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Issues and Challenges for the Design and Implementation of Macro-prudential Policy in Nigeria.

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Abstract

The outcome of the 2007/2009 crises indicated that safety and stability of individual institutions is not a guarantee for the stability of the entire financial system. Consequently, recent debates have focused on identifying the tools and defining the processes for curbing and preventing systemic risk through the adoption of macro-prudential tools in financial regulation and supervision. There have been varying opinions as to what and how to deploy the necessary macro-prudential policy tools to limit the accumulation of systemic risk and strengthen the resilience of the financial system. The adoption and implementation of macro-prudential policy presents a number of challenges to the policymaker and authorities. This paper attempts to highlight the present state of the various discourses about macro-prudential policy and shed more light on the conceptual and definitional issues on the subject. Stylized facts on macro-prudential policy indicate that financial stability and monetary policy complement one another and that both can be implemented together for the achievement of both price stability and financial system stability. Considering the multi-faceted nature of macro-prudential policy, involving different regulatory bodies, effective coordination and strong institutional framework with clearly defined mandate, among others, provide the guarantees for a successful operationalization of macro-prudential policies.

Key Words: Systemic Risk, Vulnerabilities, Macro-prudential, Bank Supervision.
JEL Classification: E58, G01, G28

1.0. INTRODUCTION

The outcomes of the global financial crisis of 2007–2009 established the need for monetary authorities to pay increasing attention towards understanding the dynamics of financial systems and their implications for financial stability. A very clear outcome of the crisis was the realisation of the enormous dangers that the accumulation of micro risks can pose to the stability of the whole financial system and more importantly the need to identify, measure, monitor and properly manage such risks.

The events following the crisis exposed the faulty overconfidence of both regulators and operators in the self-adjusting ability of the financial system. This over-optimism reflected in the underestimation of the possible effects of the excessive accumulation of the growing stocks of debt and increasing leverage, which resulted in credit and asset prices boom – most notably in the housing sector Galati and Moessner (2011). With the gaps in existing regulatory frameworks exposed by the crisis, the years following the crisis have been challenging for central bankers and policymakers Ingves (2011). Most authorities are now faced with the challenge of not only understanding and determining the reforms needed for the financial system, but also the regulatory structures and policy instruments needed to enhance financial stability. To avoid a repeat of the crisis, the need to change the global landscape of supervision and regulation became imperative. Specifically, effective arrangements to take preventive action are, therefore, strongly desirable for all countries, emerging or advanced.

The realisation that financial stability cannot be achieved through the traditional monetary and micro-prudential tools (capital ratio, liquidity ratio and leverage ratio) alone has shifted discussions towards the development of policy tools that would help prevent the accumulation of financial systemic risks. This is what macro-prudential policy framework is intended to achieve. With the increasing inclination towards this framework, attention has shifted away from the belief that focusing on the soundness of individual financial institutions and price stability can ultimately deliver financial stability. The new general consensus has been that there is need for a set of macro-prudential policy tools to address the dangers posed to financial stability due to macroeconomic shock.

One major advantage of macro-prudential measures (instruments and tools) is that they can be targeted at specific risks. If potential bubbles are suspected, specific prudential actions such as debt to income limits can be taken to prevent consumer over-indebtedness. At the very least, capital and liquidity buffers can be built to help shield the financial system from the possible adverse effects of pending boom. Central banks around the world have adopted macro-prudential analysis as a method of detecting and evaluating the health, soundness and vulnerabilities in the financial system. It is also used in taking both preventive and resolution action in crisis management.

Specifying the policy strategy, deciding and picking indicators and instruments and making macro-prudential policy operational has therefore become a prime policy challenge. Thus, financial system regulators and policymakers have been involved in series of discussions, to find a way out of the quagmire of successfully implementing macro tools in line with the ever changing financial landscape. This paper therefore, attempts to highlight the recent developments in the debates on the concept of macro-prudential policy as well as discuss issues and challenges for the design, adoption and implementation of macro-prudential tools for effective and efficient regulation of the Nigerian financial system.

Following this introduction, Section II provides a brief review of some definition of terms, conceptual issues, literature and some stylized facts on the subject as well as the interrelationships between macro-prudential policy, monetary policy, price and financial stability. Section III gives an overview of the recent developments in the area of banking supervision and macro- prudential policy in Nigeria. Section IV x-rays the issues and challenges inherent in the design and implementation of macro-prudential policy in Nigeria, while Section V discusses the way forward and concludes the paper.

2.0. CONCEPTUAL ISSUES & STYLIZED FACTS

This Section provides a brief overview of the conceptual, definitional, theoretical and institutional issues on macro-prudential policy.

2.1. Definition and Conceptual Issues

The term macro-prudential policy is reported to have first appeared in the internal documents of the precursor of the Basel Committee in the late 1970s. The Bank for International Settlement started using it publicly by mid-1980s. The underlying philosophy is to adopt a system-wide approach in the supervision of financial institutions, bearing in mind that the actions of individual firms can collectively generate systemic risk, even if those actions are individually rational and permissible, Galati and Moessner (2011). In this regard, supervisors should avoid focusing narrowly on the safety of individual institutions without regard to the implication of the individual actions on the wider system.

Research work on macro prudential policy is still at its rudimentary stage, partly due to the fact that the macro-prudential approach has only become topical recently. A common challenge in defining the concept of macro-prudential policy is the determination of how narrow/wide such definition should be so as not only to adequately capture the essence – systemic risk, but also to ensure that such is not so broad as to encompass any other thing other than that, which impacts financial systemic risk. Efforts should thus be made to avoid the inclusion of measures which has nothing to do with systemic risk or whose effectiveness in addressing systemic risk is doubtful. A toobroad definition is susceptible to include anything (monetary, fiscal and competition policies for example) that impacts on systemic risk.

