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Financial inclusion and financial stability: Survey of the Nigeria's financial system

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Abstract
Financial inclusion is gaining greater recognition in the present days often with government support. Nigeria launched the financial inclusion agenda in 2012 with the aim to reduce the number of unbanked populations to 20 percent by the year 2020, and at the same time reduce to barest minimum, the credit constrain face by firms in the economy. However, greater financial inclusion alters the behaviour of both consumers, firms and even the financial intermediaries in such a way that it can affects the stability of the financial system in totality. This study focused on this aspect. The result of the study found that greater financial inclusion is associated with financial instability. It therefore recommends that policy makers and regulators to synchronize effort in order to achieve greater financial inclusion while at the same time, minimising the inclusion-induced instability in the financial system.

Keywords: Financial inclusion, financial stability

1. Introduction
As the need of financial inclusion in Nigeria is irrefutable, so also the need to know the nexus between financial inclusion and financial stability. It has been estimated that there about 1.7 billion unbanked people worldwide. And, since account ownership is prevalent in the developed countries, it then follows that majority of these unbanked people are from the developing countries. Specifically, the global financial index report of 2017 noted that nearly fifty percent of the world's unbanked population originated from just seven countries of which Nigeria is among. Therefore, aside being capable of uplifting the status of financially underserved and financially constrained economic agents, an inclusive financial system is also expected to specifically contribute towards fostering greater social, financial and economic stability that will encompasses all (Khan, 2011) [3]. The rapid transformation of Africa's financial environment as a result of technological advancements, new products and services and innovative business models have been seen as a driving force to actualizing this agenda.

The relationship between financial inclusion and equitable growth has also been documented in the literature. For example, the major global platforms, including the United Nation's Sustainable Development Goals, have incorporated the objective of broader access to financial services, and urged developing countries to also incorporate it into their development strategies. Saving money, accessing credit and managing financial risk are important aspect of financial inclusion. For instance, increase in savings enhances deposit base of banks and lead to increase in credit supply to firms and individual in the economy. The increase in credit in turn will also lead to the development of the real sector. Growth in the real sector on the other hand will lead to reduction in poverty, improve redistribution of income and system stability. For that reason, financial inclusion is seen as one of the strategies to increase inclusive growth in most of the developing and emerging economies.

However, it has been argued that financial inclusion may be associated with the possibility of either heightening stability or instability of the financial system. It increases stability through deepening of the financial sector, making it possible for individuals and firms to enjoy financial services like credit and alike easily and at affordable cost. On the other hand, it can result to instability if the expansion of the credit was as due to speculative and Ponzi transactions. This normally associated with high growth in non-performing loans or in high rate of default.

Therefore, policies aimed at increasing financial inclusion must take into account the objective of financial stability, especially in the presence of economic and financial crises. Such policies should create sustainable development that is capable of overcoming any shock.

Whether financial inclusion increases or decreases financial stability is still a subject of debate. However, financial inclusion may lead to financial instability when it leads to credit expansion together with reduction in credit standard or regulatory failure (Dienillah, Anggraeni, & Sahara, 2018) [16]. The case of 2007 to 2008 global financial crises that occurred due to subprime lending in the United States is a typical example, and Andhra Pradesh microfinance crisis in India is another typical example. Furthermore, Instability can also occur as a result of unintended consequences of bad or badly policy implementation (Čihák, Mare, & Melecky, 2016) [10]. Aside this, dwindling macroeconomic environment and increase in macroeconomic uncertainty are additional channels that can affect the economic stability which are presumed to occur as a result of uncontrol credit expansion brought about by greater financial Inclusion coupled with regulatory failure.

For this reason, there is a need to establish the impact of financial inclusion on the financial stability in Nigeria. This is because, government in the recent past pursue the financial inclusion agenda as part of inclusive growth strategy. The strategy was launched in 2012 with the aim to reduce the percentage of the population that are financially excluded from 46 percent in 2010 to 20 percent by the year 2020. Previous studies in this area dwell much on the fact that financial inclusion deepens the financial market and thereby lead to stability and inclusive growth, Little or no study were carried out on the impact financial inclusion might have on the stability of the financial system. The question now is; does advancing financial inclusion always leads to financial stability? Is there difference between inclusion of firms versus household across different measures of financial stability? These questions were answered in the subsequent sections by analysing the data retrieved from Global Financial Development Database, Global Financial index and World Bank Enterprise Survey, Wold Bank Development Indicators and Central of Nigeria Statistical Bulletins using a descriptive technique.

