Determinants of Financial Inclusion in Kano State Government-Led Microfinance Banks: A PLS-SEM Approach

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ABSTRACT

Financial inclusion remains a critical yet elusive tool for poverty reduction and youth unemployment in developing nations. In Nigeria, despite national strategies, financial exclusion remains high, particularly in the Northwest region where rates have historically reached 70%. This study examines the effects of Kano State Government's microfinance banks on financial inclusion. It specifically investigates the conflict between social objectives, such as poverty alleviation, and the commercial necessity of financial sustainability. The study adopted a positivist research philosophy and a cross-sectional survey design using census sampling to collect primary data from 222 management staff across the 37 MFIs. Data were analyzed using Partial Least Square Structural Equation Modeling (PLS-SEM) via Smart-PLS 4.0.9.9 to test the relationships between financial self-sufficiency, financial literacy, government policy, and financial inclusion. The results indicate that the model of the study explains 62.2% of the variance in financial inclusion. Financial self-sufficiency emerged as the most significant driver ($\beta=0.456$, $p<0.001$), exerting a medium effect size on inclusion efforts. Government policy also showed a significant positive relationship ($\beta=0.299$, $p<0.001$), though with a smaller effect size.

Similarly, financial literacy was found to have a significant positive effect (β=0.160, $p<0.001$). The study also highlights significant challenges, including the "Unit bank" designation limiting savings mobilization and religious considerations regarding interest-based products in predominantly Muslim communities. The study concludes that sustainable financial inclusion requires MFIs to reach financial self-sufficiency to become grant independent.State Governments willing to replicate Kano State experience should focus on nurturing self-sufficient institutions that are well governed, politically insulated and well-fund. In addition, financial literacy development should be given serious attention by Governments, development partners and the microfinance banks themselves. The regulatory authorities should ensure that State Governments willing to establish microfinance banks make adequate provision for private sector participation to ensure financial self-sufficiency that will facilitate financial inclusion.

Keywords: Financial Inclusion; Microfinance Banks; Financial Self-Sufficiency; Financial Literacy; Government Policy; Kano State.

1. INTRODUCTION

Financial Inclusion or access to finance by all as a tool for poverty and youth unemployment reduction remains an illusion for many developing countries and a cause for concern among policymakers. Its significance in providing capital inputs for individuals, micro, small, and medium enterprises to set up/maintain or expand operations is acknowledged globally, and is more so in developing countries. It is one of the "driving forces for equitable income distribution in an economy and a crucial factor for improved life quality, thus alleviating poverty" (Omenuhu et al: 2024). However, financial inclusion which is the provision of financial services to the excluded majority in developing countries remain an important policy puzzle for Governments and development partners. "As of 2021, over 1.4 billion adults worldwide are formally unbanked and most of them live in developing countries; and SSA remains among the three regions with the lowest account ownership and usage rate across the globe" According to EFINA Report 2021, Nigeria has one of the 'world's lowest and most uneven Financial Inclusion rates' with the Northwest amongst the regions with the highest exclusion rates.

In line with the National Financial Inclusion Strategy, the CBN 2004 National Microfinance Policy provided for the establishment of microfinance banks to address the financial exclusion rates in the country. Governments, Non-Governmental organizations, and the private sector strive to set up Microfinance Institutions to close this access to finance gap. Examples of such institutions are the microfinance banks established by Kano State Government in 2012. The conflict between the dual nature of social and commercial objective in the development of microfinance banks to foster financial inclusion in Kano State is the problem of this study. The do-it-alone policy of the State Government, no doubt, may have far-reaching consequences on sustainability and financial inclusion. The State Government decided to provide equity share for takeoff, provided logistics; appointed a financial management consultant to lead the process of

setting up the banks; and directed that only indigenes of Kano State, especially from the target communities, should be appointed as management staff and Board members.

The first major problem is the ability of the State Government to adequately provide the required funding for equity and logistics that could allow the banks to meet the likely high demand for credit and other services for the target communities. The Central Bank's policy of designating the banks as Unit banks implies that they cannot open branches in other areas, thereby limiting the ability to mobilize savings and provide services that could enhance their ability to move towards financial sustainability and deepen financial inclusion. The decision to source management staff from the target communities may pose a big challenge due to a lack of trained individuals in banking with microfinance experience, which will affect operational efficiency, risk aversion, innovative instruments and products development, as well as strategic community engagement. Similarly, appointment of Board members from the communities by the government could foster patronage if they have a good understanding of the need to manage the banks to reach operational and financial self-sufficiency for a long time to come. Whether the board members were able to show restraint for personal interests due to family and or political considerations will be determined by the outcome of this study. There could be conflicts between social objectives including poverty reduction efforts and commercial objective to create financially sustainable microfinance banks by Kano State Government .as a mechanism for fostering financial inclusion.

