BANKING SYSTEM STABILITY AND THE NIGERIAN ECONOMY: 'PERHAPS THE WOLF WILL ARRIVE BUT WHEN?'

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Abstract

The sustainable development of an economy greatly depends on the stability and efficiency of the banking institutions. Banking system stability, no doubt is not only a trajectory of banking system development but an indispensable element in minimizing the extensive economic and social impact that may arise from the industry. This present study therefore, seeks to explore the determinants of banking system stability in a hostile and fragile banking environment within an unstable and fragile economy like the Nigerian case. Additionally, the study also primarily explore the important macroeconomic, banking system factors, financial factors and shocks influencing the Nigerian banking system stability for the purpose of identifying macro-financial linkages. The descriptive phenomenological method was employed in the research methods. It was discovered in the study that systemic bank distress, specific bank distress and common bank distress are drivers of banking system stability. Again, poor risk management, regulatory and supervisory, economic, institutional, financial structure, bank liquidity and bank management challenges basically account for the banking system instability in Nigeria. Ipso-facto, unless these intervening factors are disconcerted, the needed banking stability capable of propelling economic development in the country is a wishful craves; thus, 'Perhaps the Wolf will arrive but when?'

Key words: Banking system, financial system, Economy, Macroeconomics

Introduction

The prosperity and successful development of any economy is greatly dependent on stability and efficiency of financial institutions, mainly the banking system. Banking system stability, soundness and efficiency is complex. The complexity is much more evident in the difficulty in measuring banking system stability in a financial system characterized with excessive volatility, unprecedented distress and economic crisis and recession. Although banking system stability has some level fluidity in its definition, some authors and policymaker like to believe that banking stability is the absence banking crisis (Ozili, 2018; Segoviano and Goodhart, 2009). Banking system stability is also seen to encompass the smooth functioning of the intricate nexus of relationships among financial market and institutions operating with the given legal and accounting framework. For Brunnermeire *et al* (2009), banking stability is the absence banking crises achieved through the stability of all banks in the banking system. On independence basis, it is the "instability of banks linked to each other, either directly through the interbank deposit market and participation in syndicated loans or indirectly through lending to common sectors and proprietary trades" (Ozili, 2018).

Essentially, the wave of banking crisis in African countries in the recent past has re-awakened the consciousness of fragility of African banking and finance into unprecedented focus (Beck and Cull, 2013). Specifically in Nigeria, the instability in the banking industry as characterized by institutional failures, confidence erosion and structural breaks has not only weakened the efficiency of bank's risk management strategies but also the entire economic system. Nigerian banks operate with an identified banking risk models for the purpose of predicting instability trends, understand specific stability factors but the fragility of the entire economic system remains a colossal challenge. Apparently, these challenges have manifested in various incessant banking reforms policy and regulations in the Nigeria banking sector with the singular aim of achieving stable banking system that will propel the Nigerian economy. For instance, through reforms and for stability and consolidation intent, the banks operating in Nigeria was reduced from 89 banks to 25 banks and currently 27 banks in all. Of these banks, 22 banks are commercial banks (deposit money banks), 4 banks are merchant banks and one bank is non-interest bank. Additionally, there are 5570 bank branches in Nigeria, including 978 Microfinance banks currently operating in the country (CBN, 2018).

However, due to banking system instability in Nigeria, there is apparently no underlying risky asset growth. The expected growth in the sector is pretty much flat. There are many indicators that show distorted growth of the sector in Nigeria. First, there is reluctance by Nigeria banks to take additional risk as lending to private sector is in its low ebb. Again, there is none or little material growth in foreign exchange or naira in Nigeria. It is only government securities that have remained the only source revenue growth in the Nigeria banking sector (CBN, 2017). Thus, the only recorded growth in the earnings is coming from the government non-funded income since the bank can no longer grow their loans; hence Nigerian banks simply invest in government bonds and treasury bills, leading to revenues accruing from an established Tier-1 banks only. Naira devaluation on the other hands provides a one-off boost to existing assets.