The paper is structured as follows: after the introduction, section 2 summarises the literature and present definition of basic concepts and specifies the measures used in the discussion. Section three is the methodology, while section four discuss the result from the survey and section five concludes and made recommendations.

2. Literature Review

2.1 Financial Inclusion

There are scarce literature concerning the relationship between financial inclusion and financial stability in Nigeria, and the few studies available show conflicting views about the exact way in which these two concepts relate. But before establishing the implication of financial inclusion on financial stability, there is need to understand the two concepts. This section will start by providing some definition of the concepts and then subsequently establish the channels through which greater increase in financial inclusion may affects financial stability.

Owing to the fact that there is no universal definition of financial inclusion, this study follows the definition offered by (Beck, Demirguc-Kunt, & Martinez Peria, 2005) [6] (Allen, Demirguc-Kunt, Klapper, & Martinez Peria, 2016) [2]; (Demirguc-Kunt & Klapper, 2012) [15]. The differences arise from the context in which it is being used. Some studies focus on the geographical location while some focus on state of economic development. There are some scholars that defined it from what it is not, that is financial exclusion. Hence, this study as stated above, considered financial inclusion as the use of array of financial services by individual and firms. In other words, it is getting the unbanked population into the formal financial system to enable them get access and use financial service ranging from savings, payments, transfers, credit and insurance easily and at a reasonable cost.

The definition given above is important because accessing financial service by itself does not mean usage. This is because many individuals or firms may take financial services but may not use them correctly with full benefits (Čihák *et al*., 2016) [10]. For instance, ignorance or low capability may deter a firm or an individual from taking financial service. Cole, Sampson, and Zia (2011) [12] provide a comprehensive work in this area, and their study revealed that financial literacy plays a significant role in shaping the behaviour of firms and individuals of the emerging market particularly when it comes to making use of financial services. Apart from this, usability of financial services may also be determined by the degree of individuals or firms' preference towards informal sector. Accessing financial services from the informal sector even though, is expensive, but due to less or minimum documentation tends to be more preferable than from formal financial sector. Moreover, the formal financial sector is characterised by poor quality of public services and bad governance as well. So, it makes sense to look at financial inclusion from the perspective of usability of financial service.

Theoretically, there are two views with regards the effect of financial inclusion on systemic risk or systemic stability. The first view sees financial inclusion as having less effect on systemic risk. This means that financial inclusion has several exposures of limited amount that are relatively manageable with the existing prudential tools (Hannig & Jansen, 2010) [19]. According to this view, financial inclusion opens opportunities that enhances financial stability even though it possesses risk at the institutional level. Several developing countries see majority of their population and small firms having difficulty in accessing formal financial services. Similarly Mehrotra and Yetman (2015) [24] are of the view that financial inclusion can influence the behaviour of firms and consumers in a manner that can affect the effectiveness of monetary policy. Meaning that financial inclusion will increase the importance of interest rate thereby making policymakers to effectively control the swing of economy via monetary policy more effective. However, this study did not observe any direct effect of financial inclusion on financial stability. The effect only depends on how well is the financial access. Studies that recognised the fact that financial inclusion directly enhances financial stability include; (Hawkins, 2006) [20] and (Han & Melecky, 2013) [18].

The second view sees the tendency in which financial inclusion can increase financial instability. through which However there others that don not observed such direct effect like (Claessens, 2006) [11].

2.2 Financial Stability

Even though, there are several definitions of financial stability, however, most of these definitions share a common view. The European Central Bank Website defined financial stability as condition in which the financial system is able to withstand any external shock as well as having the ability to reduce any disruption in the financial intermediation that are significantly severe to impair the smooth allocation of savings to profitable investments (ECB, 2012). It also means absence of system-wide episodes in which the financial system is unable to function well, or plunged into financial crises (World Bank, 2016). It basically concerns about resilience of the financial systems to stress.

A financial system that is relatively stable is capable of allocating resources efficiently, assessing and managing financial risks, maintaining employment levels close to the economy's natural rate, and eliminating relative price movements of real or financial assets that will affect monetary stability or employment levels. A financial system is in a range of stability when it dissipates financial imbalances that arise endogenously or as a result of significant adverse and unforeseen events. In stability, the system will absorb the shocks primarily via self-corrective mechanisms, preventing adverse events from having a disruptive effect on the real economy or on other financial systems. Financial stability is key for sustainable economic growth, as most transactions in the real sector are made through the financial system.