Macro-prudential policy has been variously defined by several authors from different perspective. However, each of the authors defined the concept either based on its aims (limiting system-wide financial risk) or based on the scope of its analysis or in terms of the financial system as a whole and its interactions with the real economy.

Caruana (2011) defined macro-prudential policy primarily as the use of prudential tool to limit system-wide financial risk, and so prevent disruptions to key financial services and the economy. He further highlighted a couple of points to properly identify what macro-prudential policy tools are and avoid conceptual misinterpretations.

The G30 (2010) further attempted to give it an operational meaning and thus, stated that macro-prudential policy seeks to develop, oversee and deliver appropriate policy responses to the financial system as a whole rather than focusing on individual institutions or certain economic agents in isolation.

Cecchetti (2012) defined macro-prudential policy as prudential policy with a system-wide perspective. He added that it addresses the risk of system failure rather than the risk of individual bank failure as in micro-prudential policy. Macro-prudential policies are therefore, designed to identify and mitigate risks to systemic stability and in turn reduce the cost from a disruption in financial services, (FSB/IMF/BIS 2011).

It is, however, important to note that macro-prudential policy should be seen only in a supportive role to ensure sustainability. In other words, whereas monetary and fiscal policy can be deployed as a tool for aggregate demand management with domestic inflation as anchor, macro-prudential policy is deployed to contain systemic risk for a more stable economy. Without doubt, the key point here is the focus on systemic risk in which case authorities are not just concerned with the stability of individual banks but ultimately also that of the financial system as a whole. Systemic risk has been understood as a situation in which there is danger of widespread disruptions to the provision of financial services that have serious negative consequences for the real economy.

The term Financial Stability came into lime-light only in the last two decades, precisely in 1996 when the Bank of England launched its Financial Stability Review. Since then, the term has been defined variously as the absence of financial instability or lack of systemic financial crises or panics. Financial stability is generally characterized by the absence of wide fluctuations in prices of assets such as dwellings, commercial property and securities. It can also be described as proper functioning of financial markets leading to efficient credit flow with its positive consequences for output, employment and inflation.

Foot (2003) gave a more positive definition of financial stability. He defined it as a state in which there is confidence in the key financial markets and institutions. Houben et'al (2012) explained financial stability as a state in which the financial system has the ability to help the economic system allocate resources, manage risks and absorb shocks. They added that whereas there is a general understanding of what make up a financially stable system, financial stability is difficult to measure, and is affected by the operations of other policies including monetary policy and fiscal policy.

2.2. Stylized Facts

2.2.1. Beyond Basel III - Genesis of Macro-prudential Policy

Prior to the global financial crisis of 2007 - 2009, the global banking landscape had gone through major changes, driven largely by deregulation and advances in information technology, which increased competition in the industry. Global financial institutions had grown big, both in size and scope, and their organizational complexity had also increased. The development generated a pro-cyclical willingness to take on additional risks and leverage, thus amplifying and propagating the boom and bust cycles.

However, the same dynamic and sophisticated markets became a potential threat to domestic and global economic and financial stability, particularly when product innovations were not clearly understood by the market operators. The vicious cycle of a collapse of confidence, sporadic asset sales and evaporation of liquidity preceded the crisis. In fact, the crisis showed that complex structures and products, increased integration and the growing size of financial institutions led to opaque bank balance sheets. There was clearly a lack of systemic approach to banking supervision and regulation. Indeed, the objective of financial stability was taken for granted simply because while it was not only perceived as rational and desirable, it was unfortunately thought to be a by-product of proper/appropriate macroeconomic and micro-prudential regulatory policies (Claessens and Valencia 2013).

However, the global financial crisis called the above views to question such that it is now generally accepted that a separate macro-prudential objective relating to the overall financial system stability has become imperative. In particular, one of the main lessons from the crisis was the realisation that monetary authorities and managers of the economy need to pay more attention to identifying early warning signals and vulnerabilities not just in individual institutions but more importantly in the financial system as a whole. The fall-out of the crisis also brought to the fore, the need to understand and track the relationship between the risks and vulnerabilities and the general macroeconomic developments in an economy.

The build-up to the crisis was initially attributed more to a micro-prudential rather than a macro-prudential failure. The easing in US mortgage lending standards, the growing reliance on short-term wholesale funding, the low risk weights attached to complex and highly leveraged structured securities were all things that diligent micro-prudential supervisor could have - and – arguably should have – noticed and responded to. This could happen because many individual institutions are doing the same risky operations, or it could happen because particular risks have become concentrated in few institutions. In the face of these developments, a more holistic (system-wide) perspective could, certainly, help supervisors see if risks are building up.

Moreover, before the crisis, the focus of Central Banks was price stability, which was thought would ultimately lead to financial stability. Supervision was centred on ensuring soundness of individual financial institutions in the expectation that this would ultimately underpin the stability of the financial system as a whole. However, events beyond the crisis have shown clearly that financial stability cannot be achieved solely through the traditional monetary or micro prudential policy. Even though the countercyclical buffer and capital surcharge which characterised the new capital and liquidity framework of Basel III is yet to be finalised, it is almost in its present form exclusively micro-prudential in nature. It is more concerned with the solvency of individual institutions rather than the resilience and stability of the financial system as a whole. With macro-financial risks becoming the focus of financial regulation, macro-prudential policy has emerged as a candidate of solution.

2.2.2. Macro-prudential Policy Objectives

Different opinions among various authors and scholars point to the fact that macro-prudential policy is directed at the containment of systemic risk to preserve financial stability. It is still doubtful, however, that its objectives are clearly defined and quantifiable as those of monetary and fiscal policies. Another widely held opinion is that macro-prudential policy is aimed at not just strengthening the resilience of institutions to shocks (real/financial) but also contains accumulation of risks, particularly over financial cycle (Visco 2011). This broad consensus, however, face two major challenges of difficulty and inability to identify and measure systemic risks ex-ante. Nonetheless, it is now clear that the objective of macro-prudential policy is to prevent the accumulation of financial systemic risks (Shin, 2011).

