financial decisions, which justifies the use of disaggregated analysis in SME investment research. On the whole, the literature suggests that SME investment decisions arise as the result of an interaction between financial behaviour and financial planning and contextual factors, which gives a good conceptual framework on the examination of its combination to affect investment decision among SMEs in Kano Metropolis.

2.2 Theoretical Framework: The prospective theory of the study incorporates the Theory of Planned behaviour (TPB), the Behavioural Financial theory and the Resource-Based View (RBV) to underline the effect of financial behaviour and financial planning on the investment decisions among SMEs. All these theories together depict the intentional, psychological, and strategic aspects by which the financial practises of the SME owners contribute to the outcome of investments.

2.2.1 Theory of Planned Behaviour (TPB): The Theory of Planned Behaviour assumes that behavioural intentions inform behavioural intentions with attitudes, subjective norms, and beliefs of behaviour control (Ajzen, 1991). In the SME, TPB helps in understanding how financial behaviour and future planning records attitudes of the owners towards money management, risk and future orientation, and how much they believe they can control their financial resources. The owners of SMEs, who adopt positive financial attitudes and high perceived control, tend to be more apt to engage in tight financial practises and disciplined planning, as a result of which they make more rational and objective investment decisions (NDaghu et al., 2022; Handayani, 2023). Since investment choices in SMEs are more of an owner phenomenon, TPB becomes an effective guide towards explaining the deliberate financial behaviours in Kano Metropolis.

2.2.2 Behavioural Finance Theory: The Behavioural Finance Theory confounds the aspect of complete rationality and highlights the role of psychological influences and cognitive biases in making financial judgments. The theory describes the reason simply as to why SME owners do not make mnimal investment decisions in spite of having a financial knowledge well besides the fact that biases like being overconfided, being risk-averse, and having risk perceptions influence financial behaviour and/or a sense of discipline in making financial choices (Manzoor et al., 2023). It has been empirically demonstrated that financial literacy is mediated by behavioural tendencies between financial literacy and investment decisions, which underlines the primary importance of financial behaviour in predicting investment outcomes (Mongan et al., 2025; Kalapriya, 2024). The behavioural finance presents a valid rationale in this study to analyse financial behaviour as an important factor of investment decisions by SMEs.

2.2.3 Resource-Based View (RBV): The Resource-Based View opines that competitive advantage and performance of firms is a result of the possessing strong internal resources and capabilities (Barney, 1991). Financial behaviour and financial planning abilities are non-tangible assets in the SMEs that are key internal competencies in promoting effective use of resources and strategic investment choices. The empirical evidence suggests that SMEs that are characterised by strong planning and behavioural capabilities are more likely to transform the little financial resources into effective investments and sustainable growth (Ndaghu et al., 2022; Molosiwa and Holland, 2025; Ekayani et al., 2024). In the context of the RBV, higher financial performance and planning will allow SMEs with limited resources in their source-constrained environment such as Kano Metropolis to overcome greater investment results. Combining TPB, Behavioural Financial Theory, and RBV is a complete description of SME investment decisions, as it combines the intentional behaviour, psychological, and strategic capability perspectives. This two-fold rationale supports the hypotheses of the study relating to the effects of financial behaviour and financial planning on investment decisions of SMEs in Kano Metropolis.

2.3 Empirical Review of Related Studies: Empirical studies always indicate that financial literacy and its behavioural attributes have a great impact on the outcomes of SMEs such as performance, access to finance and decisions related to investments. Nevertheless, these relationships differ in terms of their strength and processes depending on the setting. Wati et al. (2025) discovered financial literacy boosts performance of SMEs in Indonesia with regards to access to finance meaning that good investment capacity is supported by good financial behaviour and planning. On the same note, Golda et al. (2024) found that financial literacy enhances income of culinary SMEs but found it difficult to translate

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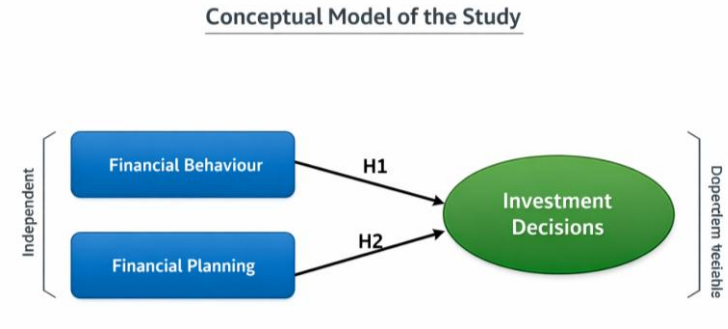
knowledge into effective financial behaviour and therefore behavioural execution and planning is very important. Through PLS-SEM, Pabane et al. (2025) demonstrated that financial literacy has a greater impact on financial well-being of the SMEs than financial inclusion and the importance of disciplined financial behaviour and planning in making ethical decisions. The study carried out by Ariswati et al. (2025) revealed that the positive influence of financial literacy on the performance of SMEs was direct but narrowed by the contextual limitations on the mediating impact of risk management. In another study by Mongan et al (2025), direct manipulation of financial literacy on investment decisions unless affected by risk behaviour by the investor was also proved, which supports the views of behavioural finance. Basmantra et al. (2024) demonstrated that the relationship existing between financial inclusion and SME growth is moderated by financial literacy, meaning the managerial and behavioural skills define the relationship between the access to the financial opportunities and the problem of investment effects. Hasibuan et al. (2024) demonstrated that sharia financial literacy and not Islamic financing systems only makes SMEs sustainable with the predominance of financial behaviour and planning. Fikri and Nahda (2023) also confirmed that financial literacy influences the performance of SME positively by mediating the role of financial access and risk attitude and Rakkang and Achsanuddin (2025) also revealed that its impact on MSME performance has an indirect effect in terms of decision-making by managers in line with financial planning. Other researchers (Munawar et al., 2025; Tiaskara and Suryani, 2025) point to the synergistic and controlling effects may be employed to determine the outcomes of SMEs by financial literacy, access to finance, and risk behaviour. These findings are also supported by evidence found in Africa. Muhati and Bosire (2023), Njoki (2024), and Irikefe and Isaac (2021) demonstrated that budgeting, record-keeping, and debt management play a significant role in the growth and expansion of SMEs in the field of financially restrained conditions that are similar to those found in Nigeria. Most of the studies have however concentrated on performance, growth or access to finance without focusing on investment decisions as an outcome variable even with this rising literature. Additionally, little literature combines both financial behaviour and financial planning with rigorous techniques of multivariate analysis like the use of SPSS to calculate factor analysis, as well as the use of AMOS to calculate Structural Equation Modelling, especially in the context of Nigeria SME environment. These gaps have been addressed by this study.

2.4 Model of the Study

2.4.1 Conceptual Model of the Study: This research aims at formulating an abstract model to illustrate how financial behaviour and financial planning impact investment behaviour on small and medium enterprises (SMEs) in Kano Metropolis, Nigeria. It is based on the Theory of Planned Behaviour, Behavioural Financing Theory, and the Resource-Based View in the combination of which the main focus is on the fact that behavioural tendencies and internal financial abilities represent the key determinants in influencing economic decision-making. In the model, financial behaviour and financial planning have been stated as the independent variables whereas investment decision is the dependent variable. Financial behaviour embraces habitual and psychological variables of financial management such as discipline of spending, saving behaviour, risk attitude as well as debt managing. Financial planning is a forward-thinking organised financial undertaking like budget, cash projection, capital allocation and long-term financial objectives. The investment decision involves the decisions that SMEs make concerning their business growth, purchase of efficient resources, embracing of technology and diversification.



Source(s): Figure by authors

Figure 1. Conceptual Model Illustrating the Influence of Financial Behaviour and Financial Planning on Investment Decisions among SMEs in Kano Metropolis, Nigeria

According to the model, SMEs whose owners have a disciplined approach towards financial behaviour and those who have a systematic financial planning tend to make rational, timely, and sustainable investment decisions. In line with this, the conceptual framework has speculated the existence of direct and positive relations among financial behaviour and investment decisions and the existence of the relation among financial planning and investment decisions. Incorporation of behavioural and strategic view allows the model to give a clear and testable framework of analysis of the determinants of SME investment decisions in Kano Metropolis. Figure 2.1 proposes the conceptual model in which the research variables are presumed to have the relationships.

2.5 Research Gap: The existing empirical literature on the topics of financial literacy and investment behaviour has focused largely on financial knowledge and attitudes, and relatively little on behavioural and planning aspects of financial literacy, especially in the context of the SMEs (Lusardi and Mitchell, 2014; OECD/INFE, 2018). Despite the recognised importance of financial behaviour and financial planning, the concept of financial literacy is normally considered as a unidimensional construct where the role of these factors in influencing investment decisions is not seen as a point of interaction with each other. It is demonstrated using empirical evidence that financial behaviour in terms of budgeting, record-keeping, discipline in savings and debt management enhances financial returns (Potrich et al., 2016; OECD/INFE, 2018), aiming that financial planning will enable making informed investment decision-making and sustaining the business over time (van Rooij et al., 2012; Adomako et al., 2016). But, there is usually a study of these constructs in isolation and there is also a paucity of integrative frameworks that directly connect financial behaviour and financial planning with investment decisions of SMEs. Furthermore, exploring research about SME investment decisions generally has not paid sufficient attention to internal behavioural and planning capacities of SME owners and managers, relying on the availability of finance and the nature of companies as well as environments (Njoroge, 2013; Adomako and Danso, 2014). Empirically, there is limited empirical evidence of informal and developing market contexts especially that of Northern Nigeria. Kano metropolitan is a unique environment of SME where there is informality, cash business and limited institutional funding support, but no research studies have considered the financial behaviour and financial planning as a future impact on investment decisions in such settings. Scientifically, very few of those rigorous construct validation, and multivariate instruments including Structural Equation Modelling (SEM) have been used methodologically, limiting the breadth and strength of the available results (Hair et al., 2021). In order to fill these gaps, the current paper incorporates the financial behaviour and financial planning under one conceptual and empirical model and uses the factor analysis and SEM to give the evidence about the SME investment decisions in Kano Metropolis, Nigeria on the context and in a methodologically sound manner.