Second, the percentage of Nigerian banks liquid asset to total asset declined since 2015 to date. The percentage decrease is 2.2% (CBN, 2017). The ratio of Tier-1 capital to risk-weighted assets also fell from 17.1% to 12.9% between 2016 and 2017. The percentage of the financial and banking sector contribution to Nigeria GDP (excluding insurance services) declined in downward trend at 2010 constant prices. The total lending rate in the country dwindled including the leading oil and gas industry recording a downward trend of 20.2% in 2016 against 25.2% in 2015 (World Bank, 2016). The proportion of credit to the real sector (specifically the manufacturing sector) also decreased from 14.1% to 13.1% in 2017 (CBN, 2017). According to World Bank (2017), even though the Nigerian government expanded her presence in commercial lending markets, accounting for 8.4% in 2017 as against 5.7% in 2015 the loan-to-deposit ratio between 2015 to 2017 does not support significant stability in the system; as the average prime lending rates at commercial banks rose slightly at the end of 2017 (CBN, 2017.)

Third, the non-performing loans (NPLS) of any country increase as the economic weakened. It is not surprising in the Nigerian case as; the Non-performing loans grew from 11.7% specifically in June, 2016 to 14% of total loans by the end of 2016. This is a significant growth and very vile to the Nigeria economic growth. The oil and gas and general commerce constitute the major source of non-performing loan in Nigeria (NDIC, 2018). This is expected because of the drastic fall in oil prices and the economic recession experienced in Nigeria between the 2015 and 2017. Additionally, the Nigeria banking industry stability has been affected by other macroeconomic factors such as the shortage of dollars in the economy. The case of Etisalat telecom operator is a good example in this direction, where the company was granted a $1.2 billion loan from a consortium of Nigeria banks including GT Bank, Access Bank and fidelity Bank with $235 million denominated in Dollars. The country's was restriction on access to currency. As such, the operators were unable to meet scheduled loan repayment obligations for the dollar trench – prompting the CBN to step in (CBN, 2017).

Fourth, the credit growth in Nigeria in relation to foreign debt as a proportion of bank assets has increased in Nigeria within the period under review. This is also common in most African countries such as Ghana. Again, in the area of rates, they have remained absolutely high because inflation in Nigeria is still above government target (CBN, 2018).

From the above background with evidence-based facts and figures, it is clear that the Nigerian banking system is indeed fundamentally unstable; worst still, the system is operating in an unstable and fragile economy. Thus, our contribution to literature is threefold. First, this present study seeks, to explore the determinant factors responsible for the banking system instability in Nigeria. Along this line, the study also seeks to identify the potential factors that influence banking system stability since such studies with Nigerian case is apparently scant in the literature (See Allen and Gale, 2014; Brunnermeier *et al*, 2009; Fernandez *et al*, 2016; Schaeck and Cihak, 2014; Uhde and Heimeshoff, 2009 among others).

Second, the research insight arising from this study no doubt is an indispensible regulatory tool in assessing both credit loss protection and insolvency risk in Nigerian banking system. Third, the linkage of banking system instability and the Nigeria Fragile economy has the potential of address the twin problem of banking system instability and economic fragility in Nigeria. The rest of the paper is arranged as follow: section two is literature review focusing on conceptual clarification of the subject of the study. Section three dwells on determinants of banking system stability in Nigeria with empirical substantiation, while section four highlights the nexus between the Nigeria banking system and the Nigeria economy. Section five concludes the study.

Literature Review

Conceptual delineation: Concept of banking system stability

By way of delineation, banking system is conceptualized in this study as the "portfolio of bank" made up of the major and the core strategically important deposit money banks in the country. Banking system comprises the combination of all the banking apparatus that play leading to role in the economic growth of the country. These portfolios of banks include the conventional deposit money banks, the development banks, investment banks, Central Bank and the microfinance banks. Banking system can also be described as the structure network of financial institutions that offer financial services within a country' (Demirguc-Kunt*et al,* 2013). The parts and members of banking system in any country are commercial banks that take deposits, investment banks which specialized in capital market issues and trading and the national central banks that issues currency and set monetary policy (Business Dictionary, 2000). For Josh (2012), banking system is a practical mechanism through which the money supply of the nation is created and controlled with an understanding that entire system are intermediary in nature. Additionally, banking system can also be referred as a system "provided by the bank which offers cash management services for customers, reporting the transactions of their account and portfolios on daily basis"(Business Dictionary, 2000).

