MODERATION EFFECT OF FINANCIAL DEVELOPMENT ON THE RELATIONSHIP BETWEEN FINANCIAL INCLUSION AND CAPITAL STRUCTURE IN NIGERIA: EVIDENCE FROM A DYNAMIC MODEL

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Abstract

This study explores the moderation effect of financial development on the relationship between financial Inclusion and capital structure in Nigeria for the period between 2008 and 2024. Many studies that discuss the effect of Financial Development, financial Inclusion and capital structure appeared to generalize results across countries and sectors. This study aims to expand the literature by scrutinizing the relationship amongst financial development, financial Inclusion and capital structure on the Nigerian economy in order to add to the stock of information on the path and also to the new trends and relationship between macroeconomic variables (inflation, interest rate and growth rate of GDP, firm size, tax, profit) on the debt structure and access to finance of Nigerian non-financial firms. The study uses secondary data collected for Nigeria's non-financial companies and employs a dynamic model (2 step GMM) to analyze the data collected for the study. The study also provides for some policy implication based on corporate managers who are saddled with the responsibilities of managing the debt structure of the company, the financial institutions who in Nigeria play a greater role in financing debt requirements of these companies in questions, the policy makers who are saddled with the responsibilities of managing the macro-economic variables which are the measuring rods in the growth and development of an economy.

1. INTRODUCTION

Access to finance in developing countries especially Africa has become one of the crucial needs for investment and firm growth. According to Goel and Sharma (2017), finance plays a significant role in the development and growth of the core economy. Financial limitations are a topic of ongoing corporate finance research that impact businesses in both developed and developing economies. According to research, in particular, a first-order barrier to innovation, growth, and development is financial inaccessibility (Ayyagari et al., 2008; 2011). Additionally, smaller businesses are both most negatively impacted by and benefit from financial and institutional inclusive growth (Beck et al., 2005; 2006). Many empirical evidence convinced that effective, efficient and well-functioning financial system are crucial in channeling funds to the most appropriate productive uses and allocating it to where best it is needed, thus boosting economic growth, increase in business opportunities and income distribution (Demirguc-Kunt et al., 2018); (De la Torre et al., 2017). Access to finance and available inclusive financial services are relevant to economies at all levels of growth and development. The challenge of better access means making financial services such as credit,

savings, payment, insurance and other risk bearing management product available and affordable in order to facilitate sustained productivity and growth, especially for households and firms who play a crucial role in uplifting the economy to a greater height (Ahamed et al., 2017).

Capital structure is a component of the financial structure and it denotes the ratio of the various long-term sources of financing. The capital structure of firms comprises debt and equity securities use to finance their assets. Equity comes into effect when firms sell parts of their ownership rights to raise capital. Debt is a contractual agreement, which allows firms to borrow money and make repayment with interest for a specific period of time (Ross et al., 2017). Debt and equity have different cost to the firms, and the main issue in the capital structure literature is to determine the appropriate amount of debt and equity needed to finance the operation of firms. The determination of the appropriate amount of debt and equity finance remains an unresolved issue (Dao & Ta, 2020). Firms' focus more on the debt component of capital structure because it is a double edge sword that can increase firm-value performance when the economy is performing well but debt can decrease firm-value performance when the economy is performing poorly. Additionally, debt needs payments of fixed interest and too much debt increases the firms' inability to repay amount borrowed and fixed interest, particularly when the economy is performing poorly (Ross et al., 2017). Although debt increases financial risk, most firms around the world may use more debt because of the debt interest tax-shield which could increase firm-value performance.

Fundamentally, financial development is about overcoming costs incurred in the financial system. The process of reducing the costs of obtaining information, enforcing contracts, and making transactions resulted in the emergence of financial contracts, markets, and intermediaries. The five main functions of a financial system are to produce information ex ante about possible investments and allocate capital, monitor investments and exert corporate governance after financing is provided; facilitating the trading and management of risk, mobilize and pool savings; and to ease the exchange of goods and services. Financial development therefore occurs when financial markets, instruments, and intermediaries ease the effects of transactions costs, information, and enforcement; thus do a better job to provide the major functions of the financial sector in an economy (World Bank Report, 2016). But financial development level is low in several developing countries. Specifically, the cost of financial intermediation, mobilizing and pooling savings and transaction costs are high, which is an indication of inefficiency and underdevelopment of the financial sector (Ezeibekwe, 2020). In a country with weak financial development, firms may have difficulty to obtain debt capital needed to finance profitable investments, and capitalize on the debt interest tax-shield to maximize firm-value performance.