The true value of financial stability is best understood in its absence, that is in the periods of financial instability. The implication is that, during such periods, banks are reluctant to finance profitable investments, asset prices deviate excessively from their intrinsic values, and payments may also delay. Major financial instability can lead to bank runs, hyperinflation, or a stock market crash as experienced during Global Financial Crises in 2007 to 2008, or during 2009 financial crises in Nigeria. It can severely fuel uncertainty in the economy as it fades confidence in the financial and economic system among the economic actors.

2.3 Measures of firm-level stability

A common measure of banks stability at the level of individual institutions is the z-score. It captures the probability of default of a country's commercial banking system. The z-score explicitly compares buffers (capitalization and returns) with risk (volatility of returns) to measure a bank's solvency risk. The popularity of the z-score stems from the fact that it has a clear (negative) relationship to the probability of a financial institution's insolvency, that is, the probability that the value of its assets becomes lower than the value of its debt. A higher z-score therefore implies a lower probability of insolvency. Research that used the z-score for analysing bank stability include Boyd and Runkle (1993) [8]; Beck, Beck, Demirgüç-Kunt, and Levine (2007) [5]; Demirgüç-Kunt, Detragiache, and Tressel (2008) [9]; Laeven and Levine (2009) [23]; Čihák and Hesse (2010) [3]. Therefore, banking sectors with higher z-scores are seen by depositors as more stable and should experience relatively smaller deposit withdrawals.

Other commonly use indicators of financial stability are; Bank capital to total assets, Bank non-performing loans to gross loans, Bank credit to bank deposits, Liquid assets to deposits and short-term funding, Provisions to nonperforming loans. Bank capital and reserves to total asset ratio as suggested for example by the Basel Committee (2010) [13] is linked negatively to the probability of occurrence and the severity of distress. It includes funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments. It also consists of tier 1 capital (paid-up shares and common stock), which is a common feature in all countries' banking systems, and total regulatory capital, which includes several specified types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (these comprise tier 2 and tier 3 capital). Total assets include all nonfinancial and financial assets.

Liquid assets to deposits and short-term funding: This the ratio of the value of liquid assets (i.e. assets that are easily converted to cash) to short-term funding plus total deposits. They include cash and due from banks, trading securities and at fair value through income, loans and advances to banks, reverse repos and cash collaterals. Deposits and short-term funding include total customer deposits (current, savings and term) and short-term borrowing (money market instruments, CDs and other deposits). This measure is important because banking sectors with a stronger liquidity position have a large capacity to meet deposit withdrawal demand of a given size, and should thus be more credible and less prone to deposit withdrawals unlike banks with weak liquidity position.

Provisions to nonperforming loans: Nonperforming loans are loans for which the contractual payments are delinquent, usually defined as and NPL ratio being overdue for more than a certain number of days (e.g., usually more than 90 days). This measure specifically capture the liquidity risk exposure by examining mismatched between assets and liabilities (Bologna, 2015) [7]. Adequate provisioning takes into account bank past performance and expected loos (Abedifar, Molyneux, & Tarazi, 2013) [1]. Pool, De Haan, and Jacobs (2015) [27] noted that loan loss provisioning is an important drivers of business cycle and it decreases in relative term as lending increases.

Bank Credit to Bank Deposit: This measures the financial resources provided to the private sector by domestic money banks as a proportion of total deposits. Domestic money banks here comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. While total deposits include demand, time and saving deposits in deposit money banks. The indicator is use to assess bank's liquidity by comparing bank's total credit to it total liabilities for the same period. A very high bank to credit ratio signifies that bank is severely illiquid, while low bank credit to deposits ratio means the bank is not making much profit from its course of doing business as it could. If for instance, the ratio eventually grows to 100 percent, it means that for every one naira deposit the bank loans out a naira equivalent. This means that the bank might find it difficult to meet the day to day clients' withdrawal

need. It also hints at capital adequacy problem and signals the possibility of debt-liability mismatch which may hamper the stability of the financial system (Nayak, 2012). Therefore, the ratio gives a clear indication about the well-being of the bank.

