

MPRA

Munich Personal RePEc Archive

Leveraging monetary policy and banking regulation for climate action in Nigeria

Oluwaseun J. Oguntuase and Adedayo O. Ajibare

10 July 2018

Online at <https://mpra.ub.uni-muenchen.de/89611/>

MPRA Paper No. 89611, posted 6 November 2018 14:58 UTC

Leveraging monetary policy and banking regulation for climate action in Nigeria

Oluwaseun J. Oguntuase¹ * Adedayo O. Ajibare²

¹ Centre for Environmental Studies and Sustainable Development, CESSSED, Lagos State University, Lagos, Nigeria

² Department of Accounting, Lagos State University, Lagos, Nigeria

*Correspondence: oluwaseunoguntuase@gmail.com

Abstract

The paramount question about global climate change is no longer whether climate will change, but how we should respond. There is urgent need for banks and their regulators to respond, as climate change continues to negatively impact economies around the world. This paper examined how the Central Bank of Nigeria (CBN) could align monetary policy and banking regulations to better meet the challenges posed by climate change to the banking sector and financial stability in Nigeria. The paper concluded that the CBN must explore the linkages between monetary policy and banking regulation to mitigate the effects of climate fragilities on Nigerian banks and financial stability in the country.

keywords: climate change, monetary policy, banking regulation, financial stability, Nigeria

Correspondence Author Note:

I certify that I have the right to deposit this paper with MPRA

1.0 Introduction

Nigerian banks, with total assets and liabilities of about N33 trillion (USD91.7 billion) across several sectors (Central Bank of Nigeria [CBN], 2017), are at the front line in managing financial risks, including those posed by climate change. The stability of our economy, and financial system as a whole, depends on how these banks adapt to the risks posed to the Nigerian economy climate change (Drill, Paddam, & Wong, 2016).

To date, there is no clear definition of climate change-related risks for both prudential and operational purposes in Nigeria's banking sector. However, the Nigerian Bankers Committee developed and approved the Nigeria Sustainable Banking Principles (NSBPs) for adoption by banks, discount houses and development finance institutions in the country to achieve measurable progress in creating and sustaining economic growth that is both environmentally responsible and socially relevant (CBN,2013). The critical question is whether the adoption of NSBPs is enough to manage risks posed by climate change to Nigerian banks and financial stability. A significant population of Nigerian bank employees believed that the implementation of NSBPs is not a sufficient means of managing climate change related risks faced by Nigerian banks (Oguntuase, 2017).

Against this backdrop, the objective of this study is to highlight how the Central Bank of Nigeria can align monetary policy and banking regulations to better meet challenges posed by climate-related risks to Nigeria's banking sector, and the economy at large.

2.0 Literature review

2.1 Climate change as financial risk

The uncertainties involved in climate change preclude prediction of the precise nature, timing, frequency, intensity and location of climate change impacts. This uncertainty also depends on a multitude of

demographic and socio-economic factors such as technology, values and preferences, and policies, which also are also deeply uncertain (Kalra et al., 2014). Added to these demographic and socio-economic sources of uncertainty is scientific uncertainty which arises from our incomplete knowledge of the climate system (Heal & Millner, 2013).

The two broad climate-related financial risks are physical and transition risks. The physical climate-related risks are linked to the economic damages of increase in the frequency and magnitude of climate-related extreme weather events and related catastrophes such as drought, flood, hurricanes, ocean acidification, etc. resulting from continuously growing greenhouse gas (GHG) emissions (Dafermosa, Nikolaidi, & Galanis, 2018; Nicol & Cochran, 2017). Banks may be exposed to physical risks through their financing and investment activities. There may also be direct damages to their physical infrastructures.

The transition risks are the uncertain financial impacts (positive and negative) that result from the effects of setting up a low carbon economic model on economic actors. Transition risks are characterized by a “radical” uncertainty on the nature of the low carbon pathway (i.e. the pathway for reducing greenhouse gas emissions, which restructures the economy) and a more “usual” uncertainty on the methods for implementing this pathway in economic and social terms (Nicol, Hubert, Cochran, & Leguet, 2017).