The quality of banking system stability is measured by banking system's portfolio multivariate density (BSMD). The set of these multivariate factors gives an over view of banking system in a given country. The measure of the banking system stability is the banks' distress inter-dependence structure; this captures both the linear and the non-linear distress dependence among the banks in the entire banking system. Another measure of the banking system stability is the risk model approach, which is an old traditional approach. The advantage of the new approach over the risk model approach is that it incorporates changes in distress dependence that is consistent with the economic cycle (Segoviano & Goodhart, 2009). This means that the old measure incorporates only the linear dependence structure and assumes that the non-linear is constant all throughout the economic cycle. Essentially, the new measures as stated above no doubt represent according Segoviano and Goodhart (2009) a "set of tools that is used to analyze and define banking system stability from four different, yet complementary perspectives – such as "common distress in the banks of the system, distress between specific banks, distress in the system association with a specific bank"

In addition to the measures outlined above, an economic approach based on the micro-founded, general equilibrium theoretical framework of Goodhart, Sunirand and Tsomocos (2006), shows that financial instability arising from systemic shocks, contagion after idiosyncratic shocks or the combination of both can also be applied in measuring banking system stability of a country. Therefore, due to the simplicity of the later approach in measuring banking system stability, it appears a better approach since it is different from the sophistication in quantity portfolio credit risk based on parametric models that is often the case in banking stability studies.

Determinants of Banking System Stability in Nigeria

-***Regulatory and Supervisory factors:*** Regulatory factors and issues relating to supervisory factors cannot be discussed separately or in isolation. The twin issue of regulation and supervision in the banking industry appears in two forms – '*incomplete regulation and ineffective supervision'* (Ozili, 2018). The frequent calls for reforms in Nigeria and other African countries shows on incomplete regulation cum weak regulatory framework that is capable of weakening the banking institution in Nigeria (US Financial Crisis Inquiry Commission, 2001), whereas ineffective supervision refers to use of weak supervision tools (Barth *et al,*2013). There is handful of empirical facts about the influence of stringent supervision on banking industries. Most of these researches evidence appear inconclusive (Delis and Staikoura, 2011; Bhattacharya *et al*, 2002). Specifically, it is documented that strict banking supervision has no nexus with improvement since it can discourage bank from taking risk. It was observed in the empirical literature that differences in banking system regulation across countries are unconnected with bank performance and stability. Other authors like Beltratti and Stulz (2012), argue that the reason why some bank perform better is because of banks fewer leverage and lower returns. The overall implication is bank instability.

Economic factors: Banking system stability differs across countries (Segoviano and Goodhart, 2009), and there is no doubt that banking instability can be attributed to economic fluctuation within economic cycles. Empirically, Gokipii and Monnin (2003) explored the effects of real output growth and inflation as economic factors on banking system stability. The research scope cut across 18 countries with quarterly data covering the period 1980 – 2008. According to the interpretation of their result, they discovered a positive relationship between banking system stability and inflation. Therefore, from the empirical evidence, real output and inflation affects banking system stability. Again, Heffernan and Fu (2008) investigate the economic determinates of banking stability and performance while controlling for unemployment levels. Finding shows that unemployment is a major determinates of bank performance and stability. Accordingly, they predict that rising unemployment can reduce aggregate demand and increase loan default rates; thus indicating a negative relationship between unemployment levels and bank performance. They further argue that bank performance is a major component of bank stability measure. Therefore, high unemployment breeds positive correlation with banking system instability. Other economic factors that determine banking system stability from the empirical point of view are –

profitability, non-performing loan, exchange rate, gross domestic product per capital, gross domestic product growth among others (Boateng *et al,* 2015).