Over the years the level of financial development is improving in some developing countries as efforts are being made to reduce transaction costs and improve the financial intermediation function. However, the level of financial development in most developing countries is lower compared to the developed countries. Moreover, the financial sector in developing countries is still characterized by high transaction costs and inefficiency when allocating financial resources to the deficit sectors such as firms (Ezeibekwe, 2020).

In spite the fact that financial market development can complement financial inclusion (access to finance) via increasing firm's access to debt capital, yet the moderating impact of financial development on the link between financial inclusion (access to finance) and capital structure (debt) of firms in developing countries remain unexplored. Furthermore, financial market

development (especially debt market development) reduces costs of borrowing and makes it easier for firms to raise debt capital (Khémiri & Noubbigh, 2018). But debt market development is still at the developmental stage in most developing countries indicating that the problem of access to debt capital may persist. However, as the development of the debt market improves, financial inclusion (access to finance) may increase as banks can increase their deposit base, making firms have more access to raise debt capital to the desired level. It is with this that the study intends to investigate whether financial development enhances the relationship between financial inclusion and capital structure or not.

The study will be further divided into literature review, methodology, result and discussion, and summary, conclusion and recommendation.

2. LITERATURE REVIEW

This section will delve into the conceptual review which will consist of the concept financial inclusion, capital structure and financial development, theoretical framework and empirical review.

2.1 Conceptual Review

2.1.1 Concept of Financial Inclusion

Financial inclusion or access to finance is the ability to access appropriate financial products and services. The World Bank (2016) stated that financial inclusion and access to finance are different principles. However, failure to use financial services does not necessarily mean a lack of access. Many people may have access to financial services at a reasonable price, but choose not to use them for religious and other purposes. Nonetheless, other people may have access to these services or regulatory barriers restricted by high costs. Therefore, it is the extent to which a lack of inclusion stems from a lack of demand or obstacles that prevent individuals and businesses from accessing financial services (World Bank Group, 2016). Therefore, the financial institution provides customer-friendly services at an affordable price, is cost-effective or economically rational, and considers real consumer access to financial services to be timely (Demirguc-Kunt et al., 2018).

2.1.2 Concept of Financial Development

Financial development marks the improvement of quantity, quality, and efficiency in financial intermediary services. It refers to the development of well-functioning financial markets and intermediaries (Sigh, 2019). Additionally, the World Economic Forum (2012) published a Financial Development Report, which defined financial development as the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services. Hence, financial development occurs when financial instruments, markets, and intermediaries ameliorate. However, this does not necessarily eliminate the effects of information, enforcement and transactions cost and ultimately provide better financial functions. Financial development involves improvement in the production of ex-ante information about possible investments, monitoring of investment

and implementation of corporate governance, trading diversification, and management of risk, mobilization & pooling of savings, and exchange of goods and services.

2.1.3 Concept of Capital Structure

Capital structure sometimes refers to financial structure (Okuda & Aiba, 2018) and the ability of a firm to manage its debt and equity side-by-side and be able to achieve the firms' objectives, which is geared towards profitability. The capital structure marks the financial decisions made related to fund-raisings from several sources of funds that comprise of internal (retained earnings) and external financing (debt and equity) (Shahar & Manja, 2018). Additionally, capital structure is a combination of debt and equity used in financing firms' operations (Islam and Khandaker, 2015). Capital structure is a part of the financial structure and it refers to the proportion of the various short and long-term sources of financing (Acaravci, 2015). Besides, capital structure is a financial plan to raise funds from various sources of funds (Awan & Amin, 2014).

2.2 Theoretical Framework

2.2.1 Financial Inclusion and Capital Structure Relation

The trade-off theory advocated that a company's optimum amount of financing through debt is assessed by trade-offs between borrowing costs and benefits, keeping the company's assets, and investment plans stable. (Myers, 1984). Nonetheless, Schumpeter (1911) stated that the financial inclusion theory led to firm growth. Therefore, more access to finance by a firm means intensive use of debt financing, and therefore, the company opts to pay higher interest rates and lower taxes as interest is tax-deductible (Abeywardhana, 2017). Therefore, firm financing via debt is advantageous because of the payment of interest, which is tax-deductible (Clemente-Almendrosa & Sogorb-Mira, 2018). Although excessive use of equity funding is free of interest, it results in high tax rate payments (Abeywardhana, 2017). Firms will try to obtain a debt financing level that smoothens the tax benefits of an extra debt towards the potential bankruptcy costs often known as financial distress (Brealey et al., 2011; Myers, 2001). Trade-off theory is important, useful, and widely accepted by many firms because it justifies the reason why a firm should access finance and should not use debt excessively. Financial inclusion plays a pivotal role in increasing the debt level in the capital structure of firms in developing countries. Therefore, financial inclusion would be positively related to capital structure (debt ratio).