Still on this perspective, Caruana (2011) singled out two possible objectives for macro-prudential framework – a narrow aim to increase the resilience of the financial system – build up buffers in good times so that they can be leveraged on in bad times, and a broader and more ambitious aim to constrain financial cycle and mitigate the accumulation and spread of systemic risks.

Generally, the major policy objective of a macro-prudential approach is to limit the risk of episodes of financial distress with significant losses in terms of the real output for the economy as a whole. Micro-prudential approach on the other hand has the basic objective of limiting the risk of episodes of financial distress at individual institutions. Unlike the case of monetary policy where there has been a clear-cut consensus about the pivotal role of the policy rate and supported by clear and coordinated communication, a comparable consensus is still lacking in the literature on macro-prudential policy objective. Macro-prudential policy, within the overall financial system stability interacts seamlessly by feeding into and drawing from the processes of other national policies, particularly monetary and fiscal policies. In other words, macro-prudential policy framework facilitates not only the identification and monitoring, but also ensures proper analyses of risks and vulnerabilities that relate to ensuring the stability of the overall financial system, in particular and the economy in general. Macro-prudential policies differ from micro-prudential polices in that they are intended to protect the financial system as a whole and, by extension, the broader economy. They are aimed at countering the pro-cyclical nature of credit and leverage, leaning against the wind when systemic risk is accumulating. Put differently therefore, macro-prudential policies seek to stem risks related to interconnections and spill overs in the financial system.

2.2.3. Macro-prudential Tools and Measurement

Most submissions have defined macro-prudential tools as prudential tools set up with a macro-focus (in the sense of system-wide/systemic) and other macroeconomic tools that can support financial stability such as fiscal policy (Blanchard et al, 2010; Borio, (2011). However, the nature and form of its objectives suggest strongly that macro-prudential strategy will require a range of reinforcing policies and tools so as to effectively contain credit growth and asset price booms, (Caruana, 2011). It is noted further that financial regulatory policies are an essential part of the solution, but will not alone suffice to address systemic risk in all its complexity. To this end, various authors have suggested the use of macro-prudential tools in addition to the monetary policy tools (reserve requirements and loan-to-value (LTV) ratios) as priority instruments for promoting financial stability. While the reserve requirements is seen as a possible effective tool from the liability side (system liquidity), the LTV ratio and asset-based reserve requirements would be effective on the asset side, especially since financial cycles are usually driven by asset fluctuations.

In the face of the extensive debate and the number of initiatives by research task forces in the academia and policy forum, a variety of possible macro-prudential measures have been investigated.

However, it is important to note that whatever primary instrument or standard taxonomy of instruments have been identified, they are still subject of widespread debate. Discussions around the tools of macro-prudential policies have always been centred on the traditional micro-prudential tools with adjustments to ensure that the spread of systemic risks is curtailed. Most thoughts have been around the use of the traditional prudential tools (capital ratio, liquidity ratio and the leverage ratio) with modifications to contain probable sources of systemic risks and financial cycles (upswing and downswing).

Beyond the safety of individual institutions (which is the objective of micro-prudential supervision), macro-prudential policy is concerned with the welfare of the entire financial system. It targets the interconnectedness of financial institutions and markets as well as their common exposure to economic variables in relation to how this interaction may increase the riskiness and fragility of the whole financial system, (G30, 2010: pp14). To this end, macro-prudential policy will address a major shortcoming in micro-prudential supervision as it captures common exposures in a way and to the extent that is not dependably captured by regulatory focus on individual institutions.

2.2.4. Macro-prudential Policy Framework and Governance Arrangements

The philosophy behind macro-prudential policy is a desirable one and therefore requires key aspects of governance arrangements such as effective flow of information across the market operators and macroeconomic departments of the monetary and fiscal authorities. This presupposes, therefore, that the pursuit of financial stability and the associated macro-prudential processes ordinarily involves different institutions, particularly regulatory authorities from different areas of the economy. Regular meetings among the representatives of these institutions that would focus on risks and vulnerabilities and highlight warning signs can be very valuable. A culture of coordination among these groups is very important. In many instances, a stress situation is first evident in liquidity strains and the first responses may be calls on central bank liquidity.

Several countries (developed and developing) that have adopted macro- prudential policies set up separate bodies for macro-prudential policy implementation and coordination. These bodies have, however, functioned, largely, as committees in which central banks remain the pivotal authority with the government and other supervisory authorities being actively involved in the arrangement. Debate has, however, been around whether or not such an arrangement should exist within or outside the existing governance structure of the central bank. A body under the central bank is seen as better positioned for a more efficient and prompt decision making process to leverage on existing integrity and processes of the central bank and are also protected from political and fiscal interference (Rhu, 2011).

Designing such a framework may encompass several aspects, including new institutional frameworks for coordination and decision making across supervisory agencies, frameworks for assessing systemic risk such as early warning signals and stress testing, and the recognition that prudential regulations can also be actively used to help contain systemic risks. Whatever type of macro-prudential policy framework is chosen, the central bank should play a key role in assessing systemic risks, because, central banks have expertise and analytical capacity and a comprehensive overview of the financial system and macro-economy. Rhu (2011) added further that for reason of being the lender-of-last resort and having the appropriate mix of monetary and macro-prudential policies as well as the potential capacity for financial stability, central banks must take the lead in designing the structure, deployment and implementation of macro-prudential policy.