Institutional factors: Extant literature (Betratti and Stulz, 2012; Klomp and de Haan, 2014) indicate that institutional quality influence stability and otherwise of the banking system in Nigeria and other developing countries. Whereas such institutional qualities in this context include: the country's governance quality, political/democratic quality, the regulatory architecture and framework among others. From the regulator institution, it is evident that bank regulation does not only change bank behaviour but strict regulation and supervision reduces bank risk and the strength of the effect depends on the institutional quality in the country. Again, according to Klomp and de Haan (2014), capital regulation and monitoring /controls also reduce bank riskness just as liquidity control regulation no doubt restrain banking risk only when there is a high level institutional quality.

Further, along this line of argument, Fratzscher *et al*, (2016) posit that strict regulation makes banks to reduce lending when they investigated 50 advanced and emerging market economies for the purpose of analyzing how post – crisis stringent supervision and regulation affects aggregate credit growth and banking stability. In their final analysis, they discovered that high capital buffers improve aggregate bank stability after financial crisis but strengthening of supervisory framework aids to reduce the decline in domestic credit, thereby leading to the improvement of the banking sector and the banking stability in Nigeria and other countries. Thus, in this study and within Nigeria context, bank regulation, supervision and institutions are substitutes rather than complements for banking stability.

Financial Structure: Financial structure refers to the nature of banking and financial composition and banking concentration in any financial system. There are divergent views on financial structure as the determinant of banking stability, particularly on bank concentration versus stability debate. According to Ozili (2018), the first argument is that:

> Banks in more concentrated markets will reduce risky lending due to lower competition in the market because they have fewer competitors". Another argument is that when the failure of bank threatens the stability of the banking system, banks in more concentrated market can easily reach an agreement to reduce the troubled bank to prevent wide-spread bank failure arising from contagion; hence contagion is less likely to occur in more concentrated markets (Sa'ez & Shi, 2004; Allen & Gale 2004; Repullo, 2004).

On the contrary, the opponent argue that bank in more concentrated market can charge higher loan rate which may increase the usual dangerous moral hazard challenges on the part of borrowers including investments in riskier projects that can be of a major threat to the banking system stability as losses may be inevitable (Boyd and De Nicolo, 2005). These groups of people also maintain in another argument that it is more likely and perhaps easier to monitor and control a system with only a few large banks than a banking market situation with many small banks.

Although there is the tendency of some bank exhibiting too-big-to-fail syndrome which in turn compound the problem of moral hazard on the part of the bank management. Beck *et al,* (2006) also argued that supervision and control of more concentrated bank is easier and cheaper than small banks operating in less concentrated markets.

In Nigeria banking system, the nature of our financial and banking structure is akin to non-concentrated banking market – where majority of the Nigeria banks are still facing high level of competition with instability challenges. In spite of these challenges, the problem of moral hazard is still prevalent in the

Nigeria banking system. Accordingly competition affects banking stability to a large extent. For instance, Čihàk and Tieman (2007) in his study examined the effect of competition on banking stability using a measure of competition based on the reallocation of profit from inefficient banks to efficient ones. The findings reveal that competition has positive effects on bank stability and the positive effects tend to be stronger for healthy banks in the European countries. Other authors who share same empirical view as above are Liu, Molyneux and Wilson (2013); Tan (2017); Tan and Floros (2014), among others.