2.2.2 Financial Development, Financial Inclusion and Capital Structure Relation

Financial inclusion theory advocated a positive and significant link between finance and development (Thakor 1996; Fry 1978; Hicks 1969). Hence, financial inclusion theory seeks funding (debt funding) via firms to finance their capital structure becomes inevitable. However, the trade-off theory by Jensen and Meckling (1976) advocated the presence of bankruptcy costs. It argued that debt financing benefits are, tax benefits of debt, and debt financing cost is the cost of bankruptcy and cost of financial debt distress. Hence, the extra debt gain decreased as debt grew. On the other hand, additional cost increased because a business, which optimized

its overall value relied on this trade-off when deciding how much debt is used for financing (Jensen, 1986). Additional debt risks included the future cost of bankruptcy and bondholders 'control of investment costs associated with the business operations. Alternative financial sources ' cost and benefits were traded off until the marginal equity cost is equal to the marginal debt cost, resulting in the optimum capital structure. Moreover, financial inclusion (access to finance) increased when the financial markets developed. Therefore, the development of financial markets (especially the debt markets development) enhanced financial inclusion because more depositors could be attracted and banks' deposit base increased as more depositors banked their money. Therefore, financial development should positively moderate the relationship between financial inclusion and capital structure.

2.3 Empirical Literature

2.3.1 Financial Inclusion and Capital Structure in Developing Countries

Financial inclusion and capital structure are faces on the same coin. Financial inclusion deals with strategies that help firms gain access to loans and finance their capital structure whereas capital structure is the funding in the form of debt a firm needs to expand its business activities.

Edeminam & Abdullahi (2022) study investigates the effect of financial inclusion on external debt in Nigeria, South Africa, Kenya, and Egypt, using annual time series data from 1990 to 2020. The data was sourced from the World Bank. The variables used in the study are market capitalization of listed domestic companies as a percentage of GDP, external debt stock, current account balance as a percentage of GDP, broad money (M3) as a percentage of GDP, and gross fixed capital formation as a percentage of GDP. The unit root test for stationarity was done using Augmented Dickey Fuller unit root test. The result of the unit root test informed the choice of Long Run Form and Bounds test, and Johansen Cointegration techniques for investigating long run relationships. The result showed the presence of a long run relationship between financial inclusion and external debt for Nigeria, South Africa, Kenya, and Egypt. The result also showed a positive relationship between financial inclusion and external debt. This is because a strong financial system will increase access to external debt because of good credit ratings.

Tirumalsety and Gurtoo (2019) discussed the impact of financial sources on a firm’s capital structure, quantified the ratio of financial debt to total assets, and examined the relationship between financial debt and performance. The study collected data from 207 firms in Karnataka, Telangana, Maharashtra, and Tamil Nadu (states in India). The collected data focused on income distribution, financial sources, and financial statements via cluster sampling. The research employed panel data and applied multiple regression analysis to test the study objectives. The results suggested that firms prioritize capital investment debt from investors over impact investments and also formal institution debt. Additionally, the financial debt harmed the return of capital, which was utilized as a performance component of firms. The financial debt had no impact on financial performance and implied that firms were separate from funders. Moreover, findings still showed that the ability of firms to make efficient useof

capital to create returns may be adversely impacted by the repayment of interest and debts to borrowers.

In the same vein, Wasiuzzaman and Nurdin (2019) examined debt financing decisions of firms in emerging economies based on the Malaysian context. The study specifically discussed the different factors that influenced small and medium-sized enterprises' (SME) decision to apply for bank loans. Hence, the study employed survey responses from 145 firms in Selangor and the Federal Territory of Kuala Lumpur. The data were analyzed via exploratory factor analysis, logistical regression, and SEM-PLS. The outcomes revealed that the financial performance access to finance and the legal form of a firm played an important positive role in its decision to apply for debt funding. Private small and medium-sized companies that performed well and had access to different funding options were more likely to apply for funding. There was also evidence, however, that credit history had a significant negative impact on the decision to apply for funding, as firms with poor credit history were more likely to apply for funding. The findings showed that the firm's age had poor impact whereas its size was considered negligible in affecting its funding decision. The results suggested the role of financial market imperfections like adverse selection and information asymmetry in explaining the debt financing demand of firms. Therefore, the research resulted in a deeper understanding of firms ' debt funding decisions.