3. Methodology

3.1 Research Design: The present study has the financial behaviour and financial planning as the independent variables and the investment decisions among retail SMEs in Kano Metropolis as the dependent variable, with a design that was a quantitative, cross section survey study. Testing hypothesised relationships between latent constructs with multivariate methods (Structural Equation Modelling (SEM)) is more suitable

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in terms of a survey approach (Saunders et al., 2019; Hair et al., 2021). The design is statistically generalizable and is actively used in finance of SMEs and financial literacy studies.

3.2 Area of the Study: The research was done in Kano Metropolis, Nigeria and covered Sabon Gari Market and Kantin Kwari Market, two biggest and most business intensive retail clusters in Northern Nigeria. The markets are rich in SMEs that most of them operate in the informal and cash-based systems that render them appropriate in studying financial behaviour, financial planning and investment decision-making in SMEs.

3.3 Population of the Study

3.3.1 Target Population: The population of interest included owners and managers of retail SMEs in the market of Sabon Gari and Kantin Kwari. The respondents were owners/managers given that they have the direct responsibility of making financial management and investment choices following previous SME-retence studies (Adomako and Danso, 2014; Njoroge, 2013).

3.3.2 Population Distribution of Retail SMEs: The population information was collected in an official administrative procedure. A permission was obtained with Kano State Ministry of Commerce and Industry which in turn instructed the Market Management Boards of Sabon Gari and Kantin Kwari markets to publish their official registries. It is on these confirmed records that the population of the retail SME outlets in both markets was calculated to 11,000 outlets where 5,500 outlets were per market. These are the official statistics, which were supported by SMEDAN and NBS (2021), and offered a valid and credible sampling frame. Tables 3.1 and 3.2 provide the detailed population distribution, sample size allocation and non-response adjustment of each category in the market.

Table 1. Population Distribution, Sample Size, and Non-Response Adjustment for Sabon Gari Market

Category (Sabon Gari)	Population	Sample Size	+30% Non-Response	Final Allocation
Electronics & phone accessories	820	29	9	38
Household items & kitchenware	620	22	7	29
Clothing & footwear	700	25	8	33
Foodstuff & provisions	680	24	7	31
Small restaurants & food vendors	560	20	6	26
Cosmetic & beauty product shops	520	18	5	23
Stationery & bookshops	380	13	4	17
Building material sellers	460	16	5	21
General merchandise shops	520	18	5	23
Small appliance repair shops	240	9	3	12
Total	5,500	194	59	253

Source(s): Kano State Ministry of Commerce and Industry, 2025

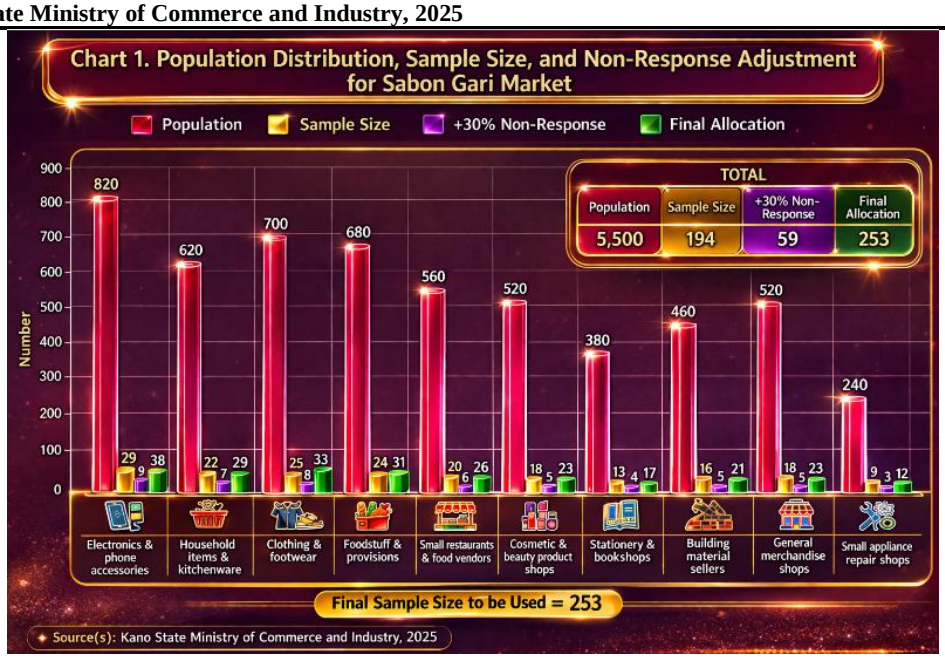

Table 2. Population Distribution, Sample Size, and Non-Response Adjustment for Kantin Kwari Market

Category (Kantin Kwari)	Population	Sample Size	+30% Non-Response	Final Allocation
Textile retailers	1,200	42	13	55
Small-scale tailoring shops	1,000	35	11	46
Textile wholesalers	900	32	10	42
Ready-made clothing shops	850	30	9	39
Fashion & garment sellers	780	27	8	35
Tailoring materials & accessories vendors	650	23	7	30
Fabric designers & embroidery shops	600	21	6	27
Textile importers/exporters	350	12	4	16
Traditional fabric sellers	170	6	2	8
Total	5,500	192	60	252

Source(s): Kano State Ministry of Commerce and Industry, 2025

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3.3 Sample Size Determination and Sampling Technique: To obtain the sample size, the formula used according to Taro Yamane (1967) to estimate the sample size in a finite population was applied in determining the sample size; the formula was used to obtain the minimum sample size of 386 respondents at a 5% level of accuracy. To adjust on the possible non-response, use was made to magnify the sample size by about 30% to 505 questionnaires, who were then distributed proportionately in the two markets. After collecting data, 366 valid questionnaires were obtained, which constitutes 73-percent response rate which is above the recommended levels of SEM analysis (Dillman et al., 2014; Hair et al., 2021).

3.5 Research Instrument

3.5.1 Questionnaire Design: A structured self-administered questionnaire based on a validated and established scale was used to gather the data based on the financial literacy and SME literature. The measures of all items were done on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire was focused on SME owners/managers as the key decision-makers, which is also a consistent move with previous researches (Adomako & Danso, 2014).

3.5.2 Measurement of Study Variables: The measurement instrument measured three fundamental constructs in the purpose of the study: Financial Behaviour, Financial Planning, and Investment Decision. These constructs are developed out of peer-reviewed articles on financial literacy and SME investment literature, which have been proven to be strong in terms of reliability and validity, which are the desirable attributes of theoretical strength as well as empirical plausibility.

Table 3. Measurement of Constructs

Construct	Number of Items	Source(s)	Reported Cronbach's α
Financial Behaviour	**6**	**OECD/INFE (2018); Potrich et al. (2016)**	**0.80–0.91**
Financial Planning	**5**	**van Rooij et al. (2012); Adomako et al. (2016)**	**0.80–0.85**
Investment Decision	**7**	**Njoroge (2013); Adomako & Danso (2014)**	**0.83–0.90**

Measurement reliability is added with the use of previously tested scales, and it also increases the comparability of the results with an existing body of empirical data (Hair et al., 2021).

3.5.3 Justification for Adaptation of Measurement Scales: The measurement scales used in this research were not new but were based on had to adapt to the conceptual consistency with the existing literature whilst, at the same time, be contextual to retail SMEs in Kano Metropolis. The practise of cross-contextual research is generally advisable, especially when the study focuses on developmental and informal market contexts, direct copying of scales may not entirely reflect the local business reality (OECD/INFE, 2018; Saunders et al., 2019). There were slight changes in the wording of items to capture the local business practises, informal financial arrangements, and differences in literacy levels between the operators of the SMEs but the certain conceptual meanings of the constructs remained the same.

1. Financial Behaviour: The Financial Behaviour measure was based on OECD/INFE (2018) financial literacy measurement framework and a behavioural scale in financial behaviour created by Potrich et al. (2016). The captured items represented useful financial practises including budgeting, record-keeping, savings discipline, debts and tracking of business finances. Other contextual focus was on transactions in cash and informal lending activities, which are dominant among retail SMEs in Kano Metropolis. Earlier studies using this scale have also cited excellent internal consistency and the values of Cronbach alpha were found to be between 0.80 and 0.91.

2. Financial Planning: Adomako et al. (2016) and van Rooij et al. (2012) explored the applications of planning in financial and investment decision-making in SME settings and thus, the role was modified into the Financial Planning construct in the study. The items would measure the planning activities including business expansion planning, capital allocation, preparedness of contingency funds and long-term sustainability. The construct was designed in such a way that it matches the short to medium term planning orientation exhibited by the SMEs in volatile unstable market setups that are informal. The reliability coefficients of the previous researches were 0.80-0.85, which confirms the good internal consistency.

3. Investment Decision: The Investment Decision construct that acted as the dependent variable was scaled down on the works of Njoroge (2013) and Adomako and Danso (2014). The items measured the preparedness, the intentions, and the ability of the respondents to invest in business growth, purchase of productive investments and product diversification among others. The contextual adjustments were done to capture the unique investment habits of retail SMEs in Kano Metropolis such as incremental and informal investment patterns. The reported Cronbach alpha in previous researches was between 0.83 and 0.90, which is highly reliable.