Bank Risk: There is no gain saying that bank risk can exert significant influence on banking system stability. From empirical point of view, Tan and Anchor (2016) explored stability in the Chinese banking industry. Specially, the study centred on five state-owned commercial banks, 12 Joint-stock commercial banks and 83 City commercial banks over the period of 2003-2013. The study made use of GMM approach and discovered that low bank stability (higher insolvency risk) leads to higher profitability. Profitability in the study was measured as Return on Asset (ROA) and that higher profitability leads to higher bank fragility for the Chinese commercial banks studied. Advancing further, bank performance, risk and competition were investigated by Tan (2014). In the study, the popular Panzar-Rosse statistics and the Lerner index of competition in banks to ascertain how risk factors in combination with competition affect the performance of banks which all together breed banks instability. Result reveals that industry that operates under monopolistic competition among the city commercial banks is the lowest and competition among joint-stock banks is the highest. While testing for risk taking behaviour (credit risk and insolvency risk) and testing for the interrelationship among risk, competition and efficiency, using the efficiency-adjusted Lerner indices and stability inefficiency as indicators of competition, Tan and Floros (2018) succinctly argue from their empirical findings that greater competition increase liquidity risk but decrease credit risk and insolvency risk. Worthy of note is that Tan and Floros (2018b) also discovered the similar evidence as in the Tan and Floros (2018a); and with such clear evidence they arrived at a logical conclusion that risk factors are major determinants of banking system stability.

Other Factors: From the literature on the subject of study and according to Ozili (2018), other factors that influence and significantly determine the stability position of banking system are as follows: Deposit insurance, Bank liquidity, Bank efficiency and Regulatory style. According to Berger and de Young (1997), Bank efficiency including systemic bank distress, specific bank distress and common bank distress are determinants of bank performance and bank stability, being that efficient banks are managers of credit risk because they can improve their stability by reducing the high level of non-performing loans. The same way, deposit insurance can immensely influence bank stability in any banking system. All these factors discussed are major determinants of banking system stability in Nigeria and by extension, all African countries.

Banking Stability Measure

The banking stability index (BSI) is development based the conditional expectation of default probability measure. This index as a measure of banking system stability was developed by Huang in 1992. The measurement model demonstrates its empirical capacity and applicability (Hartmann *et al,* 2001). Huange (1992) demonstrates this index can be interpreted as a relative measure of banking linkage. The BSI technically relates the expected number of distress banks becoming distressed given that at least one bank has become distressed. Again, a higher number of signifies increased instability. For example, According to Haung (1992), for a system of two banks, the BSI is defined as follows:

$$\mathbf{BSI} = \frac{\mathbf{P}\,(x \geq x_d^x) + \mathbf{P}\ \ (Y \geq Xd^y)}{\mathbf{1 - P}\,(\mathbf{X} < x_d^x,\ Y_{>}Xx_a)}$$

Where BSI = banking stability index

P = Probability that bank becomes distress

X and Y = represent bank X or Y

D = represent asymptotic dependent as the value of BSI increase, the banking linkages increase and vice-versa. Again, when the BSI =1 in the limit, it shows that banking linkage is weak (Haung, 1992). The banking stability indicators are also presented in table 1.

Table 1: Banking System Stability Indicators in Nigeria

S/n	Category	Indicators	Notation
1.	**Bank Soundness Indicators**		
Capital Adequacy		Capital Adequacy Ratio	CAR
		Ratio of Non-performing loan net of provision to capital	NPLP/C
Asset quality		Ratio of non-performing loan to total Assets	NPL/TA
Liquidity		Ratio liquid to Total Assets Loans to deposits Ratio	LA/TA TL/D
Profitability		Return on Assets Interest margin to gross income ratio Non-interest Expense to gross income	ROA NIM NIE/91
2.	**Banking**	**Vulnerability indicators**	
	External Sector	Current Account to GDP Ratio of money supply to Foreign reserve Ratio of external asset to Total assets of DMBs Ratio of foreign currency Asset to foreign currency liabilities of DMs	CAR /GDP M_2/ FR EA/TA FCA/FCL
	Financial sector	DMBs Domestic Credit to GDP	DC/GDP
	Real sector	Inflation	IF
3.	**Economic**	**Climate indicators**	
		GDP growth Rate of the US GDP growth Rate of the UK GDP growth Rate of the China	GDP US GDP UK GDPCI

Source: Adopted from Sore –Ejimbi *et al* (2014) and modified by the authors

The Banking System and Nigerian Economy

The economic development, as well as economic growth of a country rest squarely on the banking system. Functionally, according to Nzota (2003), the banking system performs the following role for the development of the economy.