2.2.5. Macro-prudential and Micro-prudential policy Interaction

It may seem that the interdependence between macro-prudential and micro-prudential policy is a source of conflict. This thought is accentuated by the fact that whilst the tools for the two are broadly the same, the latter only need to be calibrated to serve macro-prudential purposes. In addition, they are to be used by different authorities and thus appear as a potential source of conflict. Visco (2011), however, noted that recent events point to some evidence of strong complementarities between the two policies. According to him, the workings of the two are such that it is hard to imagine the success of one policy without the other. He added further that whatever the institutional arrangements may be, it is crucial to ensure a continuous exchange of information and to set up well-defined mechanisms to resolve any conflicts (real or imaginary) between the two functions. The major downside of micro-prudential policy is that it focuses on the risk positions of individual institutions, markets, and infrastructure and assumes that the rest of the financial system and the economy will balance out. In other words, micro-prudential policies ignore risks that are endogenous and of systemic importance to other institutions. It is in this respect that macro-prudential policy complements micro-prudential policy as it focuses on the interactions between financial institutions, markets, infrastructure and the wider economy to ensure financial system stability. Macro-prudential policy tools are in fact the usual prudential tools that have long been used for ostensibly "Traditional Micro-prudential Supervision". What is 'new' is its all-inclusive nature and the motivation behind its use.

Overall, macro-prudential policy is a complement to micro - prudential policy and interacts with other types of public policy that have an impact on systemic financial stability. Macro–prudential policies take into consideration such things as the size of institutions, extent of leverage and the level of interconnectedness of institutions. The role of macro-prudential policy frameworks is therefore to complement existing micro-prudential systems so as to identify and address emerging risks across the financial system as a whole.

Table 1: Macro and Micro Prudential Policies Compared

	Macro-prudential	Micro-prudential
Proximate objective	limit financial system-wide distress	limit distress of individual institutions
Ultimate objective	avoid macroeconomic costs linked to financial instability	consumer (investor/depositor) protection
Characterization of Risk	"endogenous" (dependent on collective behavior)	"exogenous" (independent of individual agents' behavior)
Correlations and common exposures across institutions	Important	Irrelevant
Calibration of prudential controls	in terms of system-wide risk; top-down	in terms of risks of individual institutions; bottom-up

Source: Adapted from Galati and Moessner (2011).

2.2.6. Monetary Policy and Macro-Prudential Policy Interaction

There is a global consensus that the primary mandate of central banks should be the maintenance of price stability and financial stability. Predicated on the fact that purchasing power of money is undermined by increase in consumer prices, low and stable inflation is normally specified in terms of stabilizing the index of consumer prices in one form or another. Indeed, a constant index of consumer prices maintains the real value of money over time. Specifically, with stable prices, money serves the society best as a unit of account, medium of exchange and store of value. But, does seeking to foster price stability involve the task of pursuing financial stability?

Though there is no consensus as to the direction of causality between asset prices and monetary policy, there is a sizeable number of theories which explains the link between the two. In a summary of such works, Borio and Lowe (2002) highlighted various arguments in the literature which held that a monetary regime that produces aggregate price stability will as a by-product tend to promote the stability of the financial system. It was argued that an unexpected decrease in inflation increases the real value of outstanding debt and makes defaults more likely. On the other hand, an increase in inflation would lead to increases in acquisitions of leveraged assets thus, leading to misallocation of resources that may also create vulnerability in the financial system. This position points to the existence of certain level of synergies between monetary policy and financial stability. Consistently stable prices will therefore promote an environment that allows for interest rate predictability, which invariably implies low premium in long-term rate and reduced interest rate mismatches.

With a primary focus on price stability and using the short-term interest rate as the anchor for the ultimate objective of macroeconomic stability, monetary policy was accorded a strong role prior to the 2007/2009 crises (Caruana 2011). However, events leading to the crises revealed that price stability alone could not guarantee macroeconomic stability. Similarly, macro-prudential policy alone has been found to be incapable of ensuring financial and macroeconomic stability. There are evidences that macro-prudential and monetary policy can be complementary such that they are more likely to move in the same direction rather than working in separate directions. Monetary tightening (higher interest rate) to control inflation may adversely affect banks' net financial (balance sheet effect) on one hand, due to the inability of banks to concurrently pass increased cost to assets unlike when it affects liabilities. Access to increased capital flow in this situation may lead to over-borrowing, increased interest rate mismatch and increased credit risk, among others. However, Garcia and Pedro (2003) noted that beyond the synergies between financial stability and monetary policy, there is also the possibility of trade-offs between them.

This development has culminated in the debate as to whether or not authorities can successfully pursue the objectives of monetary policy and those of macro-prudential policy concurrently. Consequently, policymakers are now leaning more towards the idea in which both monetary and macro-prudential policies serve jointly as a countercyclical management tool. In this regard monetary policy focuses on price stability while macro-prudential policy targets primarily the objective of financial stability. It therefore implies that the two policies while being implemented, interact, and could therefore promote each other's effectiveness. As noted by Claessens and Valencia (2013), monetary policy can affect financial stability, and macro-prudential policies can affect output and inflation.

Explaining further the interaction between the two policies, Claessens and Valencia (2013), noted, however, that where each policy operates perfectly in attaining its objectives, the side effects do not pose significant challenges to the conduct of both policies. To the extent that price stability is the target of monetary policy, all that may be required by monetary policy makers, is to pay attention to the longer-term trends. Where implementation of monetary policies provide incentives for financial institutions and players to take more (excessive) risks, macro-prudential policies could be deployed as appropriate. On the other hand, if macro-prudential policy generates substantial push on output, policymakers would only be required to tighten monetary policy to counterbalance the effects. According to Caruana (2011), it is this longer-time horizon that helps dissipate the possibility of conflicts between monetary policy and macro-prudential decisions: Claessens and Valencia (2013), submitted that where shortcomings occur in the application of macro-prudential policies, monetary policy may still be needed to respond to the build-up of financial risk, by 'leaning' against the credit cycle. However, if the weakness is a negative financial shock, expansionary monetary policy is deployed. Conversely, where monetary policy is constrained, there will be greater demands on macro-prudential policy. The emerging paradigm is one in which both monetary policy and macro-prudential policies are used for countercyclical management: monetary policy primarily aimed at price stability; and macro-prudential policies primarily aimed at financial stability.