This study investigated how these problems shaped the operations of the Kano State Government's microfinance banks. Only institutions that stand the test of time through good governance, diversified sources of finance, consistent corporate policies for loan disbursement and recovery, application of modern technology and cultural diversity concern in products design as well as networking and knowledge sharing on improved service delivery tend to be considered on the path of success and sustainability. Unless they are sustainable, the institutions cannot be able to serve the objective of financial inclusion to expand outreach by serving the excluded segment of the population on a sustainable basis.

1.1 Research Questions

The study was guided by the following questions:

i. To what extent does the financial self-sufficiency of microfinance banks affect financial inclusion?
i. To what extent does financial literacy affect financial inclusion?
ii. To what extent does government policy affect financial inclusion?

1.2 Objectives of the Study

The broad objective of the study is to examine the effect of the Kano State Government's microfinance banks on financial inclusion in Kano State.

The specific objectives of the study include the followings:

i. To investigate the extent to which financial self-sufficiency of microfinance banks affects financial inclusion.
ii. To investigate the extent to which financial literacy affects financial inclusion.
iii. To examine the extent to which government policy affects financial inclusion.

1.3 Research Hypotheses

Ho_1: Financial self-sufficiency of microfinance banks does not significantly affect financial inclusion

Ho_2: Financial Literacy of target communities has no significant effect on financial inclusion.

Ho_3: Government Policy has no significant effect on financial inclusion.

1.4 *Conceptual and Operational Definitions of Concepts*

1.4.1 Financial Inclusion

Measuring the above independent variables will provide indicators that will determine what happened to financial inclusion - the dependent variable. Proxies to measure changes or progress in financial inclusion deepening include the number of bank accounts opened,the number of bank branches established, total loans advanced, and insurance and other financial services provided to the communities. In addition to access, the issue of usage of financial services provided by the banks matters in understanding the overall dimension of financial inclusion. Questionnaires to be filled by the management and the financial management consultants will provide data with which to measure the financial inclusion contributions of the microfinance banks in Kano State.

1.4.2 *Financial Self-sufficiency of Microfinance Institutions*

It is worth noting that operational self-sufficiency is a necessary condition for microfinance institutions to move towards the profitability stage. All the indicators of measuring operational self-sufficiency matter in assessing financial self-sufficiency. In addition, the ability of the banks to mobilize more savings, access external commercial funding in the form of equity and or loans will form part of the measures to assess the banks' efforts to attain financial self-sufficiency. These latter indicators could be influenced by Central Bank guidelines and State Governments' directives. Questionnaires to be filled by the management of the banks and interviews with Government officials will provide insights into the measures of financial self-sufficiency of the banks.

1.4.3 *Financial Literacy*

Financial literacy level is one of the variables in determining the acceptability and usage of financial products and instruments, the world over. There is extensive literature on how financial literacy level affects Microfinance Institutions' sustainability, and ultimately, financial inclusion deepening. The questionnaires to be filled out by the management and financial consultants will

provide insights into how to measure the effects of this variable on the financial inclusion efforts of the banks.

1.4.4 *Government Policy*

This variable refers to the Kano State Government's policy to establish the 37 microfinance banks without the participation of the private sector or support from development partners. The payments of equity shares and logistics by the Government; the selection of management staff and appointment of Board members, and the monitoring and evaluation of the process by government agencies constitute part of this variable's measures. The Central Bank's policy guidelines on the establishment of microfinance banks in Nigeria are the other component of the variable to be determined. Interviews with Government officials and questionnaires to be filled by the management of the banks will provide the measurement basis of this vable and its effects on financial inclusion.

2. REVIEWOF RELATED LITERATURE

2.1*Concept of Financial Inclusion*

Overall, financial inclusion is regarded as a tool for poverty reduction; economic growth; increased financial stability; development of financial literacy; social inclusion; empowerment, and peace. Financial inclusion helps to foster the development of innovations and the application of technology to reduce global income inequality and enhance the attainment of the United Nations' sustainable development goals (Shen et al., 2026; Rachmad, 2025; Wang & Zhang, 2025).

The Global Partnership for Financial Inclusion (GPF) developed the G20 financial inclusion indicators, which include, percentage of adults who have opened accounts, the percentage of adults with credit, the number of branches per 100,000 adults, the number of ATMs per 100,000, financial literacy, use of digital payments, and access to digital infrastructure. Enabling the poor to open accounts (account deepening) will provide an opportunity to qualify as formally banked, leading individuals and businesses to save, access credit, and boost the development of productive assets (Del Sarto &Ozili, 2025). Branch deepening or opening financial institutions' branches in an economy is a sign of efforts to lure the populace to patronize the services for growth and development. Sometimes the opening of branches by financial institutions could be based on commercial drive, while in some instances it could be based on a Government directive to meet the goals of financial inclusion.