Moreover, Levy (2019), revised the different heterodox approaches on finance with regards to capital structure decisions, which distinguished the production processes and investments of finished goods based on the differences between financial structures in developing countries. The study reviewed Keynes, Circuitists, and Kalecki on debt creation and debt destruction. Additionally, the study took into account the role of profit circulation and the forms they adopted in developing countries.

Moreover, Salome et al. (2018) provided an empirical analysis of the existing links between financial inclusion and credit risk of commercial banks in Kenya. The study analysed the impact of financial inclusion on credit risk and the mediation effect of bank competitiveness in Kenya. Three dimensions were used to measure financial inclusion, bank dimensions available, accessibility of banks and bank usage, and bank competitiveness used (HHI); while non-performing loan ratio was used as a proxy for credit risk. The population of the study included 43 banks in Kenya. Secondary data was collected for the study. For example, the annual report on the central bank of Kenya, commercial banks of Kenya audited financial statements, and the central bureau of statistics of Kenya's annual report from 2007 - 2015. The study used descriptive statistics and panel multiple regression analysis to analyze data. The result shows that the availability of banks, accessibility of banks, and bank usage affect significantly on financial inclusion and credit risk. The findings of the study concluded that financial inclusion had a significant effect on the stability of commercial banks in Kenya. The study recommended that commercial banks should design policies, which would enable stability and competition to boost financial inclusion over time.

Similarly, Okunda and Aiba (2018) utilised survey data to determine the ratio of commercial bank loans to total assets via bank loans that were available in the US dollar. The study applied

Heckman's sample model of selection to correct biases sample selection. The study found that a firm's behaviour with regards to decisions on finance was complicated. Therefore, firms with a strong capacity to generate funds and high return on assets were more susceptible to the risk of currency mismatch, in comparison to firms with a lower return on assets. The study posited that Cambodian firms with local revenues will be better off with the development of a local currency loan market to reduce their mismatch currency. However, it resulted in higher financial deepening and inclusion and reduced the pressure of systematic risk to financial institutions. The findings also detected that insurance and collateral were significantly linked when associated with loans. It showed that asymmetric information may be overcome in loan access.

Shamshur (2010) explored the significance of financial barriers related to capital structure decisions of firms during the economic transition between 1996 and 2006. The study was done based on an unknown sample separation technique to the endogenous switching regression model. The research indicated that divergences in funding constraints had a major impact on the capital structure of a firm. As a result, restrained and unrestrained companies differed in the determinants of capital structure. The study, in particular, pointed out that tangibility tends was an essential leverage determinant for restrained firms, whereas macroeconomic characteristics (GDP and projected inflation) influenced unrestrained firms ' leverage rates, and indicated that firms adapted their capital structure in response to changes in macroeconomic factors. Additionally, financially unrestrained companies changed their capital structures more rapidly to the target level, as it was with the previous evidence.

2.3.2 Moderating Effects of Financial Development on Financial Inclusion-Capital Structure Relation

Several studies were carried out to examine the moderating impact of finance and economic variables. Nonetheless, zero work of literature explored the moderating effect of financial development on the relationship between financial inclusion and capital structure. However, one study examined two out of three variables. Ahiase et al. (2025) study examines the moderating role of debt sustainability on the nexus between financial and economic growth in African countries. The study utilized data from various sources, such as the World Bank and International Monetary Fund databases, specifically the World Development Indicators and Financial Access Survey. The data covered the period from 2004 to 2021 and focused on 53 African countries using a two-step generalized method of moments system with forward orthogonal deviations to analyzed the data collected for the study. The study findings indicate a direct link between financial inclusion and economic growth in African nations. In particular, the availability and utilization of mobile money services are significant factors in promoting financial inclusion. Our study also highlights that excessive debt can impede economic growth by limiting the capacity of financial institutions to offer loans and other vital financial services.

Pal & Bandyopadhyay (2022) study investigates the effect of financial inclusion on economic growth, financial development, bank's financial efficiency, financial stability, and bank's profitability in high, low and middle-income countries by controlling income inequality, gross fixed capital formation, population growth, and inflation as key determinants. Using the annual

data from 1984 to 2018, the long-run estimates from FMOLS and DOLS model reveal that financial inclusion spurs economic growth, financial development with financial institutions and markets, bank's financial efficiency, financial stability, and bank's profitability in each level of income group.