2.2.7. Financial Stability and Macro-Prudential Policy

The main goal of macro-prudential policies is to reduce the build-up of systemic risk so as to attain financial stability. Though macro-prudential policy can contribute hugely to financial stability it cannot alone guarantee delivery of stability in the entire financial system as financial stability is affected by other public policies. Macro-prudential policy is designed mainly to respond to developments in the financial cycle irrespective of whether it is targeted at improving resilience or counter financial cycle. As noted in the G30 (2010) report, in most cases, authorities rely very much on identifying the stage of financial cycle in deciding whether or not to deploy macro-prudential instruments. Deciding the stage of the financial cycle is, however, not a clear-cut task. Therefore policymakers depend on the use of macro-prudential indicators to identify the scenario they are faced with. Table 2 below highlights a set of possible indicators which policymakers can rely on to measure the broad state of a financial cycle that would guide them in such decisions as when to release macro-prudential policy instruments.

Table 2: Selected Indicators of Vulnerabilities(measuring systemic risk)

S/N	Indicator	Description
1	Market-based Indicators	• interest rate spread • credit default swap spread • corporate bond spread • valuation trends in equity and property market. • systemic risk measures
2	Banking Sector Indicators	• loan-to-value ratio (LTV), • profitability • leverage ratios • asset/liabilities & currency mismatch • stress tests and bank risk statistics • non-core liabilities trend & composition • repos & CP as proportion of M2 • non-performing loan size
3	Macroeconomic Indicators	• aggregate domestic credit • debt to Income ratio • debt service ratio • trends in foreign exchange liabilities
4	Qualitative Information	• standard of underwriting • credit conditions
5	Household Systemic Risk Indicators	• credit variables • credit-to-GDP • household credit-to-GDP • growth in real household credit

To address the challenge of which indicator to use to track which vulnerability, the Committee on Global Financial System (CGFS, 2012) suggested a three step approach to the process of selecting and applying the indicators (See Table 3). Policymakers need to assess not just what indicators relate to which vulnerability, but also determine which indicator should be assigned to which instrument. It is important to note that while some indicators are slow-moving and, therefore, will be very appropriate for gradual deployment of instruments during a down swing in the financial cycle, others which move more rapidly will be more appropriate for a prompt deployment.

Market-based indicators are available at high frequencies and provide signals of the onset of a crisis and, therefore, have an important role to play. Working through supervisory information to carry out a detailed analysis of banks' balance sheets can be a good pointer to whether or not system-wide crisis is about to occur. In respect of indicators for vulnerabilities that may build up from risks in the household sector, policymakers need to pay attention to the fact that most of them continue to rise for some quarters even after the start of the crisis and, therefore, may not be well suited to guide releases of instruments (CGFS, 2012: pp 12-13).

However, valuation-based indicators tend to peak four to eight quarters before the start of a crisis. Policymakers should attempt to set a benchmark for selected indicators which will guide the use of the indicators in determining the financial cycle stage and deciding on the release of instruments.

Table 3: Steps in Selection of Indicators

Steps	Activities
Step 1	Ascertain the following in respect of the indicator; • relevance for the Macro-prudential Instrument. • ease of data availability. • ability to easily communicate and replicate (simplicity).
Step 2	Rigorous assessment of the empirical robustness of possible indicators to guide the build-up or activation of specific MPIs.
Step 3	With respect to the release phase, policymakers need to determine whether the stage of the financial cycle is just a downswing or there is a crisis. This will determine whether to embrace a gradual or rapid release of MPIs.

In general, to be categorised as good, a selected indicator will have a peculiar observed pattern before a crisis, which can then be a guide to determine build-up of imbalance. Such observed pattern could either be high or increasing levels of the indicator, which provides signal for building imbalance. The behaviour of the indicator is also expected to be such that will clearly signal when instruments should be released gradually, in the situation of a build-up (or downturn), or rapidly, in a crisis situation. A good indicator should also give signal to policymakers to determine when there is need for a slow-down in the use of the instruments.

3.0. Overview of Banking Supervision and Macro-Prudential Policy in Nigeria

The Nigerian banking sector had undergone series of reforms in the past one decade with the aim of making the system more stable, safe, effective and resilient to shocks. The CBN introduced the universal banking scheme in 2001 to create a level-playing field for financial sector operators, encourage greater efficiency through economies of scale and foster competition by opening up various lines of business, which included retail banking, wholesale banking, capital market activities and insurance agency to banks. Before then, in 1991, the government promulgated the Banks and Other Financial Institutions Decree (No. 24) and the Central Bank of Nigeria Decree (No.25), which spelt out comprehensive guidelines for bank regulation, supervision and liquidation. The supervisory role of the CBN, aimed at promoting sound banking and financial system, was also statutorily expanded to cover non-bank financial institutions. Consequently, the activities of all the regulatory and supervisory authorities in the Nigerian financial services sector were brought under the coordination of the Financial Sector Regulation and Coordinating Committee (FSRCC), under the chairmanship of the CBN. The monetary authorities also adopted the Code of Good Practices in Monetary and Financial Policies, the International Accounting and Auditing Standards and initiated a private sectorfunded "life-boat" facility accessible to all deposit money banks in temporary liquidity problem. Again, in line with international best practice, the CBN adopted the Core Principles of the Basel Committee on Banking Supervision, including the prudential guidelines for licensed banks to promote banking soundness and financial sector stability.