Bank nonperforming loans to gross loans: this measures the ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of loan portfolio). The loan amount recorded as nonperforming includes the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue. Non-performing loans have negative impact on the banking sector and to the economy at large. Empirical studies show that nonperforming loans occur as a result some of the following factors; poor credit appraisal (Kargi, 2011) [21], (Philip, 1994) [26], improper credit disbursement to agricultural sector (Awan, Nadeem, & Malghani, 2015) [3], deterioration of macroeconomic performances such as slow growth in GDP and rapid inflation growth (Fofack, 2005) [17], (Swamy, 2012) [28], (Badar & Javid, 2013) [4].

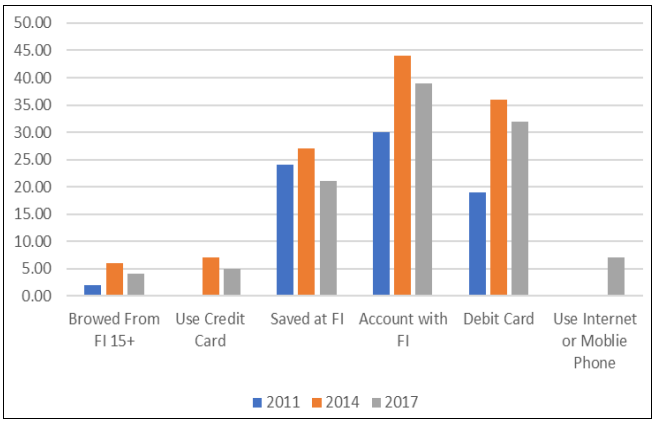
3. Data and Methodology

The data used for this study was sourced from World Bank Enterprise Survey [1], Global Financial Index, Global Findex [2], Global Financial Development Database (GFDD) [3] World Bank Development Indicators and Central Bank of Nigeria Statistical Bulletins. The variables are grouped into two; the first group consist of variables that relates to financial inclusion and the second group are variables that relates to financial stability. In addition, the financial inclusion variables are further categorised based on individual and firm basis, that is financial inclusion relating to individuals and financial inclusion relating to firms. The reason for this classification is to allow for comparison between the two distinct but interrelated economic agents that is households and firms.

To measure financial inclusion for individual, the study considered the following information; whether an individual has credit card or not and whether also borrowed within the last 12 months from the financial institutions, whether have savings account and whether they use internet and mobile banking facilities. With regards to firms, the study considered the extent to which the firms use banks to finance their working capital and investments, the percentage of firms that have business account with the commercial banks, and those that save in banks to start new business. Descriptive analysis was applied to analyse the data obtained.

4. Result of the Survey of Financial Inclusion and Financial Stability in Nigeria

Following the review of literature pertaining to financial inclusion and financial stability, and closely looking at the data obtained from the various sources, it is pertinent to analyse the implication of financial inclusion in Nigeria and compare and see the relationships that exist among the variables.



Source: Authors computation using data from GFDD, 2017 (FI = financial institutions)