Over the last few years, the topic of “stranded assets”, caused by risk factors like physical climate change impacts, as well as societal and regulatory responses to climate change, has loomed larger (Caldecott, Harnett, Cojoianu, Kok, & Pfeiffer, 2016). Stranded assets are defined as assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (Caldecott, Howarth, & McSharry, 2013). With transition towards a lower-carbon economy, these assets will suffer from unanticipated or premature write-offs, downward revaluations or get converted to liabilities (Ansar, Caldecott, & Tilbury, 2013).

A study by the Economist Intelligence Unit (EIU, 2015) put the value of global stock of manageable assets at risk from climate change till the end of the century at USD 4.2 trillion to USD 43 trillion. Carney (2015) suggested that the stranded assets problem could result in a ‘climate Minsky moment’ involving a rapid, system-wide (downward) repricing of carbon assets which would threaten financial stability.

2.2 Climate Risk Management

Managing risks of climate change is an inevitable but very complex task, as climate change risks are uncertain, pervasive, and delayed, as well as intertwined with many other risks to a sustainable development (Döll & Romero-Lankao, 2017), but it is inevitable, as investors and regulators are increasingly aware of climate change risks (Dietz, Bowen, Dixon, & Gradwell, 2016; Miller & Swann, 2017).

Risk management has increasingly become a well-established tool for climate change adaptation, given the significant uncertainty about future impacts and the inability to rely on historic data as a basis for current action (Godden, Rochford, Peel, Caripis, & Carter, 2013; May & Plummer, 2011). Risk management is part of a comprehensive suite of tools for climate change adaptation, with international and national standards (e.g., CAN/CSA-ISO 31000) being developed to assist governments, businesses, and communities (May & Plummer, 2011).

The IPCC (2014) proposed to address the persistent uncertainties of future climate change and its impacts through iterative risk management that includes both adaptation and mitigation, and takes into account, climate change damages, co-benefits, sustainability, equity and attitude to risk. This has continued to inform views of climate change adaptation as a risk management function.

2.3 Interaction between Monetary Policy and Banking Regulation

Monetary policy denotes any deliberate action or conscious effort made by the Central Bank or Monetary Authorities of a nation to control the quantity, availability or cost of money in an economy with the view of achieving set goals (CBN, 2016). As a technique of economic management, monetary policy is one of the key drivers of economic growth and development through its impact on economic variables. It always targets inflation rate or interest rate to ensure price stability and general trust in the currency, stable exchange rate, high output growth rate, poverty reduction, reduction in inequality gap in the society, employment creation, as well as improving livelihoods (Agoba & Sare, 2017; Anowor & Okorie, 2016; Musa, Usman, & Zoramawa, 2014). Because financial and macroeconomic conditions are tightly interconnected, financial stability considerations are also an important element of any monetary policy framework (Kryvtsov, Molico, & Tomlin, 2015).

Monetary Policy Rate (MPR) was adopted as the major monetary policy tool by the Central Bank of Nigeria (CBN) in December 2006. The MPR is the rate at which CBN lend to other banks. Prior to the adoption of MPR, Minimum Rediscount Rate (MRR) was the major tool (CBN, 2006). A reduction in MPR, that is, lax or accommodative monetary policy encourages banks to take on more risks in their lending. A reduction slows down the mechanism of money multiplication, i.e., makes the money multiplier lower.

Banking sector regulation defines the rules for financial institutions at both prudential - the individual level – and macro-prudential policy – the interconnectedness of individual financial institutions and markets to safeguard financial stability. Banking regulations can vary widely across nations and jurisdictions but follows the same general principle of minimum requirements, supervisory review and market discipline. The instruments and requirements of bank regulation in Nigeria include capital requirement, reserve requirement, corporate governance, financial reporting and disclosure requirements, credit rating

requirement, large exposure restrictions, and activity and affiliation restrictions (Oni, 2012; Chude & Chude, 2014).

There is interplay between monetary policy and banking regulation. Preserving financial stability is closely related to the standard goals of monetary policy (stabilizing output and inflation). Monetary policy cannot completely ignore financial stability issues and macro-prudential regulation aimed at correcting imbalances can affect the conduct of monetary policy (Bean, 2003; Blinder, 2010). Kryvtsov et al. (2015) submitted that while the optimal mix of policies may depend on many factors such as the nature and severity of potential financial risks, the efficacy of each policy tool, and the expected side effects of each tool on the economy—regulators and central bankers must also take into account the interplay between monetary policy and regulation.