Table 4. Summary of Adapted Constructs

Construct	Source(s)	Basis of Adaptation and Justification
Financial Behaviour	**OECD/INFE (2018); Potrich et al. (2016)**	**Measured budgeting, record-keeping, and debt management; adjusted for informal financial practices**
Financial Planning	**van Rooij et al. (2012); Adomako et al. (2016)**	**Assessed growth planning and contingency preparation; tailored to short-term planning horizons**
Investment Decision	**Njoroge (2013); Adomako & Danso (2014)**	**Evaluated investment tendencies in expansion and asset acquisition within Kano's SME environment**

3.6 Pilot Study: A pilot survey was carried out before the actual field survey in order to determine the clarity, reliability and contextual appropriateness of the research instrument to the retail SME proprietors/managers of Kano Metropolis. Pilot testing is an essential phase of the quantitative survey research, which allows identifying the ambiguities in the questionnaire items, testing the psychometric qualities of measurement scales, and reducing the levels of measurement error before actual data gathering (Saunders et al., 2019; Hertzog, 2008).

3.6.1 Purpose of the Pilot Study: The pilot study was undertaken to achieve the following objectives:

- To assess the clarity and comprehensibility of questionnaire items among SME owners/managers;
- To evaluate the internal consistency reliability of the adapted measurement scales;
- To confirm the suitability of the instrument within the local financial and business context of Kano Metropolis; and
- To ensure that the questionnaire was appropriate for subsequent multivariate statistical analysis using SPSS and AMOS.

The focus of methodological literature in this regard is that pilot studies maximise the construct validity and other characteristics of quality of survey instruments developed in PhD-level and policy-objective research that targets behavioural and economic variables (Saunders et al., 2019; Dillman et al., 2014).

3.6.2 Pilot Study Sample: The pilot study sample included 37 SME owners/managers which were selected based on the retail businesses that operated in the Metropolis of Kano. These respondents were selected out of the final study sample as they might contaminate and unduly bias the outcome of the study. The pilot phase would be conducted using convenience sampling because this method is suggested in the pre-testing

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of the instruments, as long as the participants meet the characteristics of the intended population (Hertzog, 2008). The chosen sample can be explained as recommended by the methodological principles which point to pilot samples between 20 and 50 respondents as sufficient to detect a level of transparency, inclusion, and internal consistency reliability of survey instrumentation (Hertzog, 2008; Saunders et al., 2019).

3.6.3 Reliability Analysis of the Pilot Study: A reliability analysis was then done on the basis of the pilot survey to determine the internal consistency of measurement scales used in the research. Internal consistency reliability analyses the level to which items in the construct are used to measure the same concept and is considered as a basic criterion needed in the scale validation in quantitative research (Tavakol and Dennick, 2011). Cronbach alpha coefficient was applied as a reliability statistic to assess the reliability of the tool, as it is by far the most common reliability statistic used in the social science and behavioural research in terms of Likert-scale instruments (Cronbach, 1951; Hair et al., 2021). The values of 0.70 and more in the alpha of Cronbach signify acceptable reliability, more than 0.80 good, and more than 0.90 excellent internal consistency (Nunnally and Bernstein, 1994; Pallant, 2020). The Investment Decision dependent variable had the highest coefficient of reliability of 0.895 meaning that the measurement items of this variable exhibit excellent internal consistency. These findings coincide with reliability coefficients found in other financial literacy and SME investment studies that used the same measurement scales (Lusardi and Mitchell, 2014; OECD/INFE, 2018; Potrich et al., 2016). The results prove that the adapted measurement tools did not lose their theoretical authenticity and measurement consistency in the Kano Metropolis SME environment. Depending on the results of the pilot study in its reliability, all constructs were to be included in the main survey. Tiny changes in wording were undertaken to achieve a better understanding and contextual meaning; no items within it were eliminated, and each construct met the established criteria of reliability. As a result, the latter instrument was considered as reliable and appropriate in the context of mass data gathering and further multivariate data analysis with the help of SPSS and AMOS.

Table 5. Reliability Coefficients for Pilot Study Instruments (n = 37)

Construct	Number of Items	Cronbach's Alpha
Financial Behaviour (FB_1–FB_6)	**6**	**0.715**
Financial Planning (FP_1–FP_6)	**6**	**0.829**
Investment Decision (ID_1–ID_7)	**7**	**0.895**

3.7 Data Collection Procedure: Data were to be measured by directly administering questionnaires to the SME proprietors/managers of the Sabon Gari and Kantin Kwari market. The Kano State Ministry of Commerce and Industry as well as other Market Management Boards were consulted and given approval. Questionnaires were conducted and retrieved by trained research assistants. Out of the 505 questionnaires sent, 366 were good and suitable and this gave 73 percent response rate. Instead, it was voluntary and the confidentiality was guaranteed and the data were only utilised academically.

3.8 Data Analysis Techniques: The analysis of data was performed by SPSS version 26 and AMOS version 24 according to the relevant steps to the quantitative and SEM-based research (Hair et al., 2021). The demographic characteristics of the respondents were described by use of descriptive statistics (frequency, percentage, mean and standard deviation) and the variables Financial Behaviour, Financial Planning and Investment decision were also summarised using descriptive statistics. The Exploratory Factor Analysis (EFA) run through Principal Axis Factoring and Varimax rotation assessed the underlying factor structure of the measurement items. The satisfactory sampling was considered based on the Kaiser Meyer Olkin (KMO) measure and Bartlett Test of Sphericity with the values of KMO more than 0.60 and the significant values of Bartlett Test of Sphericity reflecting the appropriateness of the sample size to practise factor analysis. The consideration went to items whose factor loadings were lower than 0.50, and those that had troublesome cross- loadings. Parallel Analysis (Monte Carlo simulation) was used to avoid factor over-extraction, keeping only factors with eigenvalues higher than produced when using random datasets. The reliability and the validity tests were used to measure the quality of the measurement model. Cronbach alpha and Composite Reliability (CR) was used to test internal consistency reliability, and Average Variance Extracted (AVE) was used to test convergent validity. Fornell-Larcker criterion was used to determine discriminant validity. Lastly, Structural Equation Modelling (SEM) by AMOS was used to test the hypothesised relations between the study constructs. The evaluation was done in two steps that included Confirmatory Factor Analysis (CFA) used to test the measurement model and structural model estimation to test the hypothesis. Model fit was evaluated using standard goodness-of-fit indices, including χ^2/df, CFI, TLI, RMSEA, and SRMR, based on recommended thresholds in the SEM literature.

4. Results

4.1 Construct Validity and Reliability.

4.1.1 KMO and Bartlett's test of Sphericity: The suitability of the dataset in analysis of factors was measured using Kaiser Meyer Olkin (KMO) and Bartlett Test of Span of sphericity. The values of KMO more than 0.60 are a sign of adequate sampling and a significant Bartletts test shows sufficient inter-item items to extract the factors (Kaiser, 1974; Bartlett, 1954; Hair et al., 2021).

Table 6. KMO and Bartlett's Test for Financial Behaviour and Financial Planning

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.873
Bartlett's Test of Sphericity	Approx. Chi-Square	1478.822
	df	55
	Sig.	.000
Source(s): Researcher's Field Survey, 2025.		

The KMO of 0.873 is higher than the suggested value and depicts that there is excellent sampling adequacy. The Test of Sphericity of the Bartlett is statistically significant ($p < 0.001$), which proves the occurrence of a high number of correlations between the itemas. Such findings indicate that Financial Behaviour and Financial Planning data are suitable in the analysis of factors.

Table 7. KMO and Bartlett's Test for Investment Decision

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.913
Bartlett's Test of Sphericity	Approx. Chi-Square	1028.468
	df	21
	Sig.	.000
Source(s): Researcher's Field Data Analysis using SPSS (2025); Kaiser (1974); Bartlett (1954).		

The KMO of 0.913 shows excellent sampling suitability of Investment Decision construct. The fact that the correlation matrix is not an identity matrix is statistically significant as it is confirmed by Bartletts Test ($p < 0.001$). This justifies the validity of the information in extracting factors and further multivariate analysis. Thus, the large KMO numbers and the significant Bartletts tests of all constructs have a high level of empirical evidence that the items of the measurements have sufficient shared variance. As per the current methodological standards, the results obtained in this study support the use of Exploratory Factor Analysis and the proceeding Structural Equation Modelling (Kaiser, 1974; Hair et al., 2021).

4.1.2 Parallel Analysis for Factor Retention: Monte Carlo simulation was Parallel Analysis (PA) and was performed to identify the best number of factors to keep. PA is generally considered to be a more practical factor-retention method compared to the Kaiser eigenvalue-greater-than-one rule because it comparatively assesses observed eigenvalues using random data (Horn, 1965; Hayton et al., 2004; Hair et al., 2021). Retention of factors is done when the actual eigenvalues are greater than the parallel analysis criterion values.