Fig 1: Financial Inclusion Individual

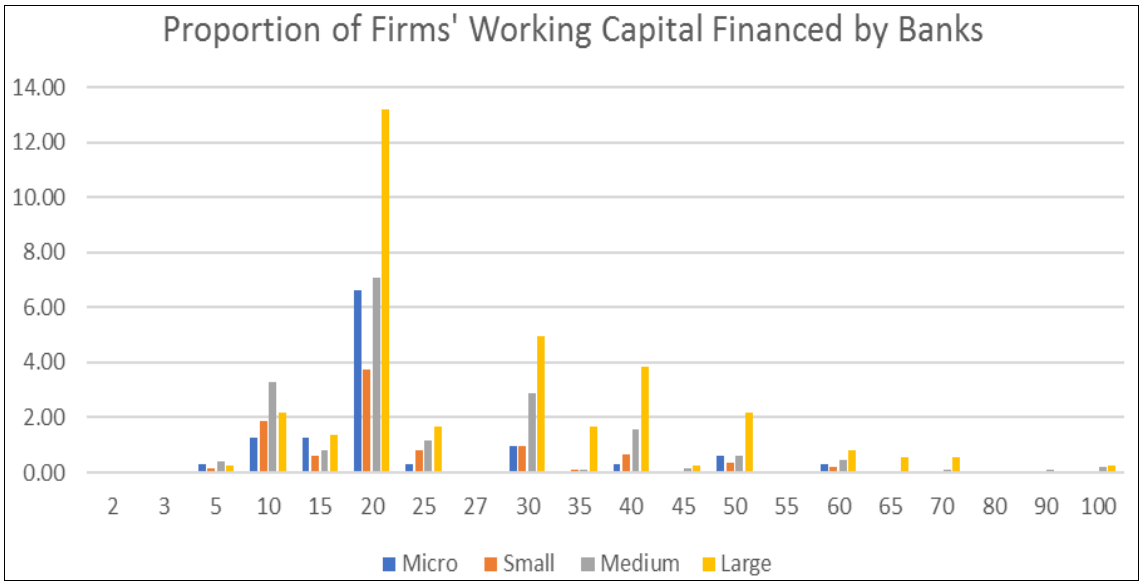
Figure 1 above shows the percentage of financial inclusion relating to individuals in Nigeria from 2011 to 2017. The graph shows an uneven growth in all the different measures of financial inclusion over the periods. In 2011 for example, the rate of borrowing by individuals aged 15 and above from the financial institution was 2 percent. Although, it rises to 6 percent in 2014, but five years after the launching of the financial inclusion strategy in the country, the trend dropped to 4 percent. The use of credit card is not prevalent in Nigeria. In 2014 it shows that only 7 percent of the household in Nigeria use credit card, however, this also dropped to 5 percent in 2017. Virtually all the indicators of financial inclusion at individual level show a downward trend from 2011 to 2017. Credit among household remain relatively low as compared to other measures of financial inclusion. For example, while the proportion of individuals that have account with the financial institutions is 39 percent in 2017, for individual that borrowed or use credit card in 2017 is 4 and 5 percent respectively. Furthermore, not all individual with account ownership in Nigeria that hold or use debit card. As at 2017, there are 39 percent of the adult population fifteen years and above that have account, while in the same year, only 32 percent of them that hold a debit card for transaction. Furthermore, the use of internet and mobile banking is relatively insignificant as only 7 percent of the account holders subscribed to the service in 2017.

The firm-level financial inclusion is reported in fig 2 and 3. The two figures show the extent to which firms use banks to finance either working capital or long-term investment. The Enterprise survey conducted in 2014 revealed that, 68 percent of the firm have account with the financial institutions. However, over 92 percent of them do not have any line of credit from the financial institution in that same year. In addition, about 90 percent of the firms use banks to finance only 15 percent of their working capital. In other words, more than 85 percent of the firms' working capital is not financed by the banks. Furthermore, from figure 2, only 12 percent of the large sized firms fund 20 percent of their working capital using credit from the financial institutions.

[1] The World Bank Enterprise Survey can be found at http://www.enterprisesurveys.org/data

[2] Detailed glossary, methodology, translations can be found at: www.globalfindex.worldbank.org

[3] The Global Financial Development Database is an extensive dataset of financial system characteristics for 214 economies. It contains annual data, starting from 1960 through 2017 for 109 indicators. It can be access on the url: https://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database