The effectiveness of monetary policy depends on the smooth functioning of the banking system, which is promoted by sound banking regulation and supervision practices. Also, the monetary policy stance may also pose risks to financial stability, justifying that monetary policy decisions should be under the watchful eye of the banking supervisors (Lima, 2017). When both monetary and macro-prudential functions are housed within a central bank, as in Nigeria situation, coordination is improved but safeguards are needed to counter the risks from dual objectives (European Parliament, 2016).

3.0 Theoretical Framework

3.1 Keynes Radical Uncertainty Theory

Keynes (1937) submitted that our knowledge of the future is fluctuating, vague and uncertain, which renders wealth a peculiarly unsuitable subject for the methods of the classical economic theory. For Keynes (1937) submitted that macroeconomic phenomena cannot not be understood properly, if radical uncertainty

and the ways to deal with it are ignored. Radical uncertainty in the sense of a fundamental unpredictability is pervasive in the changing climate system due to several interacting sources of uncertainty (Roos, 2015).

Minsky (1992) developed a novel theory – the financial instability hypothesis of the working of capitalist economies. In his view, the financial structures and interrelations which are essential to the capitalist system inevitably result in the violent fluctuations of the economy. The theoretical argument of the financial instability hypothesis starts from the characterization of the economy as a capitalist economy with expensive capital assets and a complex, sophisticated financial system.

Minsky's financial instability hypothesis takes banking seriously as a profit-seeking activity. Banks seek profits by financing activity. Like all entrepreneurs in a capitalist economy, bankers are aware that innovation assures profits. Thus, bankers (using the term generically for all intermediaries in finance), whether they be brokers or dealers, are merchants of debt who strive to innovate in the assets they acquire and the liabilities they market (Minsky, 1992). Over periods of prolonged prosperity and optimism about future prospects, financial institutions invest more in riskier assets, which can make the economic system more vulnerable in the case where default materializes (Bhattacharya, Goodhart, Tsomocos, & Vardoulakis, 2011).

3.2 The Climate Fragility Hypothesis

Climate and financial fragilities reinforce each other. They are intertwined into positive feedback loops, so that climate systemic risks also incur financial systemic risks (Aglietta & Espagne, 2016). Natural disasters are predictive of higher non-performing loans and higher likelihood of default in developing countries (Rajhi & Albuquerque, 2017).

The increase in temperature and the economic catastrophes caused by climate change could reduce the profitability of firms and could deteriorate their financial positions. Accordingly, debt defaults could arise which would lead to systemic bank losses (Dafermosa et al., 2018). The realization of a climate systemic risk translates into potential financial turmoil and this in turn can increase around the provision of the ultimate liquidity. This feature is common to any systemic financial crisis which calls for a collective prudential approach – monetary policies and banking regulations, which intends to act on eliminating possible future outcomes more than on internalizing externality, because of radical uncertainty (Aglietta & Espagne, 2016).

4.0 Methodology

The approach of this paper is to systematically review academic papers, and publicly accessible documents from governments, central banks and other relevant regulators, and opinion of industry experts and groups. We used key search terms – climate change, monetary policy, banking regulation and financial stability - to screen identified literature, before reviewing and finally collating our findings. The conclusions drawn are presented in concise manner to set agenda for the Central Bank of Nigeria.

5.0 Discussion

Central Bank of Nigeria must treat climate change as a top priority that must be addressed systematically without delay by ensuring that its monetary policy and banking regulation point in the same direction. The following suggestions may provide initial guidance for action:

1. **Greening of monetary policy.** Prioritize and adapt the Monetary Policy Committee, MPC decision-making process to consider the macroeconomic impact of climate change (Campiglio, 2016).
2. **Green Macroprudential Regulation.** This can be achieved using countercyclical capital buffers; higher risk weights for either carbon-intensive or dependent sectors or for particularly carbon-intensive and

dependent companies within these sectors; restrictions on exposure concentration to carbon intensive and dependent assets; and climate-related stress tests (Schoenmaker, van Tilburg, & Wijffels, 2015). A dedicated climate stress-tests will help to establish banks' portfolio exposure to climate change-related risks and the stability of the banking and financial system (Battiston et al., 2017).