Financial Behaviour and Financial Planning: Table 4 is a summarization of factor retention as per Parallel Analysis. Through the criterion of Horn, only the components that have eigenvalues more than the thresholds created randomly are kept. In this case, eigenvalues of the first 3

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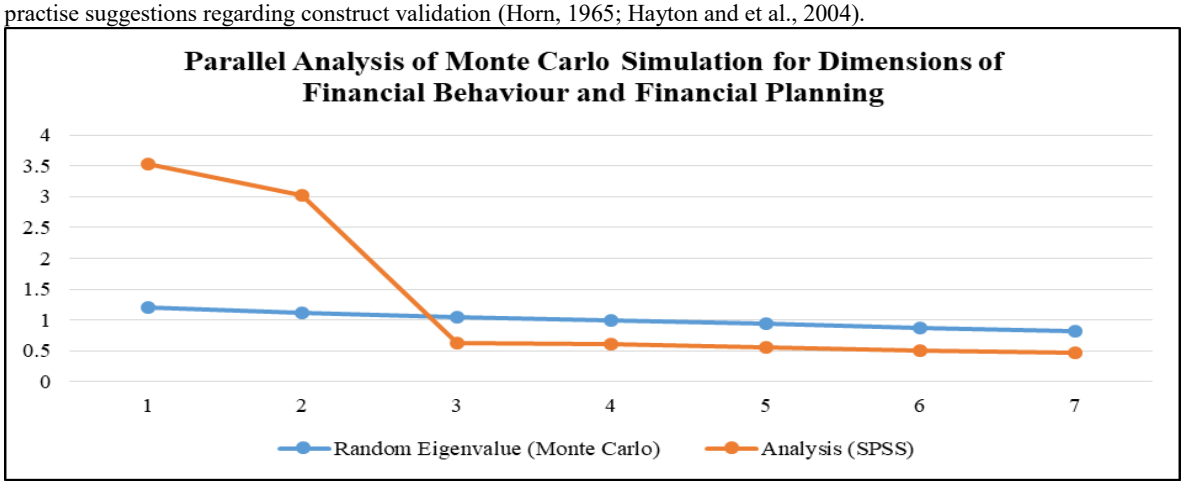
components were 9.586, 2.87 and 2.16 which were higher than their respective threshold values (1.3228, 1.2392 and 1.1794). The components 4-7 had values above 1.0, but they were not higher than the values of Parallel Analysis and were therefore not used. Thus, the most adequate solution is three-factor, which reflects the construct Competitive Incentives.

Table 3. Comparison of Eigenvalues from PCA and Criterion Values from Parallel Analysis (Monte Carlo Simulation) for Financial Behaviour and Financial Planning

Component numbers	Actual eigenvalues	Criterion values from parallel analysis	Decision
1	1.2046	3.535	Accepted
2	1.1223	3.022	Accepted
3	1.0489	0.631	Rejected
4	0.9949	0.602	Rejected
5	0.9404	0.558	Rejected
6	0.8778	0.502	Rejected
7	0.8112	0.474	Rejected

Source(s): Researcher's Field Data Analysis using SPSS and Monte Carlo Parallel Analysis (2025).

Parallel Analysis implies that there are two components that Financial Behaviour and Financial Planning should keep as only the first two values pass the retention threshold. This is affirmative of theoretically meaningful and parsimonious factor structure, which is in line with the best-practise suggestions regarding construct validation (Horn, 1965; Hayton and et al., 2004).



Source(s): Researcher's Field Data Analysis using SPSS (2025).

Figure 2. Parallel Analysis of Monte Carlo Simulation for Financial Behaviour and Financial Planning

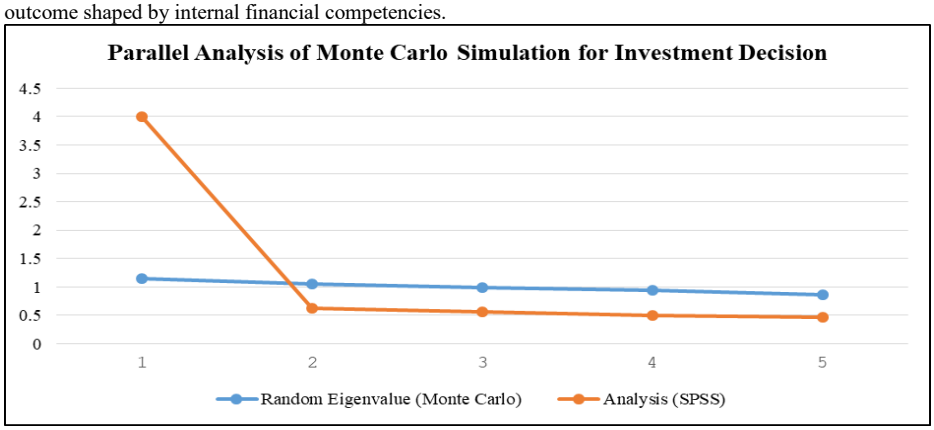
The figure presents a parallel comparison of the observed eigenvalues of SPSS as compared to random eigenvalues through Monte Carlo simulation. The initial two eigenvalues are evidently greater than the random eigenvalues, which suggests that two factors need to be retained. Since the third factor, the observed eigenvalues are smaller than the random eigenvalues indicating that the dimensions captured by these dimensions are not capturing additional variances as it would have been with a chance.

Table 5. Comparison of Eigenvalues from PCA and Criterion Values from Parallel Analysis (Monte Carlo Simulation) for Investment Decision

Component numbers	Actual eigenvalues	Criterion values from parallel analysis	Decision
1	3.999	1.1537	Accepted
2	.632	1.0552	Rejected
3	.570	0.9884	Rejected
4	.494	0.9391	Rejected
5	.462	0.8636	Rejected

Source: Researcher's Field Data Analysis using SPSS and Monte Carlo Parallel Analysis (2025).

The parallel analysis confirms that the Investment Decision construct has a single-factor structure, as only the first component's eigenvalue (3.999) exceeds the Monte Carlo criterion (1.1537). This supports the unidimensionality of the construct, indicating that all observed measures reliably reflect a single underlying factor of investment decision-making. This unidimensional structure validates the testing of H_{03} and H_{04}, as both financial behaviour and financial planning are examined against a consistent and coherent Investment Decision construct. It ensures that the relationships identified in Sections 5.1 and 5.2 are interpretable without confounding from multiple latent dimensions. The finding is also theoretically consistent with the notion that investment decisions are a rational behavioural outcome shaped by internal financial competencies.



Source(s): Researcher's Field Data Analysis using SPSS (2025).

Figure 3. Parallel Analysis of Monte Carlo Simulation for Investment Decision

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The parallel analysis reveals that the first factor is the only factor that should be considered in making an investment decision because the eigenvalue of the first factor was significantly greater than the eigenvalue of the second random eigenvalue. Following eigenvalues are all smaller than Monte Carlo drawn random eigenvalues, which implies that they do not have any underlying significant dimensions except by chance.
Concisely, the parallel analysis findings offer formidable empirical evidence in that two factors are to be retained under Financial Behaviour and Financial Planning and one factor under Investment Decision. Such a strategy contributes to the construct validity as well as methodological rigour, before Exploratory Factor Analysis and Structural Equation Modelling (Horn, 1965; Hair et al., 2021).

4.1.3 Exploratory Factor Analysis Results

To analyse the latent factor structure of the study constructs, the Principal Component Analysis with Varimax rotation was performed as Exploratory Factor Analysis (EFA). EFA is suitable to detect latent dimensions and determine the item convergence in case the construct validity is confirmed using KMO, Bartletts test, and parallel analysis (Fabrigar et al., 1999; Hair et al., 2021). Factors loading of 0.50 or higher remained in the analysis, which aligns with suggested levels of influence needed in social science research.

Financial Behaviour and Financial Planning

Table 5. Factor Analysis for Financial Behaviour and Financial Planning

		Components	
ID	**Variable**	**1**	**2**
	Financial Behaviour (FB)		
FB_1	I track my business income and expenses regularly.	.767	
FB_2	I always compare financial products (e.g. loans, insurance) before choosing.	.737	
FB_3	I maintain an emergency fund for unforeseen business risks.	.777	
FB_4	I set financial goals for my business operations and investments.	.704	
FB_5	I separate my personal and business finances.	.732	
FB_6	I pay my business bills and loan obligations on time.	.754	
	Financial Planning (FP)		
FP_1	I have a written business and investment plan.		.797
FP_2	I regularly review my financial and investment goals.		.797
FP_3	I seek financial advice before making major investment decisions.		.803
FP_4	I budget for both short-term operations and long-term investments.		.800
FP_5	I invest part of my profits for future business expansion.		.802

Extraction Method: *Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 25 iterations.*
Source: *Researcher's Field Data Analysis using SPSS (2025).*

The findings indicate that the two-factor structure is evident, and all the items in Financial Behaviour and Financial Planning have strong loads on their components. All factor loadings are above the 0.50 mark, which is a strong item convergence and there are little cross-loadings. That validates the uniqueness and theoretical soundness of the two constructs, which are in line with previous studies in financial literacy (Fabrigar et al., 1999; Hair et al., 2021).

Investment Decision

Table 6. Factor Analysis for Investment Decision

		Components
ID	**Variable**	**1**
	Investment Decision (ID)	
ID_1	I carefully assess the risk before making business investments.	.787
ID_2	I make investment decisions based on reliable financial information.	.767
ID_3	My investment decisions are guided by clear financial plans.	.757
ID_4	I prefer investment options with long-term business benefits.	.770
ID_5	I consult financial experts when considering large investments.	.695
ID_6	I consider the expected return on investment before committing business funds.	.752
ID_7	I am confident in my ability to choose profitable investment opportunities for my business.	.760

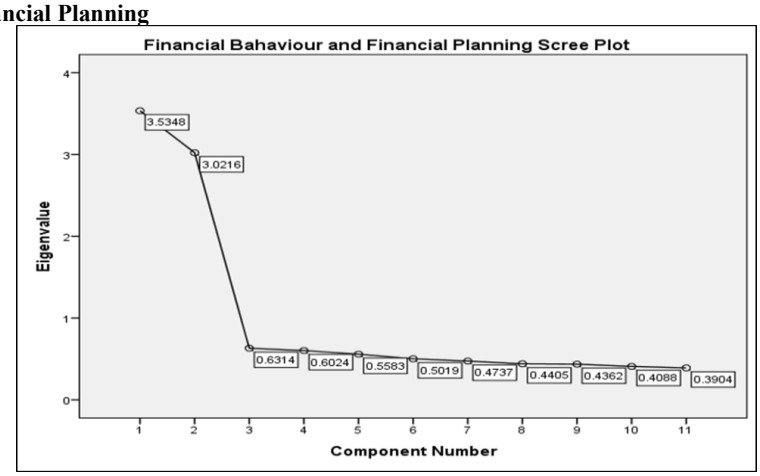
Extraction Method: *Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 25 iterations.*
Source: *Researcher's Field Data Analysis using SPSS (2025).*

All Investment Decision items load highly on one factor with values as 0.695 to 0.787. This confirms that the construct used is unidimensional and that the items used jointly describe a unified decision-making behaviour in investment when it comes to retail SMEs.
Further, the EFA analysis has shown Factor loading is strong, a clear separation of factors and theoretical congruence across generated constructs. These results are strong empirical evidence on the measurement structure and it is reasonable to move to reliability testing and Confirmatory Factor Analysis (CFA) (Fabrigar et al., 1999; Hair et al., 2021).