2.2 *Concept of Microfinance Institutions*

Microfinance Institutions (MFIs) are specialized financial organizations like NGOs, cooperatives, and banks that provide loans, savings, and insurance to low-income individuals or micro-entrepreneurs lacking access to traditional banking (Wang & Zhang, 2025). They promote financial inclusion, economic growth, and poverty alleviation by offering small, often collateral-free loans (microcredit) to underserved, rural, or informal sector participants. With the

introduction of a National Policy on the development of Microfinance in Nigeria by the CBN in 2005, the licensing for Microfinance banks was made possible, which added impetus to further financial inclusion of the poor and the underprivileged. The policy recognizes Unit, State, and national types of Microfinance banks, each with a different level of share capital, branching possibility, and depth of financial service provision. The goal of the policy is the development of sustainable financial institutions that can stand the test of time, expand their outreach, thereby stretching the financial inclusion radius, for the development of a robust financial system (CBN: 2005). Sustainable MFIs tend to rely on commercial sources of capital for expansion and growth; they have a good governance structure and an organizational culture of maximizing returns and minimizing costs of operation. They are keen on employing new techniques, including IT, for effective and efficient service delivery to clients for an enduring financial inclusion effort of regulatory authorities.

2.3 *The Concept of Financial Self-Sufficiency of Microfinance Institutions*

In the case of effect of financial self-sufficiency on financial inclusion there are perceptions on the concept in the literature, but some of the related studies include the following: Kartawinata*et al.,* (2021), Yayehyirad (2023), Hussain *et al.,* (2020), Tafesse (2014) amongst others.

The major challenge facing microfinance institutions is how to recover all costs of operation and make a profit to guarantee future survival. Generally, most microfinance institutions at the initial stage of operation are grant-dependent onthe Government, Community, Development partners, or foreign investors. For many microfinance institutions they start with the sole objective of providing the poor with subsidized financial services as a poverty alleviation effort or creating opportunities for access to productive assets. That is why they are subsidy dependent without strong quest for sustainability. Unfortunately, subsidy is not a sustainable source of funding for the microfinance institutions to continue to extend outreach due to ever increasing demand for financial services by the excluded poor. The experience of many sustainable microfinance institutions from across the globe has shown that serving the poor on a sustainable basis requires efforts to be self-sufficient.The first step is the attainment of operational self-sufficiency, followed by the drive to make a profit (Hussain *et al.,* 2020). The profitability stage or financial self-sufficiency is the goal of all microfinance institutions; yet, tradeoff between this objective and that of reaching the most vulnerable in society stifles progress. Financial self-sufficiency (FSS) is the ability of the institution to generate adequate adjusted income greater than its adjusted costs. If the former is greater than the latter, the microfinance institution is said to be subsidy independent. The reverse is also true.

Some of the factors that affect the financial sustainability of microfinance institutions include – loan portfolio, operating expenses, capital/asset ratio, portfolio at risk, loan default rate, loan portfolio management, and over-indebtedness (Yayehyirad, 2023). Strategies to attain financial self-sufficiency by willing microfinance institutions include: improving loan portfolio management; diversifying investment; increasing supervision and monitoring; sensitizing

members on loan repayment efforts; mobilizing deposits, and designing suitable loan products (See, for example, Beg, 2016; Khan *et al.,* 2017; Gibbons & Meehan, 1999).

2.4 The Concept of Financial Literacy

Financial literacy is the ability to understand matters of a financial nature, consisting in the set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of finances. It is associated with the set of attitudes that are relevant for the financial decision-making, behavior, and knowledge. These decisions include when to save, when to spend, managing a budget, choosing the right financial products, and willingness to address other events, such as financing children's education and planning for retirement. The higher the financial literacy, the higher the benefit for people because it helps them make better financial decisions and gives them more control over their money (Vieira, 2012). According to Carlin (2012), financial literacy is defined as "the ability of people to make financial decisions in their own best short- and long-term interests". Financial literacy is the ability to understand and use financial knowledge to make informed decisions about managing personal finances. It encompasses understanding concepts like budgeting, saving, investing, debt management, and financial planning. Ultimately, it empowers individuals to achieve financial stability and well-being.

2.5 *The Concept of Government Policy*

Government policies are those actions taken by the government to broaden access to and use of financial products and services. It is the government's role to build inclusive financial systems. Given that financial systems in many developing countries serve only a small part of the population, expanding access and usage remain an important challenge across the world, leaving much for governments to do. However, not all government actions are equally effective, and some policies can even be counterproductive. According to Beck *et al.,* (2009), policy initiatives should aim to correct market failures and to eliminate nonmarket barriers to accessing a broad range of financial services. Financial inclusion as a policy objective represents the current consensus in a long-standing debate on the contribution of finance to economic development and poverty reduction. It reflects the evolution of financial sector policies in developing countries over the past decades, and embodies important insights into the positive impact that financial services have on the economic lives of the poor. Financial sector policies have evolved through three stylized stages: first, fostering state-led industrial and agricultural development through directed credit; second, market-led development through liberalization and deregulation; and third, institution building that aims at balancing market and government failures (Hannig & Jansen, 2010).

2.6 *Microfinance Institutions and Financial Inclusion*

The main focus of microfinance institutions is serving the bottom of the pyramid of the economic system where the majority part of the population excluded by the conventional banking sector live and engages in micro, small and medium economic activities for survival.