3. **Green Finance Guidelines and Frameworks.** CBN should also release a green credit guidelines aimed at guiding banks towards greener lending. A roadmap for a green banking framework aimed at developing capacities for environmental risk assessment and green lending with compulsory elements is a must. Embracing green credit allocation to stimulate green investments by targeting refinancing lines to which the banks could refinance themselves at cheaper rates, hence providing an incentive for banks to lend more to the green sector by rewarding them with higher marginal profits (van Lerven & Ryan-Collins, 2017).

4. **Green Requirements.** These should include green differentiated reserve requirements favour of green investments over conventional investments (Rozenberg, Hallegatte, Rerrissin-Fabert, & Hourcade, 2013). Differentiated capital requirements to reduce capital requirements on loans to climate-friendly investments (Dombrovskis, 2017). Campiglio (2016, pp. 226) proposes "calibrating the computation of Basel III risk-weighted capital ratios in a way that low-carbon activities would exert a lower pressure than alternative investments."

5. **Disclosure.** Adoption of the industry-led Task Force on Climate-related Financial Disclosures (TCFD) recommendations on climate change financial disclosures (Task Force on Climate-related Financial Disclosures [TCFD], 2016). Improved transparency of climate-related risks helps a more appropriate pricing of risks and allocation of capital, and provides the basis for green macro-prudential regulation and climate-related stress testing.

6. **Green supporting factors.** Green qualitative easing programme for purchases of green financial assets from banks by central banking institutions to create proportionate reserves for such commercial banks hold at the central bank and use to settle inter-bank transactions (Matikainen, Campiglio, & Zenghelis, 2017). Imposing charges on “brown” forms of lending to compensate for negative externalities. The ‘brown-penalizing’ factor could include quantitative ceilings on credit extension to certain carbon-intensive or polluting activities, climate-related stress tests or countercyclical capital buffers (van Lerven & Ryan-Collins, 2017). Accepting carbon certificates as part of commercial banks’ legal reserves to enhance the market for carbon certificates by making carbon certificates acceptable as part of commercial banks’ legal reserves to reduce the capital costs for low-carbon projects, thereby making them relatively more attractive than ‘regular’ investments (Rozenberg et al., 2011).
7. **Soft Power.** Putting climate change on the agenda by coordinating and supporting initiatives to develop a comprehensive scheme for measuring and reporting institutions carbon footprints to accelerate the transition to low-carbon economy.
8. **Training and skills development.** Improve bank examiners and supervisors, and the banks analytical capabilities to identify and quantify climate-related risks.

6.0 Conclusion

Greenhouse gas emissions are arguably the single biggest negative externality of our time affecting all sectors of the economy. Given its heavily integrated role in society, the banking industry is particularly susceptible to the risks associated with climate change, a result of excessive emission of heat trapping greenhouse gases.

Climate fragilities increase financial fragilities, and climate systemic risk is a potential source of financial disruption.

This paper has argued that there is need for synergy between monetary policy and banking regulation functions to prevent climate fragilities from resulting in financial instability. The paper calls for the Central Bank of Nigeria, CBN to factor the macroeconomic impact of climate change into its monetary policy function, while implementing green macro-prudential policies as it performs banking regulation functions.