4.1.4 Scree Plot Analysis

Scree plot analysis was done to ensure that the number of factors to be retained was reviewed. The scree plot allows us to see the eigenvalues as decreasing and this indicates the point where the curve flattens (the scree point, the elbow) that is, further factors add low explanatory power (Cattell, 1966; Hair et al., 2021).

Financial Behaviour and Financial Planning



Source(s): Researcher's Field Data Analysis using SPSS (2025).
Figure 2. SPSS-Generated Scree Plot for Financial Behaviour and Financial Planning

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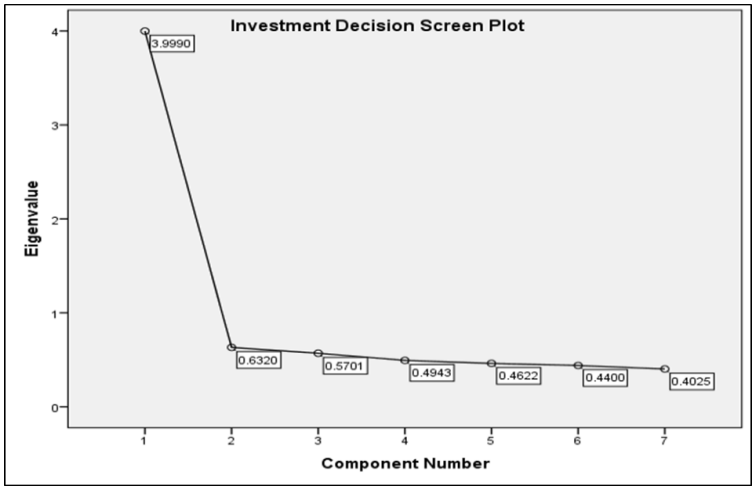
The scree plot clearly breaks after component 2 and the eigenvalues peak sharply then the curve flattens gradually. This visual scheme sustains the memory of two variables, which are Financial Behaviour and Financial Planning. The finding is in line with those of parallel and EFA, which prove that the construct is multidimensional.

Investment Decision



Source(s): Researcher's Field Data Analysis using SPSS (2025)

Figure 4. SPSS-Generated Scree Plot for Investment Decision

The scree plot shows that the first component has a clear elbow with the rest of the eigenvalues creating an almost horizontal line. This trend validates the presence of a single factor and Colonial Theory of Decision supports the unidimensional nature of Investment Decision construct. Moreover, scree plot outcomes graphically complement previous choices of factor retention done by parallel analysis and EFA, thus reinforcing the construct validity and measurement strength. Scree plots can also be used alongside statistical conditions in multivariate and SEM-based research as it is commonly suggested (Cattell, 1966; Hair et al., 2021).

4.1.5 Reliability Analysis (Cronbach's Alpha)

After determining the factor structure, the internal consistency reliability was examined with the aid of Cronbach alpha after confirmation of the factor structure with the help of EFA and scree plot analysis. The alpha of Cronbach determines the extent that the number of items in a construct has a consistent measure of the same underlying construct, the value of which should be 0.70 and above to be considered acceptable in social science studies (Cronbach, 1951; Hair et al., 2021).

Reliability of Financial Behaviour and Financial Planning

Table 7. Reliability of Factor Analysis for Financial Behaviour and Financial Planning

No	Factors (Dimensions)	Items	% of Variance explained	Cronbach's alpha
1	Financial Behaviour (FB_1 – FB_6)	6	32.134%	.715
2	Financial Planning (FP_1 – FP_5)	5	27.469%	.829
		Total	**59.603%**	

Source(s): Researcher's Field Data Analysis using SPSS v28 (2025).

The findings reveal that both Financial Behaviour (0.715) and Financial Planning (0.829) have greater internal consistency with a minimum 0.70 threshold being attained. The two dimensions explain a total variance of 59.603, indicating that the retained factors are good at explaining the underlying constructs. The greater reliability of Financial Planning is the indication of stronger coherence of items and stability of measurement.

Reliability of Investment Decision

Table 8: Reliability of Factor Analysis for Investment Decision

No	Factor of Investment Decision	Items	Total	% of Variance explained	Cronbach's alpha
1	Investment Decision (ID_1 – ID_7)	7	3.999	57.129 %	.850
		Total		**57.129%**	

Source(s): Researcher's Field Data Analysis using SPSS (2025)

A Cronbachs alpha value of 0.850 is recorded in the Investment Decision construct and it shows high internal consistency of the seven items retained. The factor explains 57.129% of the total variance, indicating that the items adequately measure a single latent construct. This level of reliability is considered acceptable and consistent with best practices in financial behaviour and decision-making research.

Thus, the alpha coefficients of all constructs are satisfactory as compared to recommended values, which proves that the measurement scales are valid and appropriate to conduct a confirmatory factor analysis and structural equation modelling (Cronbach, 1951; Nunnally and Bernstein, 1994; Hair et al., 2021).

4.2 Confirmatory Factor Analysis (CFA)

To test the measurement model through confirmation as well as to test that the constructs Financial Behaviour Financial Planning and Investment Decision identified during the exploratory factor analysis were adequate, Confirmatory Factor Analysis (CFA) was conducted using AMOS. CFA allows evaluating construct validity, reliability and the overall fit of a model following the requirements of the structural equation modelling (Hair et al., 2021).

4.2.1 Measurement Model Assessment

Several goodness-of-fit indices commonly recommended in SEM literature were used to assess the measurement model. They are the Chi-square statistic (x 2), Comparative Fit Index (CFI), TuckerLewis Index (TLI), Goodness-of-Fit Index (GFI), root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR). CFI, TLI, and GFI of 0.90, RMSEA of 0.08, and SRMR of 0.08 are considered to indicate a good fit of the model (Hu and Bentler, 1999 and Hair et al., 2021). The findings reveal that the measurement model has an acceptable

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good fit with the observed data meaning that the latent constructs are well explained by the indicators of the same. Some slight adjustments were done through the standardised residuals and modification indices to enhance parsimony in models without jeopardising the theory.

4.2.2 Convergent Validity and Composite Reliability

Standardised factor loading, Average Variance Extracted (AVE), Composite Reliability (CR) were used to determine convergent validity and construct reliability respectively as recommended by Fornell and Larcker (1981).

Table 9. Convergent Validity and Construct Reliability for Financial Behaviour, Financial Planning, and Investment Decision

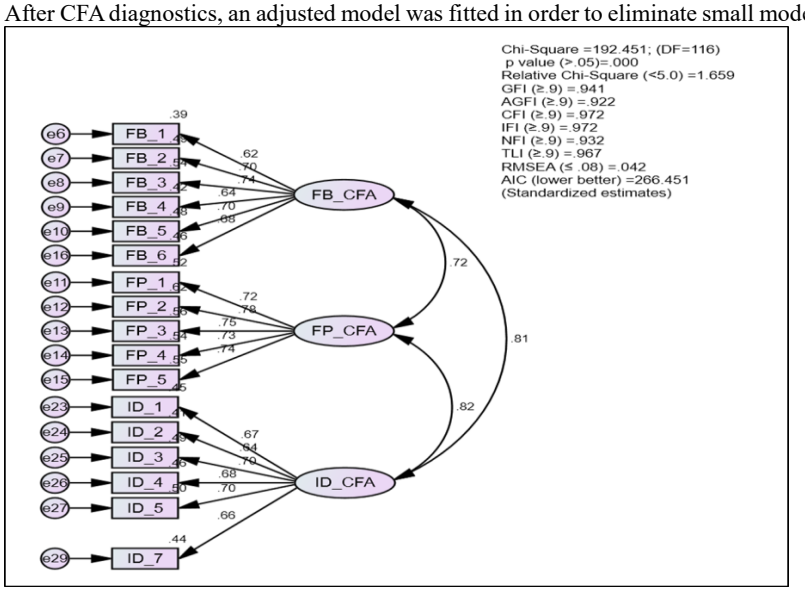
CONSTRUCTS	ITEMS	CFA Factor Loading ≥ .5	AVE ≥ .5	CR ≥ .7
Financial Behaviour (FB)		.816	.927	
		FB_1	.62	
	FB_2	.70		
	FB_3	.74		
	FB_4	.64		
	FB_5	.70		
	FB_6	.68		
Financial Planning (FP)		.744	.891	
		FP_1	.72	
	FP_2	.78		
	FP_3	.75		
	FA_4	.73		
	FP_5	.74		
Investment Decision (ID		.810	.926	
		ID_1	.67	
	ID_2	.64		
	ID_3	.70		
	ID_4	.68		
	ID_5	.70		
	ID_6	Deleted		
	ID_7	.66		

Source(s): Researcher's Field Data Analysis using AMOS (2025).

The factor loading of all the retained measurement items is above the recommended threshold of 0.50 so that item reliability is adequate. The financial behaviour (0.816), financial planning (0.744), and investment decision (0.810) values of the AVE exceed the minimum acceptable level of 0.50 to indicate good convergent validity. On the same note, the Composite Reliability values have been found to be between 0.891 and 0.927 which far surpass the favoured mark of 0.70 which just shows that the internal consistency between all constructs is high. One of the items (ID_6) was dropped because of the low factor loading so as to increase the construct validity and overall model.