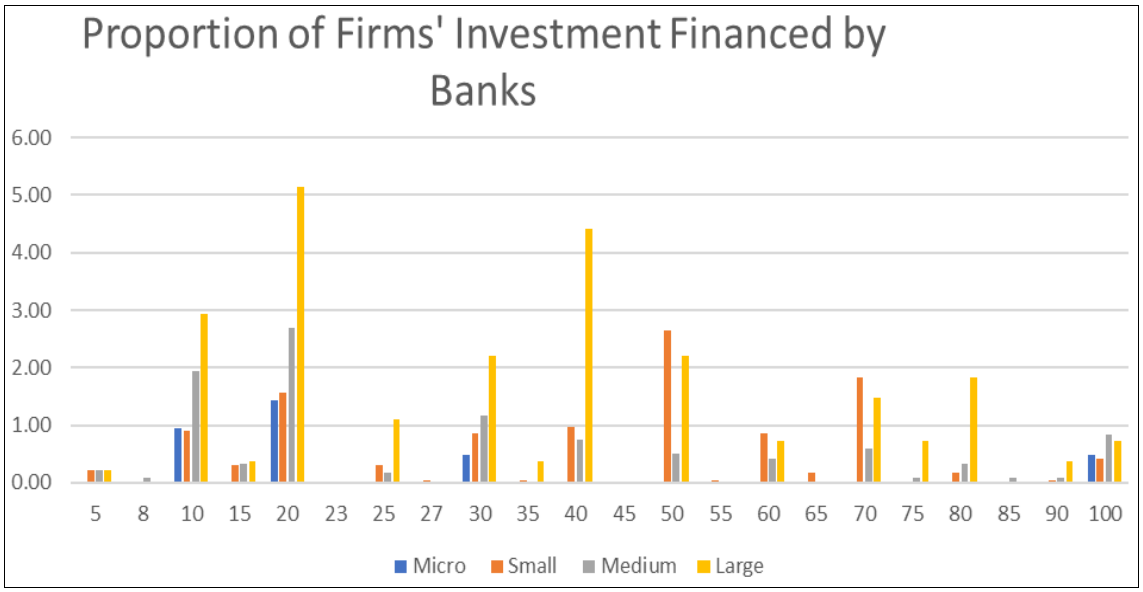


Source: Author's computation using data from GFDD, 2017

Fig 2: Proportion of firms' working capital financed by banks

This highlighted the fact that some categories of the firms are still financially constrained. And, majority of the firms' categories that are constrained from accessing loan from banks to finance working capital are micro, small and medium firms as their proportion persistently drop as the share of the credit in working capital continues to increase. Not only the Micro, small and medium size enterprises (MSMEs), even the large size firms experience such constrained, although, at a different intensity.

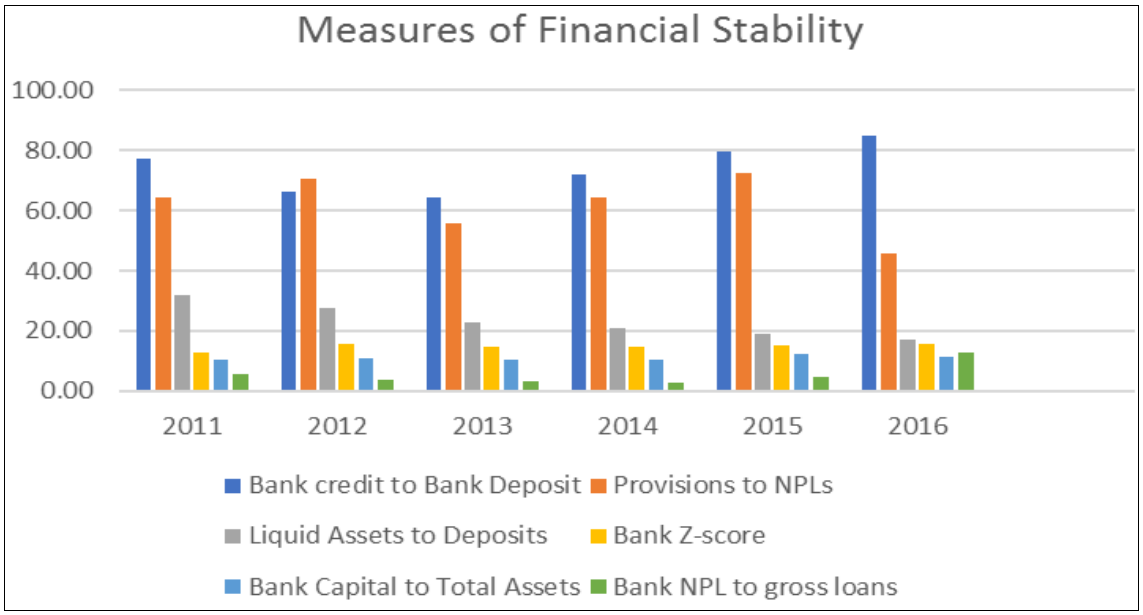
Similarly, in terms of accessing credit for long-term projects, only small number of the firms were able to secure finance from the banks for investment purposes. According to the World Bank Enterprise Survey as shown in figure 3, about 90 percent of the firms reported that they access only 10 percent of their investment funds from the bank. This signifies that majority of the firms' investment funds come from source other than banks, perhaps, internal funds, trade credit or families and relatives. And at different varying proportion of the credit amount, the large size firms are those that were able to access most. For example, when the proportion of credit reached 20 percent of the firms' total investment, there were about 5 percent of the large firms that secured loan from the bank, while the other categories of the firms were all less than 3 percent. Similarly, when the proportion of the credit raised to 40 percent of the firms' investment, the number of large firms that access loan from bank was 4 percent and 1 percent for both small and medium sized firms.