7.0 References

- Aglietta, M, Espagne, E. (2016), “Climate and Finance Systemic Risks, More Than an Analogy? The Climate Fragility Hypothesis”, Working Paper No 2016-10, Centre d'Études Prospectives et d'Informations Internationales, April.
- Agoba, A.,M., Sare, Y.A. (2017), “Financial Inclusion and Monetary Policy: A Review of Recent Studies”, Ghana Journal of Development Studies, 14(1), pp. 231-254, doi: 10.4314/gjds.v14i1.12.
- Anowor, O.L., Okorie, G.C. (2016), “A Reassessment of the Impact of Monetary Policy on Economic Growth: Study of Nigeria”, International Journal of Developing and Emerging Economies, 4(1), pp. 82-90.
- Ansar, A., Caldecott, B., Tilbury, J. (2013), “Stranded Assets and the Fossil Fuel Divestment Campaign: What Does Divestment Mean for the Valuation of Fossil Fuel Assets”? Working Paper, University of Oxford’s Smith School of Enterprise and the Environment Stranded Assets Programme, October.
- Battiston, S., Mandel, A., Monasterolo, I., Schütze, F., Visentin. G. (2017), “A Climate Stress-test of the Financial System”, Nature Climate Change, 7, pp. 283-288, doi: 10.1038/nclimate3255.
- Bean, C. (2003), “Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough”? In Richards T., Robinson, T. (eds.). Proceedings of Reserve Bank of Australia Conference: Asset Prices and Monetary Policy, New South Wales, Australia; pp. 48 -76.
- Bhattacharya,S., Goodhart, C.A.E., Tsomocos, D.P., Vardoulakis, A.P. (2011), “Minsky’s Financial Instability Hypothesis and the Leverage Cycle”, Special Paper 202, LSE Financial Markets Group, September.

- Blinder, A. S. (2010), “How Central Should the Central Bank Be”? *Journal of Economic Literature*, 48 (1), pp. 123–133.
- Caldecott, B., Harnett, E., Cojoianu, T., Kok, I., Pfeiffer, A. (2016), *Stranded Assets: A Climate Risk Challenge*, Inter-American Development Bank, Washington DC.
- Caldecott, B., Howarth, N., McSharry, P. (2013), “Stranded Assets in Agriculture: Protecting Value from Environment-related Risks”, Working Paper, Smith School of Enterprise and the Environment, August.
- Carney, M. (2015), “Breaking the Tragedy of the Horizon – Climate Change and Financial Stability”, Speech given at Lloyd’s of London by the Governor of the Bank of England, September.
- Campiglio, E. (2016), “Beyond Carbon Pricing: The Role of Banking and Monetary Policy in Financing the Transition to a Low-carbon Economy”, *Ecological Economics*, 121, pp. 220–230.
- Central Bank of Nigeria (2006), “How Does the Monetary Policy Decisions of the Central Bank of Nigeria Affect You”? Monetary Policy Series No 3, February.
- Central Bank of Nigeria (2013), “Developments in the banking sector”, A Central Bank of Nigeria presentation to Financial Services Regulation Coordinating Committee (FSRCC), February.
- Central Bank of Nigeria (2016), “Monetary policy”, Education in Economics Series No 2, August.
- Central Bank of Nigeria (2017), “Quarterly Economic Report”, May.
- Chude, N.P., Chude D, I. (2014), “The Relationship between Regulatory Inconsistencies and Nigerian Banking Industry”, *Global Journal of Management and Business Research: C Finance*, 14 (4), pp. 103-111.

- Dafermosa, Y., Nikolaidib, M, Galanis, G.(2018), “Climate Change, Financial Stability and Monetary Policy”, *Ecological Economics*, 152, pp. 219–234, doi:10.1016/j.ecolecon.2018.05.011.
- Dietz, S., Bowen, A., Dixon, C., Gradwell, P. (2016), “‘Climate Value at Risk’ of Global Financial Assets”, *Nature Climate Change*, 6, pp. 676-679, doi: 10.1038/nclimate2972.
- Döll, P., Romero-Lankao, P. (2017), “How to Embrace Uncertainty in Participatory Climate Change Risk Management - A roadmap”, *Earth’s Future*, 5, pp. 18–36, doi: 10.1002/2016EF000411.
- Dombrovskis, V. (2017), “Greening Finance for Sustainable Business”, Speech delivered at One Planet Summit, Paris, France, December.
- Drill, A., Paddam, S., Wong, S. (2016), “Climate Risk Management for Financial Institutions. Paper presented at Actuaries Institute Insurance Seminar, Melbourne, Australia, November.
- Economist Intelligence Unit (2015), “The Cost of Inaction: Recognizing the Value at Risk from Climate Change”, Working Paper, July.
- European Parliament (2016), “Interaction between Monetary Policy and Bank Regulation”, Monetary Dialogue, September.
- Godden, L., Rochford, F., Peel, J., Caripis, L., Carter, R. (2013), “Law, Governance and Risk: Deconstructing the Public-private Divide in Climate Change Adaptation”, *UNSW Law Journal*, 36(1), pp. 224-255.
- Heal, G., Millner, A. (2013), “Uncertainty and Decision in Climate Change Economics”, Working Paper 18929, National Bureau of Economic Research, March.
- Kalra, H., Hallegate, S., Lempert, R., Brown, C., Fozzard, A., Gill, S., Shah, A. (2014), “Agreeing on Robust Decisions: New Processes for Decision Making Under Deep Uncertainty”, Research Working Paper 6906, World Bank, June.