4.2.3 Modified Measurement Model

After CFA diagnostics, an adjusted model was fitted in order to eliminate small model misspecifications without loss of theoretical interpretation.



Source(s): Researcher's Field Data Analysis using AMOS (2025).

Fig 5. Modified Measurement Model of the Relationships between Financial Behaviour and Financial Planning with Investment Decision

The modified measurement model is having an enhanced level of fit index as compared to the original model, which means that it fits a theoretical framework to the data. The indicators retained load much on their specific constructs making the measurement model very robust. This assures appropriateness of the constructs to be further modelled in a structural equation and tested in hypothesis.

4.3 Correlation Analysis: Before structural model estimation, the direction and the intensity of the relationship are examined by correlative analysis to analyse the relationships between the variables of the study. The correlation coefficient introduced by Pearson was used because the data met the conditions of normal distribution and unity (Pallant, 2020).

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Table 10. Correlation Matrix of Independent Variables and Investment Decision

Variables	Y	X_1	X_2
Y (Investment Decision (ID))	**1**		
X_1 (Financial Behaviour (FB))	**.805****	**1**	
X_2 (Financial Planning (FP))	**.824****	**.723****	**1**

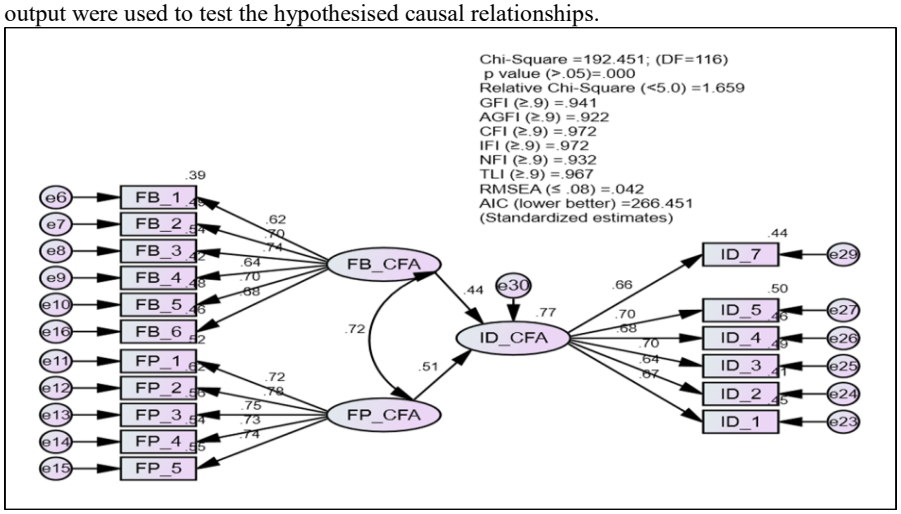
Source: Researcher's Field Data Analysis using SPSS (Version 28), 2025.
*****. Correlation is significant at the 0.01 level (2-tailed).***
****. Correlation is significant at the 0.05 level (2-tailed).***

The findings demonstrate that there exist strong, positive and statistically significant correlations between Financial Behaviour and Investment Decision ($r = 0.805$, $p < 0.01$) and between Financial Planning and Investment Decision ($r = 0.824$, $p < 0.01$). Besides, there is a positive correlation between Financial Behaviour and Financial Planning ($r = 0.723$, $p < 0.01$). Such results indicate that the owners/managers in the SMEs, who have proper financial behaviour and observed useful financial planning practises, tend to make better informed investment decisions. Notably, the correlation coefficients are lower than 0.85, which signifies that there is no need to worry about multicollinearity and the appropriate choice of variables to analyse the data via SEM (Kline, 2016; Hair et al., 2021).

4.4 Structural Equation Modelling Results: The hypothesised relationships among Financial Behaviour, Financial Planning, and Investment Decision were examined using Structural Equation Modelling (SEM). SEM allows estimating measurement as well as structural models taking into consideration measurement error, which implies a greater inferential strength than the conventional regression methods (Byrne, 2016).

4.4.1 Model Fit Indices: Multiple goodness-of-fit tests were used to evaluate the structural model, such as 8 2 df, CFI, TLI, GFI, RMSEA, and SRMR. The model proved to have enough fits with the data, and all indices were satisfactory concerning the recommended threshold value (CFI and TLI ≥ 0.90; RMSEA and SRMR ≤ 0.08). This shows that the proposed model is a good articulation of the observed correlations between the constructs (Hu and Bentler, 1999; Hair et al., 2021).

4.4.2 Path Coefficients and Testing of Hypotheses: Standardised and unstandardized regression weights that were obtained by using the SEM output were used to test the hypothesised causal relationships.



Source(s): Researcher's Field Data Analysis using AMOS (2025).

Figure 6. Structural Equation Model Depicting the Influence of Financial Behaviour and Financial Planning on Investment Decision

Table 11. Unstandardized and Standardized Regression Weights in the Hypothesized Path Model

Hypothesized Relationships			B	S.E.	*β*	C.R.	*P*
ID_CFA	<---	FB_CFA	.446	.079	.439	5.615	.000
ID_CFA	<---	FP_CFA	.417	.064	.507	6.537	.000

Note: ID_CFA: - Investment Decision; FB_CFA: - Financial Behaviour; FP_CFA: - Financial Planning; B: - Unstandardized Regression Weight; S.E.: - Standard Error; β: - Standardized Regression Weight; C.R.: - Critical Ratio; *P*: - P – Value.
Source: *Researcher's Analysis (2025).*

According to the results of the SEM, the Financial Behaviour positively and statistically influences Investment Decision ($b = 0.439$, C.R. = 5.615, $p < 0.001$), which displays that wise financial behaviour increases reasonable investment decision making among the owners/managers of the SME. Likewise, Financial Planning has a strong and significant impact on Investment Decision (= 0.507, C.R = 6.537, $p < 0.001$) indicating that there is a critical influence given to Investment Decision by structured financial planning. Financial Planning, in comparison, has a more powerful standardised influence than Financial Behaviour and so it is the most dominant in influencing investment decisions in the SME environment. The results are in line with the empirical research that was done in the past and found out that the financial literacy dimensions are associated with better investment outcomes (Lusardi and Mitchell, 2014; Potrich et al., 2016; OECD/INFE, 2018). This in turn endorsed every proposed path.

4.5 Additional Statistical Analysis: This was followed by further statistical tests to determine the difference in investment decision-making that demographic and firm-level factors as an independent variable generate significant differences among SME owners/managers. The independent sample t-test and one-way ANOVA were used, and the best practises of the applied research in the social science were followed (Pallant, 2020; Field, 2018).

4.5.1 Independent Sample t-Test: The independent sample t-test was used to identify whether there is statistically significant difference between male and female SME owners/managers in relation to their decision behaviour in investing.

Table 12. Independent Sample t-Test of Gender Difference on Investment Decision

Variable	n	Mean	SD	*df*	t	*p*
Gender				**364**	**1.936**	**.054**
Male	290	3.13	.96			
Female	76	2.96	.59			

Source: Field Survey (2025).

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The findings reveal that the male respondents (M = 3.13, SD = 0.96) scored a bit more in the investment decision scale in comparison with the female respondents (M = 2.96, SD = 0.59). Nonetheless, it was not statistically significant (p > 0.05). This implies that gender is not a key determinant in investment decision making among the retail SMEs in Kano Metropolis. The result is consistent with the previous empirical results that show that the financial ability of SME owners also shapes investment behaviour becoming less gender-dependent (Adomako et al., 2016; Lusardi and Mitchell, 2014).

4.5.2 One-Way ANOVA Analysis

Analysis of Variance (ANOVA) was performed to determine contrasting differences in investment decision under the categories of annual turnover and the period of operation.

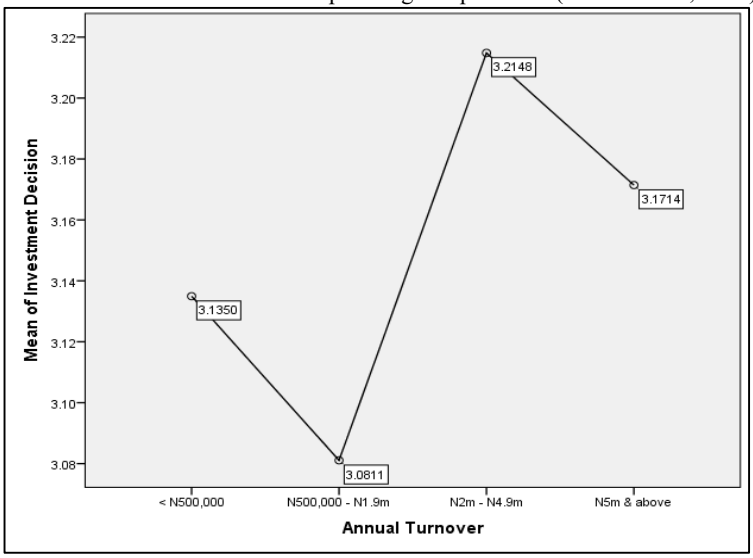
Annual Turnover

The ANOVA test was used to test the hypothesis that SMEs with varying values in annual turnover have a significant difference in investment decision behaviour.

Table 13. ANOVA Test for Annual Turnover on Investment Decision

Variable	*n*	Mean	SD	*Df*	F	*p*
Annual Turnover Categories				**3**	**1.303**	**.273**
< N500,000	**123**	**3.14**	**.49**	**362**		
N500,000 - N1.9M	**148**	**3.08**	**.53**			
N2M – N4.9M	**81**	**3.21**	**.43**			
N5M & above	**14**	**3.17**	**.50**			
Note: ₦ = Nigerian Naira; M = Million						
Source: Field Survey (2025).						