Despite this general belief on the role of microfinance institutions in fostering financial inclusion, some authors contested this view by putting a caveat on the assertion. Bhawe, N. and Jha, S.K (2025) in their study argued that microfinance institutions' contribution to financial inclusion "depends on their business model and resilience to structural changes. MFIs with embedded business model (i.e. deep engagement with the local community) perform better in the aftermath of structural policy interventions as compared to MFIs with a transactional model." According to Apereboet *al.(*2025), microfinance banks "In Nigeria and throughout the world, microfinance banks are becoming a major means of finance for low-income households, small businesses, and those who do don't have access to conventional financial services offered by commercial banks" They are regarded as tools to fight financial exclusion and poverty in society; positively contributes to overall economic activities and economic growth in general. The significance of microfinance institutions in fostering financial inclusion was acknowledged by the Nigeria microfinance development policy 2004. The purpose of the policy according to the CBN was "to enhance the provision of diversified microfinance services on a long-term, sustainable basis for the poor and low income groups"

2.7 ***Review of Empirical Studies***

The experience of many countries in financial inclusion policies presents astonishing results of success. Ozili K. (2020) cited many examples of successful financial inclusion efforts in India, Latin America and Africa – "India (Nimbrayan et al, 2018); Rwanda (Lichtenstein, 2018; Otiomo et al, 2019); Kenya (Ndung'u, 2018; Hove and Dubus 2019) and Peru (Camara & Tuesta 2015)" The Indian PMJDY progarmme successfully improved financial inclusion despite witnessing supply-side challenges in later years due to reduction in incentives and low subsidy to financial service providers. The Community savings and credit cooperatives (SACCOs) in Rwanda were a success story. The scheme, Umurengo SACCOs was able to attract over 1.6 million customers in 3 years. The Kenyan M-Pesa programme introduced in 2007 had a significant impact on the financial system operations by increasing the inclusion level from 26.4% in 2006 to 40.5% in 2009. The Peruvian money platform 'Modelo Peru' and 'Bim' service programmes enabled citizens with mobile phones to open bank accounts and make payments virtually without physical visit to a bank.

The role of financial inclusion globally is taking a new dimension with Governments especially in developing countries using it as a tool for poverty and unemployment reduction strategy, and fostering overall economic growth by building robust financial system. Major factors that influence financial inclusion differ from one country to another, and these include: "financial literacy; financial innovations; financial regulation; financial stability; income; information communication technology; gender differences; cost of financial services; economic conditions and political situations" (Shahet *al.,* 2022). Some studies use composite index in computing financial inclusion; others use availability, access and use of financial services as well as components like account penetration, branch penetration, savings and number of ATMs. In recent years, MFIs have identified technological innovations and smart products that could

attract clients and enhance their financial and operational sustainability. Governments also are attaching great importance to fostering financial inclusion by reducing economic and regulatory bottlenecks that impede access to financial services especially for the disadvantaged segments of societies. In addition, Governments come up with smart incentive systems that could reduce transaction costs for MFIs and borrowing costs for clients. In addition, Governments through their Central banking systems are devising new subtle rules and regulations (flexible financial policies) to ensure the achievement of their inclusion policies. "Modern delivery methods in the financial system i.e., mobile banking, agent banking, Microfinance banks and hassle-free customer requirements are necessary to identify the underserved and unbanked population".

Shah et al. (2022) cited many empirical studies on the significance of financial inclusion as a tool for growth and development: "major strategy for achieving the United Nations sustainable development goals (Demirgue-Kunt &Sibger, 2017; Shay *et al* 2015). It supports enhancing social inclusion in many societies (Bold *et al.,* 2012). There are country specific studies explaining the financial inclusion phenomenon. These include Bongomin (2018) on Uganda; Dematteis (2015) financial inclusion problem of migrants in Italy; Nanziri (2016) gender gap in South Africa; Mitchell and Scote (2019) on tax revenue in Argentina; Ghosh and Bhattacharya (2019) on Bangaladesh; Ali (2019) on Islamic financial services in the Comoros which deprived women.

The impact of Microfinance banks on economic growth 1992-2013 in Nigeria was studied by Apere (2016) showing a significant and positive effect of the loans; and on domestic investment (ibid) Similarly, Ofeimun (2020) "examined the effect of Microfinance banks' financial inclusion strategies on economic growth of Nigeria 2009 – 2018 indicating loan to SMEs have a significant positive effect on economic growth in Nigeria". On the other hand, Adeola and Evans (2017) concluded in their study 1981-2014 that in the short run, microfinance positively and significantly had impact on financial inclusion; and in the long run, positively and statistically significant. Citing the work of Ene and Inemsit, (2015) on the impact of microfinance in promoting financial inclusion in Nigeria 1990-2014, Okereke & Callistus (2021) state "access to microfinance minimum deposit amount has a significant impact on savings account opened by rural dwellers."