i. Savings mobilization for investment purpose: Saving mobilization is attained through different accounts such as saving account, current and fixed deposit account from the potential customers. In doing this, the banks mobilized saving are efficiently utilized by the customer for effective investment in the economy.

ii. The banking system also teaches the customers the principles of banking thereby inculcating banking habit into the customer. The introduction of banking habit further aids the economy in financial inclusion policy. The knowledge of banking brings the unbanked and under banked population closer to the banks.

iii. Proper channelling of resources: It is also the function of the banking system to ensure that the financial resources are channelled from the surplus units of the economy to the deficit economic unit where it is optimally utilized. The approach for proper channelling of resources by the banking system includes – the provision of loans and advances to the public and private sector of economy. These loans boost the domestic output, agricultural production and promotion of export trade.

iv. The banking system assists the government in the execution of different government monetary policies. This particular function of the bank ensures that the price stability is maintained and put under control. It also serves to achieve even development on the part of the government as an agent of development. When the price of goods and services are stabilized, it aids inflationary pleasure in the economy and sustain the value of naira.

v. Banking system in Nigeria assist the economic policy maker and implementation agents in risk management. The risk management factors are usually controlled by the insurance service providers and other risk management experts that work hand in hand with the banking system even from the systemic risk point of view. The risk aspect is very crucial to the development of the Nigerian economy and other countries where bank led economy is practiced.

vi. Exchange and payment system – the banking system facilitate international trade transactions, exchange and payment. This banking system through the provision of foreign exchange facilities for client; bill for collection, electronic banking services, mobile banking services and foreign transfer facilities among others. The payment in Nigerian economy is anchored on the Nigerian banking system; and apparently the Nigeria payment system is the hub of the Nigeria financial system including the capital markets.

vii. The banking system functionally acts an agent to the government. As agent of the government and development, they are banker to the government such that all financial dealings in foreign and local currencies are usually handled by the banking system. This function also assists in the stabilization of foreign exchange management in Nigeria – thereby facilitating exchange rate stability.

viii. The banking system no doubt constitutes the various channels and avenue for the provision of different financing scheme purposely designed to salvage the economy from any shock and under development challenges.

ix. Banking system also enhances economic development by acting as the veritable channel for implementing the various bilateral and multilateral trade agreement and policies.

x. The banking system performs other functions such provision of long-term and short term credit facilities to public especially the domestic productive sector of the economy. They also perform other services such as safe keeping and custody of valuable goods for customers. They also provide status reference, brokerage services and other service to the customers and the overall growth of the economy.

Conclusion

This study is an exploratory discussion of the determinants of banking system stability in Nigeria. Though previous studies have documented the important, impact and the role of sound banking system in Nigerian economy, we document that the political and economic instability in Nigeria are responsible for the corresponding banking system instability in Nigeria. Unless the Nigerian economy is stabilized, it is near impossible for the Nigeria banking system to achieve expected stability and soundness, thus, the wolf will arrive but when.

References

Allen, F. and Gale, D. (2004). Competition and financial stability, *Journal of Money, Credit, and Banking,36(3)*, pp. 453-480.

Athanasoglou, P.P., Brissimis, S.N. and Delis, M.D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability, *Journal of International Financial Markets, Institutions and Money, 18(2),* pp. 121-136.

Barth, J.R., Caprio, G. and Levine, R. (2004). Bank regulation and supervision: what works best? *Journal of Financial Intermediation, 13 (2)*, pp. 205-248.

Barth, J.R., Caprio, G. and Levine, R. (2006). *Rethinking Bank Regulation*, Cambridge: University Press.

Barth, J.R., Caprio, R. and Levine, R. (2008). Bank regulations are changing: for better or worse?, *Comparative Economic Studies, 50(4)*, pp. 537-563.