The outcome of ANOVA indicates that the difference between the decision on investments across the two categories of the annual turnover is not statistically significant (F = 1.303, p > 0.05). Even though the highest average score was obtained in SMEs as classified under ₦2M-NF4.9M division (M = 3.21), the differences are not significant. It means that the turnover size is not a primary determinant of investment decision-making among SMEs but can be based on financial behaviour and planning competencies (OECD/INFE, 2018).



Source(s): Field Survey (2025).

Figure 7. Mean Plot for Annual Turnover Categories on Investment Decision

The mean plot visually confirms the minimal dispersion across turnover groups, reinforcing the ANOVA result that turnover does not significantly differentiate investment decisions.

Years of Operation

A further ANOVA test was conducted to determine whether firm age influences investment decision-making.

Table 14. ANOVA Test for Years of Operation on Investment Decision

Variable	*n*	Mean	SD	*Df*	F	*p*
Years of Operation				**3**	**1.126**	**.338**
< 1 Year	**37**	**3.19**	**.45**	**362**		
1 – 4 Years	**140**	**3.12**	**.47**			
5 – 9 Years	**118**	**3.08**	**.54**			
10 years & above	**71**	**3.21**	**.50**			
Source: Field Survey (2025).						

The results show no significant variation in investment decision within the years in operation (F = 1.126, p > 0.05). Although SMEs that have been in operation of 10 years and above had the highest mean score (M = 3.21), the variance between classes is not significant. That implies that experience is not necessarily and automatically converted into high-quality investment decision-making; this implies that it is structured financial planning and behavioural discipline that play a more decisive role in this (Potrich et al., 2016; Hair et al., 2021).

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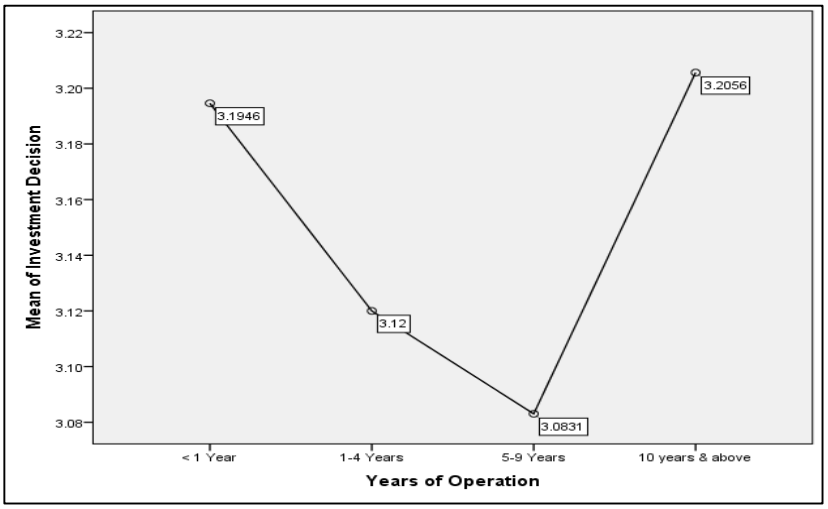

Source(s): Field Survey (2025).

Figure 8. Mean Plot for Years of Operation Categories on Investment Decision

The average plot shows a fairly continuous trend of the scores of investment decisions according to the age of the firm, which supports the results of ANOVA.

5. Discussion of Findings

This section presents the permanent outcomes of the study in connexion to the formulated research objectives, hypotheses, and in connexion with the theoretical and empirical literature. The debate is concerned with the influence of financial behaviour and financial planning in decision-making in relation to investment by the Small and Medium Enterprises (SMEs) in the Kano Metropolis, Nigeria.

5.1 Financial Behaviour and Investment Decision (H_{03})

The results indicate that financial behaviour is directly proportional and statistically significant on investment decisions among Kano Metropolis SMEs. Correlation analysis identifies that good financial business behaviours including budgeting, record-keeping, careful risk assessment, and the separation of business and personal finances increase the likelihood of informed and growth-oriented investment decisions.

Accordingly, the null hypothesis H_{03}, which posits that there is no significant relationship between financial behaviour and investment decisions, is rejected. This observation corroborates the Behavioural Finance Theory, which highlights that disciplined financial behaviours enhance decision quality under uncertainty. Similar empirical research reports indicate that positive financial behaviour enhances SME investment performance, especially in developing and informal market environments (Potrich et al., 2016; OECD/INFE, 2018; Lusardi and Mitchell, 2014). In the context of Kano Metropolis, where many SMEs lack institutional financial advisory services, disciplined financial behaviour appears to offset institutional gaps, enabling SME owners/managers to make rational investment decisions despite market volatility.

5.2 Financial Planning and Investment Decision (H_{04})

The analysis also shows that financial planning has a moderate and statistically significant positive impact on SME investment decisions, even more pronounced than financial behaviour. Results from Structural Equation Modelling (SEM) indicate that forward-looking financial planning activities, such as capital budgeting, profit reinvestment planning, and contingency preparation, significantly influence investment decision-making.

As a result, the null hypothesis H_{04}, which asserts that financial planning does not significantly influence investment decisions, is rejected. This finding aligns with the Resource-Based View (RBV), which considers financial planning as an internal strategic competence that enables firms to allocate limited resources effectively and sustain competitive advantage. Empirical evidence also shows that SMEs with structured financial planning systems are better positioned to evaluate investment opportunities, manage uncertainty, and foster long-term growth (Adomako and Danso, 2014; van Rooij et al., 2012). Financial planning, therefore, plays a crucial role in reducing uncertainty and enhancing the quality of investment decisions in the Kano SME environment, which is characterized by inflationary pressures, fluctuating demand, and weak institutional support.

5.3 Demographic and Firm Characteristics and Investment Decision (H_{01} and H_{02})

Comparative analyses reveal no statistically significant differences in investment decisions based on gender, annual turnover, or years of operation among SMEs in Kano Metropolis. Independent samples t-test and ANOVA results show more homogeneity than variance across these categories. Consequently, the null hypotheses H_{01} and H_{02}, which state that gender and firm characteristics do not significantly influence investment decisions, are not rejected.

These findings suggest that demographics and firm size are not primary determinants of SME investment decisions. Instead, internal financial competencies specifically financial behaviour and planning drive decision-making. This aligns with recent SME literature, which notes that investment behaviour is best predicted by financial capabilities rather than demographic or operational attributes (Adomako et al., 2016; OECD/INFE, 2018). While previous studies reported sex-based disparities in risk preferences, controlling for financial knowledge and planning reduces these differences (Lusardi and Mitchell, 2014). Overall, the results support the conclusion that financial behaviour and planning are universal drivers of investment decisions, regardless of demographic or operational differences.

5.4 Theoretical and Practical Implications

5.4.1 Theoretical Implications

This study extends the literature on financial literacy and SME investment by providing empirical evidence on the distinct roles of financial behaviour and financial planning in shaping investment decisions. By explicitly modelling these constructs, the study moves beyond unidimensional conceptualizations of financial literacy and illustrates how behavioural execution and strategic planning transform financial knowledge into actionable investment behaviour.

The findings indicate that financial behaviour (H_{03} rejected) and financial planning (H_{04} rejected) significantly influence investment decisions, supporting the Behavioural Finance Theory and the Theory of Planned Behaviour, which emphasize deliberate actions and decision-making processes in uncertain environments. Furthermore, the stronger effect of financial planning reinforces the Resource-Based View (RBV), framing planning capability as a valuable internal resource that enhances decision quality and competitive advantage among SMEs. Conversely, the non-

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significant effects of gender, annual turnover, and years of operation (H_{01} and H_{02} not rejected) suggest that internal financial capabilities are more critical than demographic or firm-specific attributes in explaining investment behaviour, particularly in informal and start-up economies. This underscores that SME investment decisions are primarily driven by internal financial competencies rather than external demographic or structural factors.

5.4.2 Practical Implications: From a practical perspective, the results highlight that disciplined financial behaviour and structured financial planning are essential for enhancing investment decisions among SMEs. SME owners and managers are encouraged to institutionalize practices such as consistent budgeting, accurate record-keeping, separation of personal and business finances, and proactive planning to improve decision-making quality and business sustainability. Policymakers and SME support institutions should design interventions that go beyond generic financial literacy, focusing on behavioural change and practical financial planning skills. Training programmes, advisory services, and enterprise support schemes targeting these areas are likely to produce greater investment returns than conventional knowledge-based literacy initiatives. Since gender and firm-specific characteristics did not significantly influence investment decisions, these interventions can be implemented as broad-based programmes, applicable to all SMEs regardless of size, demographic composition, or years of operation, thereby maximizing their reach and effectiveness.

6. Conclusion and Recommendations

6.1 Summary of Findings: This study examined the influence of financial behaviour and financial planning on investment decisions among Small and Medium Enterprises (SMEs) in Kano Metropolis, Nigeria. Using quantitative survey data and Structural Equation Modelling (SEM), the study tested four hypotheses.

The results indicate: Financial behaviour (H_{03}) and financial planning (H_{04}) positively and significantly influence SME investment decisions, with financial planning showing a stronger effect. Gender, annual turnover, and years of operation (H_{01} and H_{02}) did not significantly impact investment decisions. However, internal financial capabilities, rather than demographic or firm-specific attributes, are the strongest determinants of investment choices among SMEs in Kano Metropolis.

6.2 Conclusion

The research provides robust empirical evidence that disciplined financial behaviour and structured financial planning are essential for high-quality investment decisions among SMEs. Financial planning emerges as the more dominant predictor due to its emphasis on forward-looking strategies that help SMEs manage uncertainty in informal and volatile markets. Demographic and firm-specific characteristics, such as gender, turnover, and firm age, were not significant determinants.