Source: Author's computation using data from GFDD, 2017

Fig 3: Proportion of firms' Investment financed by banks

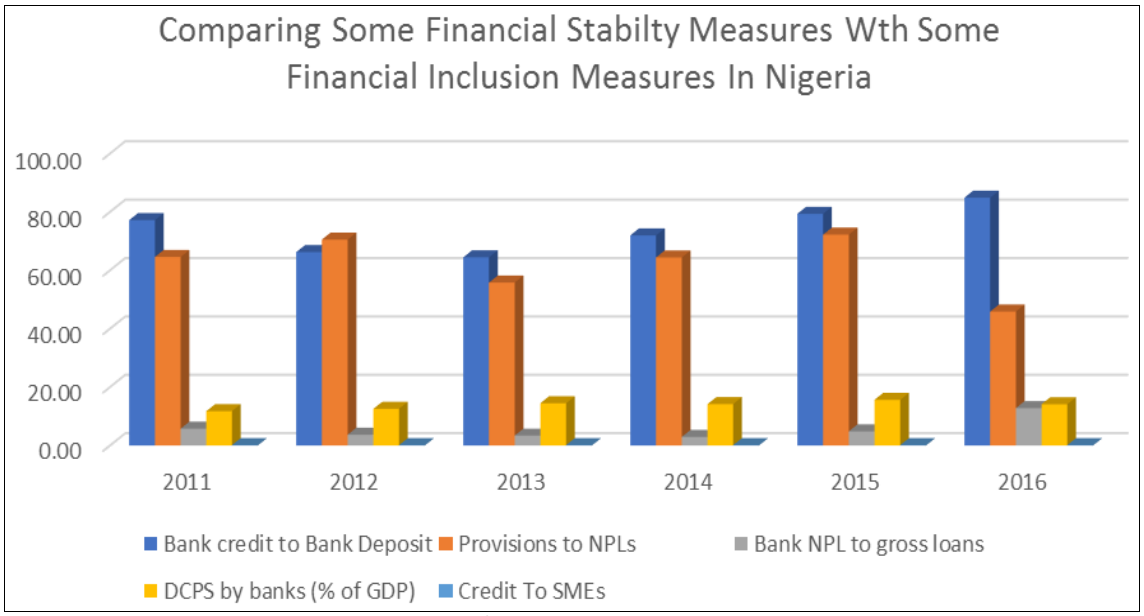
Figure 4 and figure 5 dispalys the distribution of the six measures of financial stability from 2011 to 2016. With the exception of 2016, bank credit to deposits ratio remains relatively stable based on Central Bank prudential guidelines. The ratio was well kept below the 80 percent regulatory requirement.



Source: Author's computation using data from GFDD, 2017 (NPL = non-performing loans)

Fig 4: Measures of financial stability

Bank z-score fluctuates around 14 percent on the average with the highest score of 15 percent in 2015. The z-score measures the distance of the financial system from distress. The higher the value of z-score the lower the probability of default.



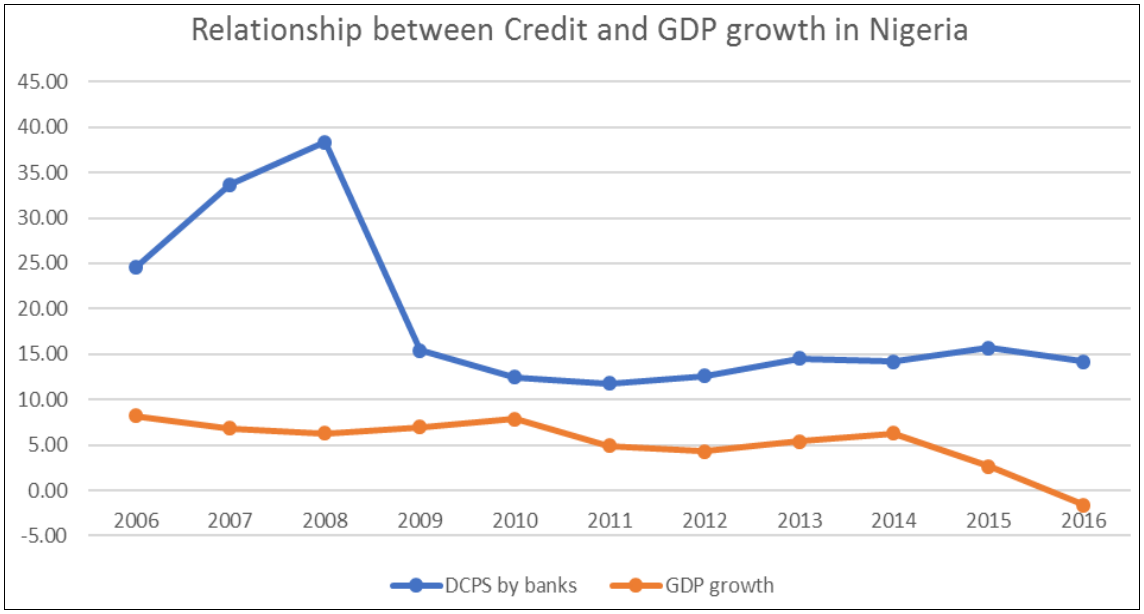
Source: Extracted by the Author from various data sources (DCPS= Domestic credit to private sector)