3. METHODOLOGY

This study will adopt the positivists' research philosophy. The justification for choosing this research paradigm was that the study used a quantitative research approach to measure the variables, test casual theories in order to establish the relationship between variables of the study. Specifically, cross-sectional survey research design was adopted. This is due to the fact that the information about the independent variables and dependent variable represent what happened within a short time period. The population of this study comprised all the management staff (6 per bank) of the 37 microfinance banks, which is 37x6 = 222. The 37 microfinance banks constitute the financial infrastructure necessary for fostering financial inclusion located in 37

Local Government areas both urban and rural. Given the population size of 222, the study adopts census sampling. Thus, sample size of this study was 222.The primary source of data collection was used to collect the data needed for the study and the instrument was a well-structured questionnaire. The statistical package for social sciences (SPSS) and SmartPLS, Partial Lead Square Structural Equation Modelling (PLS-SEM) are the statistical tools that were used to perform the analysis of this study. The model specification adheres to the established conceptual framework. The model comprises of the dependent variables of the research model that needs to be estimated. Operational self-sufficiency, financial self-sufficiency and religiosity are the independent variables. While the dependent variable being financial inclusion.

4. RESULTS AND DISCUSSION

The present study adopted a two-step process to evaluate and report the results of PLS-SEM path, as suggested by Henseler, Ringle and Sinkovics (2009). This two-step process adopted in the present study comprises the measurement model and the structural model (Hair et al., 2014; Hair et al., 2012; Henseler et al., 2009)**.** Furthermore, having subjected the data to the screening stage and cleansed the data, the data is therefore ready for path modelling. SmartPLS 4.0.9.9 was employed to assess the measurement model and structural model for model fit and test of hypotheses respectively.

4.1 Measurement Model (outer model)

Analysis of the PLS-SEM measurement model involves determining individual item reliability, internal consistency reliability, convergent validity and discriminant validity (Hair et al., 2014; Hair et al., 2011; Henseler et al., 2009). The figure 4.1 and Table 4.1 present the measurement model of the study.

4.1.1 *Reliability and Convergent Validity*

Table 4.1 and figure 4.1 present the result of internal consistency reliability and convergent validity of this study.

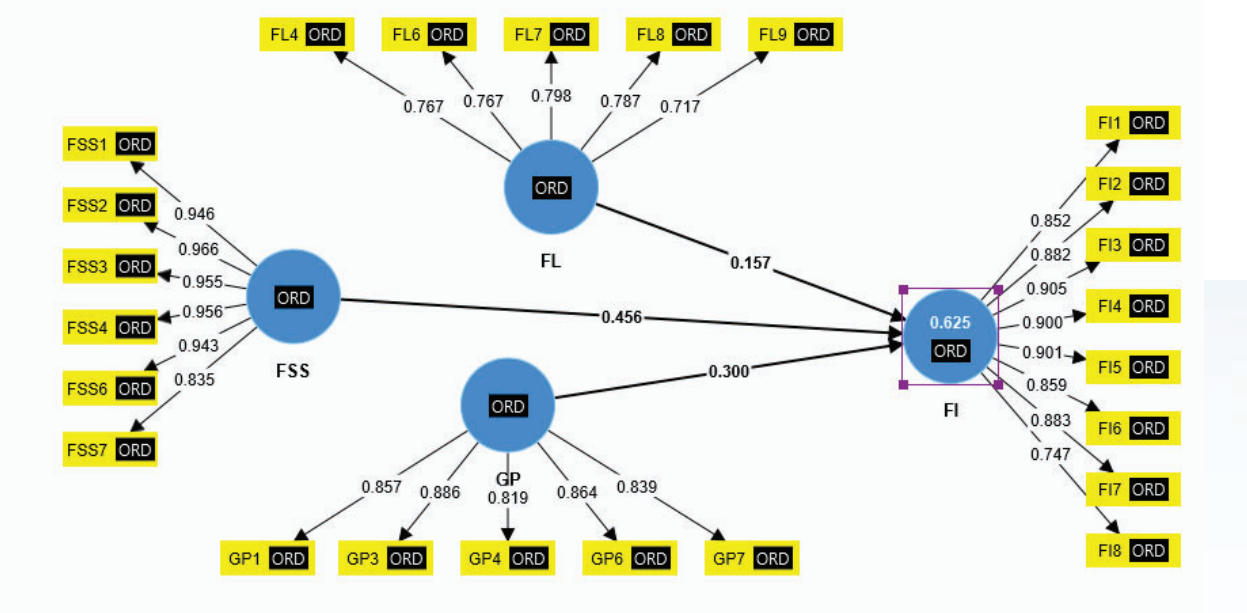

Figure 4.1: PLS Algorithm

Figure 4.1 depicts the measurement model of this study showing the individual items of each construct that met the benchmark of reliability. As can be seen, items presented here all met reliability threshold of 0.7 as suggested by Hair et al. (2013). Furthermore, the figure revealed an R^2 value of 0.625 signifying variance of the dependent variable due to corresponding change in the independent variables. The detail of the report of the model is presented in Table 4.1 below:

Table 4.1: Item Loadings, Construct Reliability and Convergent Validity

Constructs	Items	Loadings	CA	CR	AVE
Financial Inclusion	FI1	0.852	0.952	0.960	0.752
	FI2	0.882			
	FI3	0.905			
	FI4	0.900			
	FI5	0.901			
	FI6	0.859			
	FI7	0.883			
	FI8	0.747			
Financial literacy	FL4	0.767	0.831	0.878	0.589

	FL6	0.767			
	FL7	0.798			
	FL8	0.787			
	FL9	0.717			
Financial Self-Sufficiency	FSS1	0.946	0.970	0.976	0.873
	FSS2	0.966			
	FSS3	0.955			
	FSS4	0.956			
	FSS6	0.943			
	FSS7	0.835			
Government Policy	GP1	0.857	0.906	0.930	0.728
	GP3	0.886			
	GP4	0.819			
	GP6	0.864			
	GP7	0.839			

Note: CA= Cronbach Alpha, CR=Composite Reliability and AVE = Average Variance Extracted

From Table 4.1, loadings of items measuring individual construct were greater than 0.7 which is a minimum recommended value as contained in Hair et al. (2013). Items that failed this benchmark were deleted. Similarly, all the constructs in the study met the composite reliability benchmark of 0.7 and average variance extracted of 0.5. As shown in Table 4.1, the composite reliability coefficient of each constructs ranged from 0.805 to 0.900, with each exceeding the minimum acceptable level of .70, suggesting adequate internal consistency reliability of the measures used in this study (Bagozzi & Yi, 1988; Hair et al., 2011).

In addition, convergent validity was assessed by examining the Average Variance Extracted (AVE) of each construct, as suggested by Fornell and Larcker (1981). To achieve adequate convergent validity, Chin (1998) recommended that the AVE of each latent construct should be .50 or more. Following Chin (1998), the AVE values (see Table 4.1) exhibited high loadings (> .50) on their respective constructs, indicating adequate convergent validity.

4.1.2 *Discriminant Validity*

To achieve adequate discriminant validity of the constructs used in this study,Heterotrait Momentrait (HTMT) approach was used. HTMT refers to ratio of correlations within the constructs to correlations between the constructs. The approach is an estimate of what the true correlation between two constructs would be if they are perfectly measured. Kline (2011) recommended HTMT standard of 0.85 or less. However, Goldetal (2001) suggested that the value must not be greater than 0.90. The result is presented in Table 4.2.

Table 4.2: Heterotrait-Monotrait Ratio (HTMT) – Matrix

	FI	FL	FSS	GP
FI				
FL	0.539			
FSS	0.742	0.384		
GP	0.762	0.682	0.738	

The result of HTMT in Table 4.2 revealed that the cross loadings of all the constructs used in this study satisfy the condition of Kline (2011) as the coefficient of the intercorelations are less than 0.85. Thus, this further confirmed the validity of the measures employed in the study.

4.1.3 *Goodness of Fit of the Measure*

Henseler, Hubona, and Ray (2016) mentioned that "the overall goodness–of-fit (GoF) of the model should be the starting point of model assessment. If the model does not fit the data, obtained estimates may be meaningless, and conclusions drawn from the research become questionable. This study adopted the standardized root mean square residual (SRMR) to assess the fitness of the model of the study. Hu & Bentler (1999) recommended a threshold of <0.08.

Table 4.3: Model Fit

	Saturated model	Estimated model
SRMR	0.076	0.076
d_ULS	1.728	1.728
d_G	0.451	0.451
Chi-square	1051.000	1051.000
NFI	0.899	0.899

The result of Table 4.3 reported an SRMR coefficient of 0.074(7.4%) which is less than the acceptable bench mark of 0.08 (8%) recommended by Hu and Bentler (1999). This implied that the model employed in this study fit the data set.

4.2 *Structural Model (Inner model)*

The second part of the model is the structural model or inner model which Hair et' al. (2013) identified key criteria for assessing the structural model in PLS-SEM. These criteria include assessments of significance of the path coefficients, coefficient of determination (R^2) and the effect size (f^2). However, to ascertain the effect of independent variables on the dependent variable, it is important to carry out a bootstrapping analysis. Bootstrapping was done by using 5000 subsamples. Figure 4.2 presented the structural model of the effects.