Wei and Kong (2017) examined corruption, financial development, and capital structure in China. The study sampled a series of companies between 1998 and 2018 from Shanghai and Shenzhen stock markets to analyze the relationship between bribery and financial growth and how they determined the company's capital structure in the Chinese legal environment. Overall, the study utilised the listed companies at China's regional level from 1998 to 2013. Furthermore, the data was analysed based on the two-step GMM estimation to examine the interactions between bribery and financial growth on a company's capital structure in the Chinese legal environment.

Both variables controlled the legal environment of China, the internal factors of a company, and the factors of the industry as a result of issues related to endogeneity. Therefore, results revealed that corruption and financial development had a strong and positive impact on the bank loans of a company. Nevertheless, the paper discovered that in areas with higher levels of corruption, the financial development did not increase bank loans to a company based on the interaction between corruption and financial development. However, corruption and financial development had minimal impact on the long-term bank loans of a firm. The results in this study indicated that the capital structure of a company was influenced not only by the internal factors of the company but also by the external factors of the company, as well as the relationships between these factors. Hence, the next point for reformation should strengthen their procedures for administrative review bank creditors' approval to enhance the financing conditions of firms' credit, reinforce punishment, and prevent credit and judicial corruption. This was done to reduce the adverse effects of corruption on the companies' decisions of capital structure.

3. METHODOLOGY

This section will consist of data, data source, method of estimation and model specification for the study.

3.1 Data

The study uses secondary data collected for 102 Nigeria's non-financial companies from 2018 to 2024.

3.2 Estimation Method

The study employed the panel generalized methods of the moment to test the hypotheses for the study. Hence, the study used the system GMM estimation techniques that included firm-specific effects to estimate. The dependent variable lagged in the model specification made the model a dynamic one. Therefore, a dynamic panel model with a lagged dependent variable consisted of many firms and a small number of years. Additionally, it would be impossible to achieve consistent estimations of parameters via Ordinary Least Squares (OLS). There are,

therefore, two reasons why OLS cannot be employed: (a) unobservable firm-specific effects possibly are correlated with other independent variables, b) the whole independent variables are possibly not exogenous. If the whole independent variables are not exogenous, the conventional ordinary least squares technique cannot be employed because it had violated one of the assumptions of the classical linear regression model that all independent variables should be exogenous.

3.3 Model specification

$$TDTAij,t= \lambda TDTAij,t-1+\beta 0+\beta 1ATMj,t+\beta 2BCPSj,t+\beta 3(ATMj,t*BCPSj,t)+\beta 4Slogj,t+\beta 5FAij,t+\beta 6PRFTSij,t+\beta 7MTBij,t+\beta 8NDTSij,t+\beta 9INFj,t+\beta 10INTj,t+\beta 11GDPGj,t+\beta 12MCGDPj,t+\phi i+\alpha t+\mu it \quad (1)$$

Where:

TDTA = Ratio of Total Debt to Total Assets
ATM = Automated Teller Machine per 100,000 adults
BCPS = Ratio of Bank Credit to the Private Sector
SIZE = Sales Volume
FA = Ratio of Property, Plant, and Equipment to Total Assets
PRFTS = Ratio of Earnings before Interest and Tax to Total Assets
NDTS = Ratio of Non-Debt Tax Shield to Total Assets
INF = Inflation Rate
INT = Interest rate
GDPG = Gross Domestic Product Growth
ϕi = Firm Fixed Effects
αt =Year Fixed Effects
λ = Adjustment Parameter
μ = Error Term

4. RESULT AND DISCUSSIONS

This section presented the descriptive statistics, correlation results, and the generalized method of the moment's results. The descriptive statistics highlighted the features of the data. The correlation results showed the bivariate connection between the variables and detected the presence of a multicollinearity problem. On the other hand, the generalized method of moments established a causal connection between debt and explanatory variables as well as between firm-value performance and explanatory variables.

4.1 Descriptive Statistics

Therefore, Table 1 depicts a critical examination of the descriptive statistics for both the dependent and independent variables. Based on the table, it shows that all variable's mean was

higher than the median, except for gross domestic product growth rate (GDPG) variable. Therefore, the data was mostly characterized by positive skewness. The mean values of total debt to total asset is high, deduced that firms in Nigeria used more debt in their capital structure. The automatic teller machine (ATM) had a mean value of 27.23. The disparity of value between ATMs were 2.012 (minimum value) and 108.236 (maximum value) for a series of firms. Hence, several firms in Nigeria have more access to finance than others as a result of additional automatic teller machines.