Fig 5: Comparing some financial stability measures with some financial inclusion measures in Nigeria

As depicted in fig 5, from 2011 to 2016, the proportion of bank credit to bank deposits is considerably increasing in the economy. It started from 66 percent in 2012 and by 2016 it reached 84 percent. However, domestic credit to private sector (DCPS) as a percentage of GDP remains relatively stagnant at 14 percent with the exception of 2015 when it slightly rises to 15 percent. Similarly, the proportion of loans to small and medium enterprises as percentage of the total credit also remained stagnant at 0.1 percent, while bank nonperforming slightly increased from 3 percent in 2012 to 12 percent in 2016, and loan loss provision have been dwindling over the periods. This raised a question as to whether the increase in the share of credit to total deposits is mainly channel to unproductive investments that can heighten instability in the economy. According to Minsky's financial instability hypothesis (Minsky, 1992) [25], financial crises are endemic in capitalism because period of economic prosperity encourages borrowers and lenders to be progressively reckless. This excess optimism creates financial bubbles and the later bursts. Therefore, capitalism is prone to move from financial stability to instability. This type of market failures calls for government regulation.

If the economy is in a steady growth path, the GDP growth rate exceeds the aggregate credit in the economy based on

Minsky's financial instability hypothesis. If for any reason the borrowers were over-indebted to the extent that they started selling their assets to meet up with their financial obligations, the assets prices begin to decline and this creates loss of confidence on the part of the investors. As a result of that, the financial institutions become illiquid and possibly result to bank run. From figure 4, there has been a gradual decline in banks liquid assets to total deposit in Nigeria. In 2007 it was 68 percent, it dropped to 32 percent in 2011 and later in 2016 to 17 percent. As explained by Minsky, this usually occur when lending and debt grow and reached unsustainable level. Figure 6 depicted the relationship between domestic credit to private sector and GDP growth in Nigeria.



Source: Author's computation from World Bank Development Indicators, 2017

Fig 6: Relationship between credit and GDP growth in Nigeria

5. Conclusion and Recommendation

This paper explores the nexus between financial inclusion and financial stability in Nigeria with specific refence to the time when the financial inclusion agenda was launched in 2012. The result of the survey shows that both at individual and firm level, the financial inclusion variables have not shown significant improvement. Usability of financial product is still at the rudiment level in the country especially the mobile and internet banking. The use of credit cards that enable individual to get more access to financial service and improves income and consumption level is still lagging behind. Firms especially micro, small and medium size enterprise are still financially excluded particularly in terms of accessing credit for increasing their working capital and long-term investments.

Although, banks were able to comply with the central bank prudential guidelines especially on capital adequacy, however, it also shows that most of the bank credit is channelled to unproductive and perhaps speculative and Ponzi financing. This has substantially depleted their liquidity to deposit ratio and worsen their provisioning and nonperforming loan ratios as well. Rapid credit expansion coupled with regulatory weakness can increase the risk of financial stability.

Therefore, this research recommends that policy makers, while promoting for a greater financial inclusion, should bear in mind the trade-offs between greater inclusion and financial stability. Financial inclusion and financial stability require effort and cooperation from several government agencies and ministries. This calls for a synergy among all the stake holders to ensure that regulations are put in place to mitigate the negative consequences. The study also observed that credit expand rapidly than the GDP, as such, the real sector is starved of financial resources from the banks. Therefore, regulators should monitor the trend in the expansion of credit in the Nigerian economy, while future research should try to identify the determinant of credit expansion in Nigeria.

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