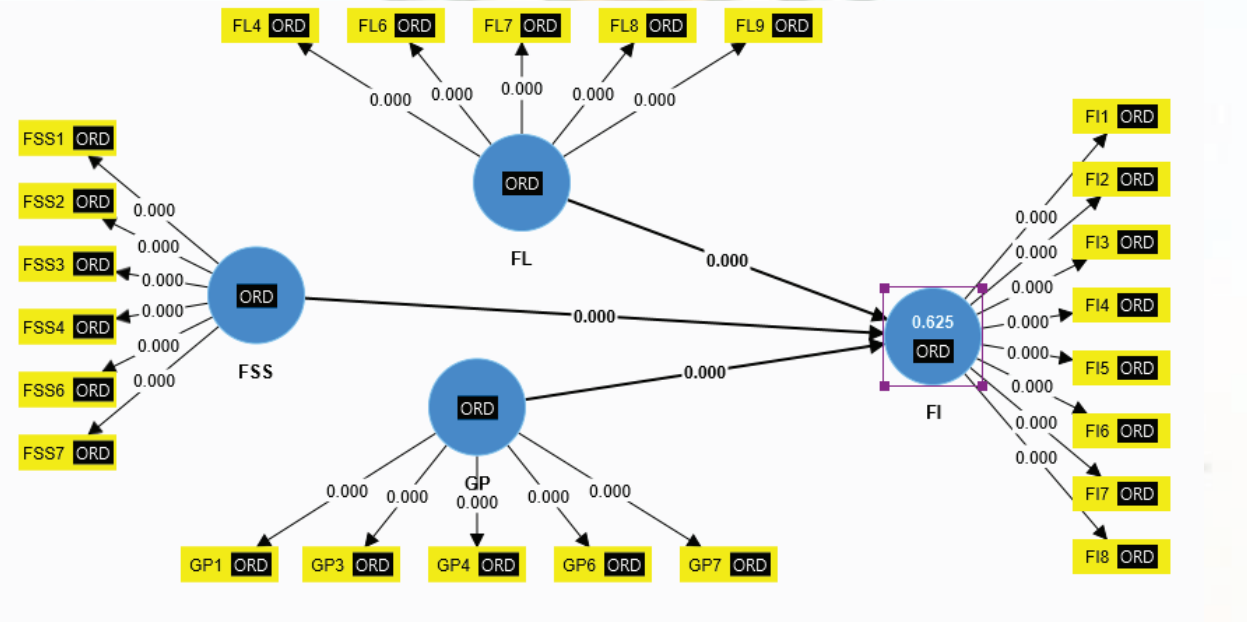

Figure 4.2: *Structural model*

Figure 4.2 presents the structural model of this study which indicates that H1 (p=0.000), H2 (p=0.000) and H3 (p=0.000) are statistically significant. The figure also revealed an R^2 value of 0.625 signifying variance in the dependent variable due to corresponding change in the independent variables.The details of the reports of the model are presented in Table 4.4 and Table 4.5:

4.2.1*Path Coefficient*

The path coefficient was examined to test the hypotheses of the study. The analysis presents the result of the effect of the microfinance banks on financial inclusion. Table 4.4 presents the results of the path coefficient of the structural model.

Table 4.8: Path coefficient of the structural model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FL -> FI	0.157	0.160	0.039	4.031	0.000
FSS -> FI	0.456	0.456	0.050	9.154	0.000
GP -> FI	0.300	0.299	0.060	4.989	0.000

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

From Table 4.4, it can be seen that financial literacy has significant positive effect on financial inclusion of microfinance banks (β=0.160; STD=0.039; t = 4.031; p = 0.000). Hence, hypothesis that states that financial literacy has no significant effect on financial inclusion of microfinance banks is rejected and the hypothesis that states that financial literacy has significant effect on financial inclusion of microfinance banks is accepted. This implies that efforts to make financial institutions financially self-sufficient can improve financial inclusion in Nigeria.

Furthermore, financial self-sufficiency has positive and significant effect on financial inclusion of microfinance banks (β = 0.456, STD=0.050, t-value = 9.154, p-value= 0.000). Hence, hypothesis that states that financial self-sufficiency has no significant effect on financial inclusion of microfinance banks is rejected while the hypothesis that states that financial self-sufficiency has significant effect on financial inclusion of microfinance banks is accepted. This impliedly, financial self-sufficiency can enhance financial inclusion of microfinance banks.

Lastly, Government policy accounted for a significant positive relationship with financial inclusion of microfinance banks (β = 0.299, STD=0.060, t-value = 4.989, p-value= 0.000). This implied that Government policy can improve financial inclusion of microfinance banks up to 29.9% (beta= 0.299). Thus, the study rejected the hypothesis that states that Government policy has no significant effect on financial inclusion of microfinance banks and accepted the hypothesis that states that Government policy has significant effect on financial inclusion of microfinance banks.

4.2.2 *Coefficient of Determinant*

In assessing the coefficient of determinant (R^2 value), Chin (1998) suggested that R^2 values of 0.67, 0.33, and 0.19 when using PLS-SEM path modeling should be classified as substantial, moderate, and weak, respectively. Table 4.4 presents the result of R^2.

Table 4.5: Coefficient of Determinant (R Squared)

Table 4.5: Coefficient of Determinant (R Squared)

	R-square	R-square adjusted	**Assessment criterion by Chin, (1998)**
FI	0.625	0.622	Substantial

Table 4.5 and Figure 4.2 displayed the variance explained of the first model (measurement model). Based on the criterion for assessing R^2 (Chin, 1998), all the independent variables explained 62.2% variance in financial inclusion. Thus, suggesting that all the microfinance institutions proxies employed in this study explained a substantial variance in financial inclusion of microfinance banks.