Barth, J.R., Caprio, G. and Levine, R. (2013). Bank regulation and supervision in 180 countries from1999 to 2011, *Journal of Financial Economic Policy*, 5 (2), pp. 111-219.

Beck, T. and Cull, R. (2013). Banking in Africa, Policy Research Working Paper No. 6684, *The World Bank*, Washington, DC.

Beck, T., De Jonghe, O. and Schepens, G. (2013). Bank competition and stability: cross-countryheterogeneity, *Journal of Financial Intermediation, 22 (2)*, pp. 218-244.

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2006). Bank concentration, competition, and crises: firstresults, *Journal of Banking & Finance,* 30(5), pp. 1581-1603.

Beltratti, A. and Stulz, R.M. (2012). The credit crisis around the globe: why did some banks performbetter?, *Journal of Financial Economics*, 105 (1), pp. 1-17.

Berger, A.N. and DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks, *Journalof*

Banking and Finance, 21(6), pp. 849-870.

Besanko, D. and Kanatas, G. (1996). The regulation of bank capital: do capital standards promote banksafety?, *Journal of Financial Intermediation, 5(2)*, pp. 160-183.

Bhattacharya, S., Plank, M., Strobl, G. and Zechner, J. (2002). Bank capital regulation with randomaudits, *Journal of Economic Dynamics and Control,* 26 (7), pp. 1301-1321.

Bikker, J.A. and Metzemakers, P.A. (2005). Bank provisioning behaviour and procyclicality, Journal of International Financial Markets, Institutions and Money, 15(2), pp. 141-157.

Boateng, A., Huang, W. and Kufuor, N.K. (2015). Commercial bank ownership and performance inChina, *Applied Economics,* 47 (49), pp. 5320-5336.

Boyd, J.H. and De Nicolo, G. (2005). The theory of bank risk-taking and competition revisited, The Journal of Finance, 60(3), pp. 1329-1343.

Brunnermeier, M.K., Crockett, A., Goodhart, C.A., Persaud, A. and Shin, H.S. (2009). *The Fundamental Principles of Financial Regulation*, Vol. 11, International Centre for Monetary and Banking Studies (ICMB), Geneva.

Business Dictionary (2000). Retried online from www.BiznessDic.com

Caminal, R. and Matutes, C. (2002). Market power and banking failures, *International Journal of Industrial Organization,* 20(9), pp. 1341-1361.

Čihàk, M. and Tieman, A. (2007). Assessing current prudential arrangements, in Decressin, J.,Faruqee, H. and Fonteyne, W. (Eds), Integrating Europe's Financial Markets, International Monetary Fund, Washington, DC, pp. 171-198.

Central Bank of Nigeria Bulletin (2016).

Central Bank of Nigeria Bulletin (2017).

Central Bank of Nigeria Bulletin (2018).

Delis, M.D. and Staikouras, P.K. (2011). Supervisory effectiveness and bank risk, *Review of Finance*, 15(3), pp. 511-543.

Demirgüç-Kunt, A. and Detragiache, E. (2002). Does deposit insurance increase banking system stability? An empirical investigation, *Journal of Monetary Economics,* 49 (7),pp. 1373-1406.

Demirguc-Kunt, A., Detragiache, E. and Merrouche, O. (2013), Bank capital: lessons from the financial crisis, *Journal of Money, Credit and Banking,* 45(6), pp. 1147-1164.

Fratzscher, M., König, P.J. and Lambert, C. (2016). Credit provision and banking stability after the great financial crisis: the role of bank regulation and the quality of governance, *Journal of International Money and Finance,* 66, pp. 113-135.

Goodhart, C.A.E, Sunirand, P. Tsomocos, D.P. (2006). A model to analyse financial fragility, *Economic Theory*, 27(1), pp.107-142.

Goykhmam, M, and Kavun, S. (2004). Evolution method of baning system stability based on the volume of subsystems, *Journal of Finance and Economics, 2 (4),* 118-124.

Heffernan, S. and Fu, M. (2008). The determinants of bank performance in China.

http://dx.doi.org/10.2139/ssrn.1247713 (accessed 7 July 2018).