As alluded to earlier, the experience from the recent global financial crisis has made it necessary for countries to find means of strengthening their financial, regulatory and supervisory framework. In this regard, the CBN has taken a variety of new measures to improve the efficiency and resilience of the nation's financial system. Prior to the crisis, most policies that were in place focused mainly on price stability and were micro-prudential in nature, focusing on individual institutions. The Bank has, however, taken steps to ensure the stability of the banking sector in particular and the financial system as a whole, in its pursuit of price stability, which is the primary thrust of monetary policy. Supervision of the banking system has become very robust to ensure that banks maintain sufficient capital and loan loss provisions as well as avoid poor lending decisions that could lead to high levels of non-performing loans.

In addition, the Bank adopted the Risk-Based and Consolidated Supervision framework to address observed shortcomings and limitations of the traditional compliance–based supervisory approach. The new supervisory framework is expected to adequately address the contemporary challenges and risks faced by banks. The appropriateness of this approach is underscored more by the realisation that the collapse of most big institutions during the global financial crisis was due to the failure of the supervisory authorities to properly anticipate, identify, evaluate and hedge against risk exposures, among others.

The Bank also established a Financial Stability Committee (FSC) to assist it in the promotion of a sound financial system in the country. The Committee plays a pivotal role in the Bank's effort at ensuring stability in the financial system. As alluded to above, there is also the Financial Services Regulation Coordinating Committee (FSRCC) which is an umbrella body of all regulators in the financial system with one of the mandate of co-ordinating the activities in the system for the purpose of achieving its stability. The two bodies work together very closely in the pursuit of the objective of ensuring the resilience of the financial system without halting the continuous functioning of the entire financial system. Furthermore, there exists another level of interaction between the Financial Stability Committee and the Monetary Policy Committee to ensure that monetary policy is influenced by trends in systemic risks. Part of the outcome of the interaction was the identification of Systemically Important Banks (SIBs) on which the authorities focus more for intensified supervisory oversight.

Beyond these semi-institutional arrangements, the CBN, like other central banks, took other major steps towards addressing the threat of systemic risk through the adoption and implementation of macro-prudential policy. To achieve this, the CBN created the Financial Policy and Regulation Department (FPRD) with a key responsibility for macro-prudential implementation and regulation. The philosophy behind this new policy framework involves strong scenario planning, and the development and implementation of macro-prudential ratios. The Bank, in addition to focusing on individual banks' micro-ratios, now computes macro-ratios of the industry in order to arrest any emerging systemic risk in the industry. The Bank also conducts stress test on the banks twice every year, to ascertain/determine the vulnerabilities that could lead to systemic risk and disruption of financial markets.

The various reforms measures by the CBN have not only strengthened the financial markets infrastructure, but has also provided the necessary environment conducive for the growth of the industry in particular and macroeconomic stability of the economy at large. Macro-prudential regulation is an economy-wide concept and does not fall exclusively within the jurisdiction of the CBN alone as a monetary authority. For the policy to be effective, the need for the structure to encompass all other regulatory authorities in the financial sector to ensure its robustness and success has been provided by the Financial Services Regulation Coordinating Committee (FSRCC). Some analysts believe that the achievement of macroeconomic stability in recent times (relative stability of exchange rate, interest rate and inflation) was not unconnected with the monetary policies of the Central Bank of Nigeria and enhanced by the collaboration provided by the platform of the FSRCC through which the Bank and other regulators in the financial services industry interact.

The Bank must continue to assume major role in the achievement of its policy mandate. In addition, critical issues of building requisite analytical skills for identifying and measuring systemic risk and building a sound institutional framework must be addressed. The focus must be to build a policy framework that optimises the strengths and limits the weaknesses of whatever model/structure model is adopted with aim of making the best of available options. Whereas prudential tool based model is confined primarily to the regulated financial system, macro-prudential authority have a wider range of instruments which potentially expand the scope to address systemic risks beyond the regulated financial system (See Table 4). Adopting and co-opting these tools would therefore come at the price of a greater need to change the operational frameworks of other policy areas. Overall, as is found in more developed jurisdictions, the macro-prudential policy mandate is best shared among several public agencies including the central bank. Through discussions and negotiations among the various agencies involved, any policy disagreement is resolved so that the conduct of macro-prudential policy is largely based on consensus. Some of the key and peculiar issues that must be resolved before an effective policy regime for the containment of systemic risks can be established are discussed in the next section of the paper.

Table 4: Suggested Policy Options for Promoting Price and Financial Stability in Nigeria

Alternative Tools	Objective	Instrument Options	Authority
Monetary Policy	Price Stability	Repos, Monetary Policy Rate	CBN
	Liquidity Management	Standing Facility Rate/Policy, Market Operations Policy/Rate	CBN
	Addressing and Curtailing Financial Imbalance	FX Regulations, Reserve Requirements, Monetary Policy Rate	CBN
Fiscal Policy	Aggregate Demand	Tax Policies, Expenditure Policies	Federal Government
	Fiscal Buffers	National Debts Policies,	
Capital Controls	Control of Currency mismatch	Banks' FX net open position, Foreign Currency Asset Regulations	CBN
Financial system Infrastructure Policies	Strengthen the resilience of the financial system's infrastructure	Toxic asset management policies, Listing of derivative on exchange,	CBN/SEC
Micro prudential Policy	Curtail individual institutions' failure	Leverage Ratio, Capital Size, Capital Quality, Reserve Requirements (CRR & LR)	CBN
Macro prudential Policy	Prevent distress in the entire industry and macroeconomic stability in the economy	Extended Micro-prudential Policy Instruments	CBN/Govt./ Agencies

4.0. ISSUES AND CHALLENGES

The years following the crisis period, have been a challenging one for central bankers and other policymakers/stakeholders concerned/involved in the pursuit and maintenance of financial stability. Like other socio-economic elements, the economy is not static hence it is difficult to perform controlled experiments on the macro-economy. The design and implementation of an effective macro-prudential policy framework, instruments and tools as well as the process of deploying it to prevent and mitigate systemic risks are the major issues faced by policymakers. Indeed, there are several issues and challenges in the design and implementation of macro-prudential regulation in Nigeria, which are discussed below.