4.2.3 *Effect size*

To assess the effect size, F^2 values of 0.35, 0.15, and 0.02 recommended by Chin (1998) are considered large, medium, and small, respectively. Table 4.6 presents the result of effect size of the constructs used in this study.

Table 4.6: Effect Size of the Constructs

	f-square
FL -> FI	0.040
FSS -> FI	0.285
GP -> FI	0.089

From Table 4.6, financial literacy has a small effect size of 4.0% on financial inclusion of microfinance banks. Additionally, financial self-sufficiency has medium effect size of 28.5% on financial inclusion of microfinance banks. Lastly, Government policy has a small effect size of 8.9% on financial inclusion of microfinance banks. It can be concluded from this analysis that all the exogenous indicated an effect size on the endogenous variable.

4.3 Discussion of Quantitative Findings

This section discussed the results of the test of hypotheses formulated in chapter one of this study. The study examined the effect of microfinance banks on financial inclusion. The results are discussed as follows:

4.3.1 Financial literacy and Financial Inclusion

Financial literacy has positive and significant effect on financial inclusion of microfinance banks. Hence, efforts to make citizens financially literate can enhance access to, and use of financial services provided by microfinance banks. This implies that financial literacy can influence financial inclusion efforts of microfinance banks. Financial literacy development therefore is an important factor in fostering financial inclusion among the deprived and vulnerable segments of society.This finding is consistent with the findings of previous studies (Kartawinata*et al.,* 2021; Yayehyirad, 2023; Hussain *et al.,* 2020), who also documented significant and positive relationship between financial literacy and financial inclusion. They opined that financial literacy (IFS) is necessary for a microfinance institution (MFI) to obtain the large amount of funds required to reach and benefit truly large numbers of the poor and poorest households.

4.3.2 Financial Self-Sufficiency and Financial Inclusion

The result of this study confirmed that financial self-sufficiency has positive and significant effect on financial inclusion of microfinance banks. Therefore, governments and owners of capital must strive to create financially self-sufficient institutions that grow capital base, able to access commercial funding, expand outreach and make profit thereby becoming grant independent.

This implies that attainment of financial self-sufficiency can increase financial inclusion efforts of microfinance banks. This finding is consistent with the findings of previous studies by Chaudhury *et al.,* (2022), Yayehyirad (2023), Hussain *et al.,* (2020) who affirmed that it has a significant effect on the general performance of firms. Financial self-sufficiency stimulates creativity and innovation, fostering a sense of ownership and commitment among members to promote the inclusion of financially excluded individuals in the society.

4.3.3 Government Policy and Financial Inclusion

Government policy has positive and significant effect on financial inclusion of microfinance banks. Consequently,Kano state governments willing to establish microfinance banks must be ready to incorporate public-private-partnership with clear exit strategy for the institutions to stand the test of time. As a policy, the institutions must be insulted from political interference and operated as purely commercial enterprises to attain the self-sufficiency stage for sustainable financial inclusion drive.This implied that Government policy can significantly contribute in promoting financial inclusion of microfinance banks. This finding is inconsistent with the findings of previous studies such as Ilfta (2021), Salisu *et al.,* (2024), Amin *et al.,* (2023), Hafiz and Kitri (2019), Narayana and Shagishna (2021) and Istina*et al.,* (2024) who affirmed that it has a significant effect on financial inclusion.

5. CONCLUSIONAND RECOMMENDATIONS

From the findings of this study, financial self-sufficiency, financial literacy and Government policy proved to be significant drivers of financial inclusion. While the findings are relevant in achieving meaningful financial inclusion, the success of state-led microfinance initiatives depends on building politically insulated, well-governed institutions that bridge the chasm between high-level policy and practical execution through a hybrid model of state support and private-sector discipline. The findings of this study have provided empirical evidence and support for financial self-sufficiency, financial literacy, and Government policy as determinants of the development of sustainable microfinance banks to foster financial inclusion. Thus, State Governments wishing to replicate the Kano State Microfinance Banks Initiative should consider the following recommendations as basis for their financial inclusion strategy:

i. State Governments should ensure that the private sector is actively involved in the conception, planning and execution of establishing microfinance banks. In this regard, adequate provision should be made to funds the operation of the banks, and professional advice of the CBN and development partners should guide recruitment of Management, Board and Directors. The focus should be on developing financially sustainable institutions that could stand the test of time in financial inclusion efforts.

ii. Government, development partners, the CBN and owners of capital should invest in financial literacy development to make the populace financially literate as part of efforts to foster access to and use of financial services provided by microfinance banks. Financial literacy should be mainstreamed in Government programmes; development partners should participate in funding financial literacy development, and microfinance banks themselves should budget for clients' financial literacy programmes with CBN oversights.

iii. As a policy, sub-national Governments in Nigeria should participate in fostering financial inclusion. There is no doubt that the Kano State Government' experience has proved to be a game changer in supporting Federal Government's efforts to reduce financial exclusion. Establishing microfinance banks in deprived communities where the private sector is shy to invest will at least provide financial infrastructure that could support the emergence and expansion of small businesses to fuel economic growth and development.

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