Table 1 Summary of Descriptive Statistics

Index	TDTA	ATM	BCPS	SLlog	FA	PRFT	NDTS	INF	INT	GDPG
Mean	4.45	27.23	45.14	14.84	0.319	0.072	0.056	6.273	10.43	4.97
Median	2.39	19.21	49.52	14.68	0.348	0.070	0.045	6.217	9.45	7.04
Max	7.93	108.23	131.01	26.03	52.329	19.196	857.54	17.45	43.10	12.05
Min	0.011	2.012	9.54	0.001	0.100	-4.521	0.001	0.702	4.32	-3.41
Std. Dev.	3.30	22.59	17.90	2.96	0.210	0.436	4.561	3.894	6.17	2.34
Skewness	0.82	1.28	0.75	0.36	34.44	35.23	167.22	0.254	3.59	-0.57

Source: Researcher's computation using Stata 14.

4.2 Correlation results

Table 2 presents the correlation coefficient between total debts to total assets ratio (TDTA) and an automated teller machine. The results were statistically significant at 5% and depicted a positive value of 0.024.

Besides, the correlation coefficient between total debts to total assets ratio and BCPS was statistically significant and positive (0.062). This suggested that an increase in the bank credit to private sector would increase the debt too. Moreover, the correlation coefficient between total debts to total assets ratio and firm size (SLlog) was statistically significant and positive (0.082). Likewise, the correlation coefficient between total debts to total assets and fixed assets was statistically significant and positive (0.131). This implied if firm size and fixed assets increased, debt increased too. Furthermore, the correlation coefficient between total debt to total assets ratio and MTB (growth opportunity) was positive and statistically significant. Hence, if growth opportunity increased, debt would increase simultaneously. Similarly, the correlation coefficient between total debt to total assets ratio and profit was statistically significant and positive. Therefore, when profit increased, debt increased instantaneously. Moreover, the total debts to total assets were negatively and statistically significant to non-debt tax shields. However, the correlation coefficient between total debt to total assets' ratio and the inflation rate was statistically significant and positive. Hence, with favourable inflation rates firms could increase the level of debts.

Similarly, the correlation coefficient between total debts to total assets ratio, and the interest rate was statistically significant and positive. This suggested that if the interest rate increased, debt increased too. Likewise, the correlation coefficient between total debts to total assets ratio, and GDPG was statistically significant and positive. Hence, increased GDPG resulted in increased debt. By the same token, the correlation coefficient between total debts to total assets ratio, and MCGDP was statistically significant and positive. Therefore, debt increased when MCGDP increased in the economic platform.

Table 2 Correlation Estimation

	TDTA	ATM	BCPS	SLlog	FA	PRFTS	MTB	NDTS	INF	INT	GDPG
TDTA	1.000										
ATM	0.024[a]	1.000									
BCPS	0.062[a]	0.432 [a]	1.000								
SLlog	0.082[a]	-0.051	-0.362[a]	1.000							
FA	0.131[a]	-0.023[a]	-0.059[a]	0.050 [a]	1.000						
PRFTS	0.072[a]	-0.051[a]	-0.061 [a]	0.142 [a]	-0.023 [a]	1.000					
NDTS	-0.006	0.0021	0.015	-0.007 [a]	-0.005	-0.001	-0.019 [a]	1.000			
INF	0.073[a]	-0.581 [a]	-0.573 [a]	0.034 [a]	0.002	0.021[a]	-0.003	0.006	1.000		
INT	0.052[a]	0.133 [a]	-0.288 [a]	0.046 [a]	-0.009	0.006 [a]	0.006	-0.004	0.452 [a]	1.000	
GDPG	0.041[a]	-0.561 [a]	-0.247 [a]	-0.012	-0.002	0.005	0.009	-0.005	0.269 [a]	-0.276 [a]	1.000

Source: Researcher's computation using Stata 14.

4.3 Static and Dynamic Estimation Results

The static panel model estimation was employed for three objectives with six models before applying the system generalized method of moments (GMM) to estimate the dynamic panel models in the study. The main variables for the static result (consisting of Pooled OLS, Random Effects, Fixed Effects, and OLS with Heteroscedasticity and serial correlation robust standard errors models) were positive and statistically significant. The Breush-Pargan LM test was conducted to choose between the pooled ordinary least squares (OLS) and random effects estimation. Hence, the p-value for the Breush-Pargan LM test for the six models was (0.000). Therefore, the random effect was more appropriate to estimate the model than the pooled OLS. Furthermore, the Hausman test was conducted to choose between the random effects and the fixed effect estimation. Hence, the p-value for the six models based on the Hausman test was (0.000). Thus, the null was rejected indicating that the fixed-effect was appropriate for all the models. As such the dynamic model estimation could be applied to the present study. The present study aimed to answer the research objectives.