4.1. Governance Arrangements

Macro-prudential policy focuses on the interactions between financial institutions, markets, infrastructure and the wider economy. The credibility of the regulatory authority in charge of macro-prudential regulation carries a lot of weight. Therefore, major concerns about the governance arrangement have been the fear of being able to ensure the independence of a central bank. In effect, the implementation of macro-prudential regulation should not undermine the independence of the central bank. Whether or not it would be ideal to establish an independent authority comprising the CBN and other regulatory bodies does not matter. To be effective, institutional arrangements for macro-prudential policy need to ensure a policymaker's ability and willingness to act when necessary. The task has been the building of an institutional arrangement that guarantees clear mandates, arrangements that safeguard operational independence and provisions to ensure accountability, supported by transparency and clear communication of decisions and decision-making processes. Policymakers have grappled with ensuring that the appropriate agencies are given the appropriate mandates, sufficient capability and policy instruments to deal with threats to financial stability.

4.2. Policy Analysis, human capital and Capability

The ability of policymakers to act as at when due and in the manner required depend largely on the effectiveness of the analytical capability of responsible personnel/authorities. Appropriate analytical capability is needed to quickly identify system-wide risks as well as to determine when and how instruments should be deployed in response to these risks. In other words, the effectiveness of policies depends largely on human capital developments and capacities, timeliness and appropriateness of instruments deployed at a point in time. Most supervisory agencies in the world today seem to be suffering from a lack of capacity particularly in this area of macro-prudential policy implementation due mainly to the developing and emerging nature of the policy. The need to implement various other improvements (New Prudential rules, IFRS, Basel III, etc.) in existing system therefore calls for the authorities to build capacity and needed skills.

4.3. DATA INTEGRITY AND AVAILABILITY

Accuracy and availability of data has been identified as a critical success factor for effective supervision. Data integrity improves the ability of the authorities to the take right decisions, while availability ensures that necessary actions are taken at the appropriate time in order to identify, measure and mitigate the accumulation of systemic risk. Unfortunately, inadequate and faulty infrastructure as well as the integrity and completeness of data generated by/from operators (banks) have been the bane of the authorities' efforts at gathering and accessing the appropriate set of data.

4.4. POLICY OVERLAP

Differentiating between 'Micro' and 'Macro' prudential policy can be quite a daunting task. How can financial institutions comply with the requirements of both micro-prudential and macro-prudential regulations? In any case, there are strong relationships (and sometimes conflicts) between the two and it is hard to imagine the success of one without the other and to set up well defined mechanisms to resolve any conflicts between them. Macro-prudential policy is a complement to micro-prudential policy and it interacts with other types of public policy that have an impact on financial stability. No matter how different policy mandates are structured, addressing financial stability and systemic risk is a common responsibility. Many policies could and should influence financial stability and systemic risk, but not all such policies should be considered as macro-prudential. Against this backdrop, it would be difficult to expect satisfying synergy effects from the mutual complementarity of macro-prudential and monetary policies. If the effects of the two policies overlap or are in conflict and they are not operated harmoniously, this may give rise to the problem of excessive or offsetting policy effects, as both work by way of charges on financial institutions' balance sheets. If macro-prudential policy works smoothly toward the targeted objectives at an opportuned time, however, it can form a mutually complementary relationship with other policies and thus, maximize social welfare through price stability and financial stability, as suggested by Claessens et al (2010). This view claims that (as we can see from the experience of the 2008/2009 financial crisis) it is possible to respond to the accumulation of financial imbalances, including the build-up of leverage triggered by monetary policy, by using macro-prudential policy instruments to reduce the interconnectedness of financial institutions and pro-cyclicality through regulations on financial institutions' balance sheets. Furthermore, if additional macro-prudential policies which can contribute to financial stability successfully play a complementary role to monetary policy, this can contribute to enhancing monetary policy's credibility and transparency.

4.5. Instruments and Policy Coordination

The fact that macro-prudential policy cannot alone guarantee macroeconomic and financial stability implies that it requires constant and continuous interaction with other policies. In the face of macroeconomic and price distortions, policymakers rely more on monetary and fiscal policies, complemented by macro-prudential policies through effective regulation and supervision of financial institutions. The questions are: How should macro-prudential policies be coordinated with monetary and fiscal policies? How can we ensure that macro-prudential policies work in concert with credible frameworks of monetary and fiscal policy? It should be noted that some tools might be difficult to implement in a given legal framework. As noted by Abolo (2012), while macro-prudential policy is still in its infancy and is not the ultimate antidote that will prevent future crises, it is, however, a most useful addition to policy frameworks aimed at preserving economic and financial stability. He further noted that more work needs to be done in the area of coordination of the activities of different regulators, even though the Financial Services Regulation Coordinating Committee (FRSCC) provides some sort of natural platform for the coordination of macro and financial stability issues. Outstanding issues to be sorted in relation to FRSCC as noted by IMF (2013), include the institutionalisation of detailed work programme and the need for the body to closely follow new developments on macro-prudential policies and instruments.