Jokipii, T. and Monnin, P. (2013). The impact of banking sector stability on the real economy, *Journal of International Money and Finance,* 32, pp. 1-16.

Klomp, J. and De Haan, J. (2012). Banking risk and regulation: does one size fit all?, *Journal of Banking and Finance, 36(12)*, pp. 3197-3212.

Klomp, J. and de Haan, J. (2014). Bank regulation, the quality of institutions, and banking risk in emerging and developing countries: an empirical analysis, *Emerging Markets Finance and Trade*, 50(6), pp. 19-40.

Liu, H., Molyneux, P. and Wilson, J.O. (2013). Competition and stability in European banking: A regional analysis, *The Manchester School*, 81(2), pp. 176-201.

Nzota, S.M.(1999). *Money, Banking and Finance: Theory and Practice, 2nd ed*, Hudson Publishers Ltd Nigeria.

Ozili, P.K. (2015). Loan loss provisioning, income smoothing, signalling, capital management and procyclicality: does IFRS matter? Empirical evidence from Nigeria, *Mediterranean Journal of Social Science, 6 (2),* pp. 224-232.

Ozili, P.K. (2017a). Bank earnings management and income smoothing using commission and fee income: a European context, *International Journal of Managerial Finance*, 13(4), pp. 419-439.

Ozili, P.K. (2017b). Bank profitability and capital regulation: evidence from listed and non-listed banks in Africa, *Journal of African Business*, 18 (2), pp. 143-168.

Ozili, P.K. (2018). Impact of digital finance on financial inclusion and stability, Borsa Istanbul Review, forthcoming, available at: https://doi.org/10.1016/j.bir.2017.12.003

Ozili, P.K. and Outa, E. (2017). Bank loan loss provisions research: a review, *Borsa Istanbul Review,* 17(3), pp. 144-163.

Repullo, R. (2004). Capital requirements, market power, and risk-taking in banking, *Journal of Financial Intermediation, 13(2)*, pp. 156-182.

Sáez, L. and Shi, X. (2004). Liquidity pools, risk sharing, and financial contagion, *Journal of Financial Services Research, 25 (1)*, pp. 5-23.

Schaeck, K. and Cihák, M. (2014). Competition, efficiency, and stability in banking, *FinancialManagement, 43(1)*, pp. 215-241.

Segoviano, M.A. and Goodhart, C.A.E. (2009). Banking stability measures, No. 627, International Monetary Fund Working Paper No. 04, International Monetary Fund, Washington, DC.

Segoviano, (2004). A System for Measuring Credit Risk When Only Limited Data is Available, Credit Risk International, London, October 2004.

Tan, Y. (2016). *Investigating the Performance of Chinese Banks*, Palgrave Macmillan.

Tan, Y. (2017a). The impacts of competition and profitability on stability: evidence from the Chinese banking industry. http://dx.doi.org/10.2139/ssrn.3063564 (accessed 24 September 2017).

Tan, Y. (2017b). Risk, competition and efficiency in Chinese banking: the role of interest rate liberalization, available at: https://ssrn.com/abstract=2949045 (accessed 26 September 2017).

Tan, Y. and Anchor, J. (2017). Does competition only impact on insolvency risk? New evidence from the Chinese banking industry, *International Journal of Managerial Finance*, 13(3), pp. 332-354.

Tan, Y. and Floros, C. (2014). Risk, profitability, and competition: evidence from the Chinese banking industry, *The Journal of Developing Areas, 48(3)*, pp. 303-319.

Tan, Y. and Floros., C. (2018a). Risk, competition and efficiency in banking: evidence from China, *Global Finance Journal,* 35, pp. 223-236.

Uhde, A. and Heimeshoff, U. (2009). Consolidation in banking and financial stability in Europe: empirical evidence, *Journal of Banking & Finance*, 33 (7), pp. 1299-1311.

US Financial Crisis Inquiry Commission (2011). US Financial Crisis Inquiry Commission, 2011.