First, the study examined the relationship between financial inclusion and capital structure. Second, the study investigated the moderating effect of financial development on the relationship between financial inclusion and capital structure. Next, the study examined the moderating effect of financial inclusion on the relationship between capital structure and firm-value performance via a dynamic model (two-step system GMM) to estimate the data collected from 4642 firms in 22 developing countries.

Then, the study estimated the dynamic panel model based on financial inclusion and trade-off theories. The study used the total debt to debt assets ratios as dependent variables for models 1 to 4. The System GMM was the main estimation technique. The System GMM combined equations in levels and equations in the first difference to estimate the parameters. Therefore, System GMM used more information to estimate the parameters. System GMM is one of the best methods to estimate dynamic panel models in firm-specific effects and the endogeneity of some explanatory variables (Flannery et al., 2013).

Moreover, the study reported two statistical tests: first-order and second-order serial correlation of residual tests to confirm the applicability of the system GMM estimation technique. The test result of second-order serial correlation under the null of no serial correlation in the residuals was accepted for the trade-off model, which used total debt to total assets ratio as the dependent variable. This is because the p-values were high and not statistically significant. Hence, there was no second-order serial correlation in the residuals of the models. Nonetheless, there was a first-order serial correlation because the error terms were correlated with the lagged dependent variable in the model specification.

4.4 Generalized Method of Moments Results

Table 4.6 reports the moderating effects of financial development on the relationship between financial inclusion and capital structure via System GMM. The financial development was measured as bank credit to private sector (BCPS), whereas financial inclusion was proxied by automated teller machines (ATM), and the capital structure as debt. The study also focused on the coefficient of the interaction terms, which indicated how a one-unit financial development change impact the debt changes. Hence, the co-efficient of the interaction terms (ATM x BCPS) was marginally significant at 1% and positive (0.005***) while the t-statistics was 5.32 (see Table 3). The interaction term expected a sign to measure the financial inclusion (i.e. automated teller machines). This signified that financial development had significantly and positively moderated the relationship between capital structure (total debts to total assets ratio) and financial inclusion (automated teller machines). Besides, financial inclusion had a direct positive impact on debt. Therefore, the results suggested that financial development had positively moderated the relationship between debt ratio and financial inclusion. Intuitively, the results suggested that the effort to promote financial market development complemented the banks' financial inclusion strategies (through opening more ATMs centres) and therefore, firms would have more access to debt capital to maximise interest tax-shield benefits of debt.

Moreover, results revealed a direct positive and significant relationship between financial inclusion, financial development, firm size, inflation rate, interest rate, and capital structure (see Table 3). The financial inclusion (ATM) coefficient was positive (0.050**) and statistically significant at 5%, and the t-statistics was 2.70. Additionally, the financial development (BCPS) coefficient was positive and statistically significant (0.037**) at 5%, and the t-statistics was 3.46. The firm size (SLlog) coefficient was positive and statistically significant (0.057***) at 1%, with a t-statistic value of 7.72. Then, the inflation rate (INF) coefficient was positive and statistically significant (0.030***) at 1% and the t-statistics was

5.58. Finally, the interest rate (INT) coefficient and t-statistic were 0.021*** (4.94) positive and statistically significant at 1 per cent.

Table 3 Panel Static and Dynamic Results

	Pooled OLS	Random Effect	Fixed Effect	OLS (Hetero & Serial correl.)	System-GMM Two-step
Variables	TDTA	TDTA	TDTA	TDTA	TDTA
$TDTAit-_1$	-	-	-	-	0.745
					(36.41)
ATM	0.001***	0.030**	0.021***	0.009***	0.050**
	(5.02)	(4.73)	(3.92)	(3.95)	(2.70)
BCPS	0.010***	0.025**	0.036***	0.010***	0.037**
	(8.31)	(2.88)	(2.95)	(4.84)	(3436)
ATM*BCPS	0.001***	0.001***	0.001***	0.001***	0.005**
	(6.65)	(3.95)	(3.64)	(4.30)	(5.32)
SLlog	0.074***	0.056***	0.037***	0.088***	0.057***
	(26.10)	(8.94)	(3.72)	(8.73)	(7.72)
FA	0.755***	0.351***	0.199***	0.755**	0.442
	(20.50)	(8.39)	(4.93)	(3.30)	(3.53)
PRFTS	-1.496***	-0.662***	-0.444***	-1.496**	-2.709***
	(-22.06)	(-11.51)	(-7.49)	(-2.42)	(-4.61)
MTB	-0.014***	-0.007***	0.003***	-0.016***	-0.001
	(-9.40)	(-3.42)	(3.73)	(-2.58)	(-0.27)
NDTS	-0.003	-0.003	-0.003	-0.003***	-0.124
	(-1.38)	(-1.79)	(-1.78)	(-19.42)	(-0.82)
INF	0.035**	0.018***	0.016***	0.040***	0.030***
	(6.61)	(4.24)	(3.84)	(4.91)	(5.58)
INT	0.021***	0.015***	0.002	0.021***	0.021***
	(7.84)	(4.34)	(0.51)	(4.67)	(4.94)
GDPG	0.019	-0.005	-0.016*	0.009	0.014
	(1.56)	(-0.59)	(-1.98)	(1.18)	(1.60)
MCGDP	-0.012***	-0.012***	-0.002*	-0.004***	-0.007
	(-6.42)	(-3.76)	(-1.98)	(-3.95)	(-0.96)
Constant	0.727***	1.755***	3.083***	0.725**	-
	(5.98)	(9.59)	(9.61)	(2.64)	
Observations	714	714	714	714	714
R-squared	0.072	0.054	0.032	0.067	-
Number of firms	102	102	102	102	102
Breusch-pagan LM test (p-value)	-	0.000	-	-	-
Hausman test (p-value)	-	-	0.000	-	-