6.3 Policy and Managerial Implications

Policy Implications: The findings have implications for SME development policy and financial inclusion strategies. Financial literacy initiatives should emphasize behavioural and planning-based interventions rather than only theoretical knowledge. Practical modules on budgeting, cash flow forecasting, and investment planning should be incorporated into SME development programmes at both national and state levels (e.g., SMEDAN). Broad-based policies are appropriate since demographic and firm-size factors are not significant. Institutional support for financial planning can enhance investment efficiency, resilience, and SME growth.

Managerial Implications: SME owners and managers should institutionalize core financial management practices, including accurate record-keeping, separating personal and business finances, and proactive planning. Even without external financial advisory services, SMEs can enhance investment decision quality by strengthening internal financial capabilities. Managers must leverage these practices to manage investment opportunities, mitigate risk, and maintain competitiveness in dynamic market conditions.

6.4 Recommendations: Based on the findings, the following recommendations are suggested:

1. SME owners and managers should adopt structured financial planning techniques, such as capital budgeting and contingency planning, to improve investment decision quality.
2. Training programmes by SME support agencies should focus on modifying financial behaviour and practical planning skills rather than only theoretical knowledge.
3. Financial institutions and business support organizations should provide advisory services tailored to SMEs' planning and behavioural needs, especially in informal markets.
4. Professional associations and market unions in Kano Metropolis should facilitate peer learning and financial management workshops to promote best practices among SMEs.

6.5 Limitations of the Study

This study has some limitations:

- The cross-sectional design limits causal inference.
- Self-reported measures may introduce response bias.
- Focus on retail SMEs in Kano may limit generalizability to other sectors or regions.
- Other potential factors influencing investment decisions, such as technology use and external advisory services, were not examined.

6.6 Recommendations for Future Research

Future studies could:

- Use longitudinal designs to track the impact of financial behaviour and planning over time.
- Conduct comparative studies across sectors or regions to enhance generalizability.
- Include additional variables such as digital financial tools, external advisory support, and macroeconomic factors.
- Apply qualitative approaches to explore contextual dynamics of financial behaviour and planning practices among SMEs.

References

1. Adomako, S., & Danso, A. (2014). Financial literacy and firm performance: The moderating role of financial capital availability and resource flexibility. *International Journal of Management & Organizational Studies, 3*(4), 1–15.
2. Adomako, S., Danso, A., & Damoah, J. O. (2016). The moderating influence of financial literacy on the relationship between access to finance and firm growth in Ghana. *Venture Capital, 18*(1), 43–61. https://doi.org/10.1080/13691066.2015.1079952
3. Ajzen, I. (1991). *The theory of planned behavior*. Organizational Behavior and Human Decision Processes, 50(2), 179–211.
4. Alfa, H., Aliyu, M. S., Maiyaki, A. A., & Barwa, M. T. (2023). *Moderating effects of gender on financial literacy and loan repayment behaviour of SMEs in Kano State, Nigeria*. Journal of Global Economics and Business, 4(13), 37–60. https://doi.org/10.58934/jgeb.v4i13.140
5. Ariswati, L. D., et al. (2025). Does financial literacy drive SME success in resource-rich regions? *Priviet Social Sciences Journal, 5*(11), 308–321. https://doi.org/10.55942/pssj.v5i11.714
6. Bamidele, O. V., Ani, C., & Yusuf, M. M. (2024). *Financial literacy and financial performance of SMEs in Zamfara State, Nigeria*. International Journal of Economics and Financial Management, 9(5), 68–82.
7. Barney, J. (1991). *Firm resources and sustained competitive advantage.* Journal of Management, 17(1), 99–120.

MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 36 Issue 1, 2026, Pages 4408-4423

8. Basmantra, I. N., et al. (2024). The affirmation of financial literacy as the moderating influence on financial inclusion and SMEs growth. In *Technology and business model innovation* (pp. 492–497). Springer.
9. Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (3rd ed.). Routledge.
10. Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*(2), 245–276.
11. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334. https://doi.org/10.1007/BF02310555
12. Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.
13. Ekayani, N. N. S., et al. (2024). *The mediating effect of access to capital in the impact of financial literacy and financial inclusion on SME sustainability*. Journal of Corporate Finance Research, 18(4), 136–151. https://doi.org/10.17323/j.jcfr.2073-0438.18.4.2024.136-151
14. Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272–299.
15. Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272–299. https://doi.org/10.1037/1082-989X.4.3.272
16. Fikri, A. S. K., & Nahda, K. (2023). The effect of financial literacy on MSME performance. *Jurnal Economic Resource, 6*(2), 238–247.
17. Fincham, J. E. (2008). Response rates and responsiveness for surveys, standards, and the journal. *American Journal of Pharmaceutical Education, 72*(2), 43. https://doi.org/10.5688/aj720243
18. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104
19. Golda, C., Todingbua, M. A., & Halik, J. B. (2024). The effect of financial literacy on the income of culinary SMEs in Tana Toraja Regency through performance. *Indonesian Journal of Economy Studies, 3*(2). https://doi.org/10.63828/ijes.v3i2.78
20. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.
21. Handayani, A. (2023). *The role of financial factor on the financial behaviour of SMEs*. Journal of Business Management Review, 4(4), 295–305.
22. Hasibuan, B., et al. (2024). Pathways to SME sustainability integrating Islamic finance and government support. *Journal of Ecohumanism, 3*(8). https://doi.org/10.62754/joe.v3i8.5298
23. Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods, 7*(2), 191–205.
24. Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing & Health, 31*(2), 180–191. https://doi.org/10.1002/nur.20247
25. Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179–185. https://doi.org/10.1007/BF02289447
26. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118
27. Irikefe, P. O., & Isaac, O. M. (2021). Effect of financial literacy on the growth of MSMEs. *International Journal of Research Publications, 90*(1).
28. Israel, G. D. (2013). *Determining sample size*. University of Florida Cooperative Extension Service.
29. Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31–36. https://doi.org/10.1007/BF02291575
30. Kalapriya, K. (2024). *Impact of financial literacy on financial decision making of MSMEs during crisis*. Asian Journal of Management Studies, 3(2), 80–96.
31. Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
32. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5
33. Manzoor, A., Jan, A., & Shafi, M. (2023). *Do personality and demographic variances of individual investors challenge the assumption of rationality?* Indian Journal of Finance, 17(10), 64–78. https://doi.org/10.17010/ijf/2023/v17i10/168549
34. https://osmania.irins.org/profile/150992
35. Molosiwa, T., & Holland, J. (2025). *The impact of financial literacy on SME performance: A review of literature*. International Journal of Research in Business and Social Science, 14(3), 320–332.
36. Mongan, C. J., et al. (2025). Investor risk behavior as a mediator in the influence of financial literacy on millennial investment decisions. *Journal of Management and Business Review, 22*(2), 144–162. https://doi.org/10.34149/jmbr.v22i2.820
37. Muhati, M. M., & Bosire, M. (2023). Influence of financial literacy on credit uptake by youth enterprises. *International Journal of Economics Business and Management Research, 7*(3), 121–140.
38. Muliana. (2025). *The effect of financial literacy on investment decision-making among MSME actors*. IJESSM, 5(2), 13–25. https://doi.org/10.52121/ijessm.v5i2.868
39. Ndaghu, J. T., et al. (2022). *Financial literacy: A critical catalyst for sustainable business development in emerging economies*. Research Journal of Management Practice, 2(1), 141–149.
40. Njoki, D. M. (2024). Effect of financial literacy on the growth of micro and small enterprises in Kenya. *African Journal of Commercial Studies, 4*(1), 31–37.
41. Dr. Naveen Prasadula (2026) Review of Analysis on The influence of financial behaviour and financial planning on investment decisions among smes in kano metropolis, nigeria
42. Njoroge, R. M. (2013). Relationship between financial literacy and entrepreneurial success in Nairobi County, Kenya. *University of Nairobi Research Project*.
43. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
44. https://scholar.google.co.in/citations?user=99wmG2IAAAAJ
45. OECD/INFE. (2018). *OECD/INFE toolkit for measuring financial literacy and financial inclusion*. OECD Publishing.
46. Pabane, W., Todingbua, M. A., & Mongan, C. J. (2025). Unlocking financial success: How literacy and inclusion shape SME owners' well-being in Makassar. *Journal of Marketing Management and Innovative Business Review, 3*(1), 36–43. https://doi.org/10.63416/mrb.v3i1.304
47. Pallant, J. (2020). *SPSS survival manual* (7th ed.). McGraw-Hill Education.
48. Potrich, A. C. G., Vieira, K. M., & Kirch, G. (2016). Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables. *Revista Contabilidade & Finanças, 27*(69), 362–377. https://doi.org/10.1590/1808-057x201602010
49. Rakkang, Y., & Achsanuddin, A. N. (2025). Enhancing MSME financial performance through strategic capabilities. *Citizen Jurnal Ilmiah Multidisiplin Indonesia, 5*(4), 1009–1023.
50. Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.
51. Singh, S., Srivastava, A., & Mahobia, H. (2025). *From literacy to prosperity: Investigating financial literacy and access in SME growth*. European Economics Letters, 15(1), 2105–2114.
52. SMEDAN & National Bureau of Statistics (NBS). (2021). *SME statistics report, Nigeria*. Abuja: SMEDAN.
53. Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd
54. van Rooij, M., Lusardi, A., & Alessie, R. (2012). Financial literacy, retirement planning and household wealth. *Economic Journal, 122*(560), 449–478. https://doi.org/10.1111/j.1468-0297.2012.02501.x
55. Wati, K. L., Sianturi, M., & Liswatin. (2025). The impact of financial literacy on SMEs performance: The role of access to financial resources as a mediator. *RIGGS Journal of Artificial Intelligence and Digital Business, 4*(2), 5969–5979. https://doi.org/10.31004/riggs.v4i2.1540
56. Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.