- Keynes, J. M. (1937), "The General Theory of Employment", *Quarterly Journal of Economics*, 51(2), pp. 209 – 223.
- Kryvtsov, O., Molico, M., Tomlin, B. (2015), "On the Nexus of Monetary Policy and Financial Stability: Recent Developments and Research", Discussion Paper No 2015-7, Bank of Canada, September.
- Kunreuther, H., Heal, G., Allen, M., Edenhofer, O., Field, C.B., Yohe, G. (2012), "Risk Management and Climate Change", Working Paper 18607, National Bureau of Economic Research, December.
- van Lerven, F., Ryan-Collins, J. (2017), "Central Banks, Climate Change and the Transition to a Low-carbon Economy", Working Paper, New Economics Foundation, September.
- Lima, D.M.B. (2017), "Essays on the Interaction of Monetary and Banking Regulation Policies", Phd Thesis, University of Surrey.
- Matikainen, S., Campiglio, E., Zenghelis, D. (2017), "The Climate Impact of Quantitative Easing", Joint Policy Paper, Centre for Climate Change Economics and Policy (CCCEP) and The Grantham Research Institute on Climate Change and the Environment, May.
- May, B., Plummer, R. (2011), "Accommodating the Challenges of Climate Change Adaptation and Governance in Conventional Risk Management: Adaptive Collaborative Risk Management (ACRM)", *Ecology and Society*, 16(1), 47.
- Miller, A.S., Swann, S.A. (2017), "Climate Change and the Financial Sector: A Time of Risk and Opportunity", *The Georgetown Environmental Law Review*, 69, pp. 69- 110.
- Musa, Y., Usman, U., Zoramawa, A.B. (2014), "Relationship between Money Supply and Government Revenues in Nigeria", *CBN Journal of Applied Statistics*, 5(2), pp. 117-136.

- Nicol, M., Cochran, I. (2017), “How Could Financial Institutions Manage their Exposure to Climate Risks”? Climate Brief, Institute for Climate Economics (I4CE), May.
- Nicol, M., Hubert, R., Cochran, I, Leguet, B. (2017), “Managing Climate Risks for Financial Actors: From Theory to Practice”, Executive Summary, Institute for Climate Economics (I4CE), April.
- Oni, S. (2012), Regulation and Supervision of Financial Institutions: The Nigerian Experience”, CBN Economic and Financial Review, 50 (4), pp. 107-129.
- Oguntuase, O.J. (2017), “Climate Change as Financial Risk: A Survey of Bank Employees’ Perception in Nigeria”, In Ajewole G.A., Adegbamigbe, B. (eds.). Proceedings of Adeniran Ogunsanya College of Education School of Science Conference: Science Education - Panacea to Combating Global Economic Recession, Climate Change and Environmental Degradation, Lagos, Nigeria; pp. 28-36.
- Rajhi, W., Albuquerque, P. (2017), “Banking Stability, Natural Disasters, and Political Conflicts: Time Series Evidence on Causality in Developing Countries”, Discussion Paper 2017-52, Institute for the World Economy Economics.
- Roos, M.W.M. (2015), “The Macroeconomics of Radical Uncertainty”, Economic Papers 592, Ruhr University, November.
- Rozenberg, J., Hallehatte, S., Rerrissin-Fabert, B., Hourcade, J. (2013), “Funding Low-carbon Investments in the Absence of a Carbon Tax”, Climate Policy, 13 (1), 134-41.
- Schoenmaker, D., van Tilburg, R., Wijffels, H. (2015), “What Role for Financial Supervisors in Addressing Systemic Environmental Risks”? Policy Paper 50, Duisenberg School of Finance, April.
- Task Force on Climate-related Financial Disclosure (2016), “Recommendations of the Task Force on Climate-related Financial Disclosures”, December.