Multicollinearity (VIF)	6.25	-	-	-	-
Heteroscedasticity (p-value)	0.000	-	-	-	-
Serial Correlation (p-value)	0.000	-	-	-	-
Industry effects	-	-	-	-	Yes
Firm fixed effect	-	-	Yes	-	-
Year fixed effect	-	-	-	-	Yes
AR(1)	-	-	-	-	0.000
AR(2)	-	-	-	-	0.220
Sargan Test	-	-	-	-	-
Instruments	-	-	-	-	104

Source: Author's computation using Stata

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This section depicted the findings and implication of financial inclusion on capital structure, the findings and implication of financial development on the relationship financial inclusion and capital structure, and the findings and implication of the impact of financial inclusion on the relationship between capital structure and firm-value performance. Finally, the chapter ended with the contribution, limitation of the study, and recommendation for future research.

The firms in developing countries use more debt in their capital structure to take advantage of interest tax shield benefits to increase firm value. Nonetheless, the capital structure determinants remain a puzzle and financial inclusion is a potential determinant of capital structure. Therefore, the present study argued and confirmed that financial inclusion is a potential determinant of the firms' capital structure, and financial development positively moderates the relationship between financial inclusion and capital structure, whereas financial inclusion positively moderates the relationship between capital structure and firm-value performance.

Hence, the present study employed the system generalized method of moments as the main medium of estimation to achieve three objectives. First, the study investigated financial inclusion as a determinant of a firm's capital structure. Second, the study examined the moderating effect of financial development on the relationship between capital structure (debt ratio) and financial inclusion. Third, the study investigated the moderating effect of financial inclusion on the relationship between capital structure (debt ratio) and firm-value performance.

The outcomes revealed that financial inclusion is a determinant of capital structure in developing countries. Therefore, the results were robust to alternative model specifications and a different financial inclusion proxy.

Financial inclusion was statistically significant and positively related to capital structure (debt ratio). Additionally, financial development was statistically significant and had positively moderated the relationship between capital structure and financial inclusion. Moreover, results revealed that financial inclusion was statistically significant and had positively moderated the relationship between capital structure and firm-value performance in developing countries

5.2 Recommendations

The study outlined the following recommendations based on the finding of the study.

1. Firms in the non-financial sector can take advantage of interest tax-shield benefits to raise debt levels in their capital structure when they get more access to debt capital.
2. Financial managers could benefit from raising additional capital because banks' financial inclusion strategy attracted more deposits to lend to firms. Besides, the banks' financial inclusion strategy included the provision of more ATMs to the public. This would eventually attract more deposit and the banks could lend to firms for profitable ventures.
3. Financial managers can raise the necessary debt capital to fund positive investment projects from banks that possess attractive financial strategies to lure in more deposits. Besides, shareholders should employ firm managers with sufficient debt financing strategies who could enhance capital structure choices. Firm managers with debt financing strategies make higher quality decisions because their previous debt financing experience allowed them to have practical insights on better debt financing strategic decisions such as capital structure decisions and the maximisation of shareholders' returns.
4. Financial development is a direct activity of the policymakers. These policies should provide an enabling environment for the banks, shareholders, and firm managers to conduct their business activities freely and securely. Therefore, the policymakers should enact policies that promote financial market development because such policies would complement the banks' financial inclusion strategies and firms would have more access to debt capital.

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