4.6. Macro-prudential and Monetary Policy Overlap

Notwithstanding the extensive complementarity between monetary and macro-prudential policy, none is a perfect substitute for each other. However, policymakers face the herculean task of deciding on the avoidance of wrong use of tools in different circumstances. In some instances, where monetary arrangements are not adequate, it may be more appropriate to strengthen the effectiveness of monetary policies rather than deploy macro-prudential policy instruments. Similarly, certain effective monetary policy stance may encourage excessive risk-taking in which case, macro-prudential policies will be required to address the adverse effects of the monetary policy. Overall, we must strive to avoid situations in which macro-prudential and monetary policies are working at cross-purposes, given that macro-prudential policies affect macroeconomic performance and that monetary policy may affect risk taking incentives.

5.0. THE WAY FORWARD AND CONCLUSION

5.1. The Way Forward

Following the extensive discussion in this paper, the pertinent questions are: Are there useful metrics to measure systemic risk and assess the effectiveness of macro-prudential tools? Are rule-based macro-prudential policies more effective than those applied with discretion? When is a single instrument more effective and when should a country depend on multiple instruments? A first step at ensuring the effective design, deployment and implementation of macro-prudential policy will definitely be to address the challenges and issues that authorities face in their quest for the adoption and application of the various tools of macro-prudential policy. Much of the propositions have been built around ensuring proper coordination with other supporting policies, as well as putting in place appropriate governance arrangements to strengthen independence, clarity and accountability. Domanski and Tim (2011) posit that in addition to a centralised and transparent decision-making structure, there should be an explicit macro-prudential mandate and an operating strategy that leans against the financial cycle. He noted that all these must be effectively and clearly linked to systematic risk assessments and supported by a simple communication of the process.

Major concerns of policymakers now should revolve around not just identifying and defining systemic risks but also choosing and implementing the right mix of instruments under an effective and appropriate framework. In other words, there is need to understand the sources of systemic risks and design appropriate surveillance practices that would enable the stakeholders and responsible authority detect threats to financial stability early enough. Also, policymakers must develop a tool kit of supervisory policy instruments around macro-prudential policies and guidelines on how and when to deploy them. It is imperative that relevant authorities must strive to avoid situations in which macro-prudential and monetary policies are working at cross-purposes, given that macro-prudential policies affect macroeconomic performance and that monetary policy may affect risk taking incentives. All of these issues raise complex questions of design and implementation. Besides, the following are to be taken into consideration:

5.1.1 Mandate Clarity

One of the major challenges in the implementation of macro-prudential policy may be lack of clarity in the mandate on the policy, as against those of monetary and allied policies. To ensure effectiveness, it is important that the objectives of macro prudential policies should be kept separate from those of more traditional policies. Domanski and Tim (2011) noted that explicit mandates strengthen policymakers' legal and moral authority to take unpopular actions. They added that clear mandates also help to address challenges relating to responsibility accounting, especially where there is a multi-task and multi-policy decision chain, structure and process. It also helps to resolve communication problems. In different jurisdictions, mandates for macro-prudential policy are not just explicit and high-profile but have the power of a Statute, Act or Law. Clear mandate, supported with the power of the law, sufficiently helps to deal with the inaction bias of macro-prudential policy, which manifest mainly because the gains from the policy are hard to observe, while its cost are usually huge and easily evident. Consideration from the industry and political interests are reasons for policymakers to slow-down on taking appropriate actions when necessary. As noted by Houben et al (2011), clarity of mandates helps to define responsibilities and powers, and creates both the willingness and ability to act promptly.

5.1.2 Governance Structure and Legal Framework

There is need to put in place a governance arrangement that will guarantee, particularly operational independence when designing, and implementing a macro-prudential framework. The

Independence of the macro-prudential decision-making process from the political process strengthens the moral force of the mandate. Protection and separation from political cycles allows the implementation of unpopular policy decisions like intervention during boom period, which may give an indication that problems loom. Well-defined institutional structure facilitates the need to clarify trade-offs with other policies and promotes the achievement of a consistent policy mix. As a result of the extensive interdependence/overlap of macro-prudential and monetary policy, there is a compelling reason from emerging reality that central banks have an important role to play in the implementation and governance arrangement of macro-prudential policy framework. It is, however, recognised that other authorities need to be engaged and coordinated in handling the multiple tasks involved. In other words, individual governance issues need to be respected; the form and allocation of objectives need to be decided; and conflicts amongst objectives need to be resolved. Also important is the fact that because the implementation of macro-prudential policy entails collection and use of information from institutions within and outside the traditional supervisory purview, there is need for new powers like the ability to source and secure relevant information.

5.1.3 Coordination

By the nature of the aims and coverage of macro-prudential policy, the process relies on information and data feed from other agencies and bodies. Consequently, the process involves interplay of various institutions in the form of a stepped-up interaction and cooperation among these authorities. Because financial stability has been established as a collective responsibility of the various public polices (micro prudential, monetary, fiscal and macro- prudential policies), the requirement for a clear cooperation arrangement is inevitable to guarantee the much-needed mutual consistency and coordination. This has been envisaged in various forms but mostly favoured is the arrangement where a single body decides the mix of instruments and captains the implementation. Other possibilities could take the form of operating a process where overriding authority resides with a particular body/institution or where there exist a duty to consult; report; notify/inform and/or where ultimately coordination is governed by memorandum of understanding.

5.1.4 Role for Government

To design and implement an effective macro-prudential policy framework, there is need to have the absolute support of the political authority. In other words, because of the need to be able to deal with distractions from political interests, building a political constituency creates a subsisting political abode which will ensure that the policy framework is strengthened and effective.

5.1.5 Role for Financial System Regulators

Macro-prudential policy implementation requires the coordination of the activities and policies of the different regulatory bodies and as such necessitates that there must be not just collaboration but also commensurate level of commitment. One of the major characteristics of macro-prudential policy which greatly influences the institutional structure is the linkage to the central bank's responsibilities for financial stability. The traditional roles and functions of central banks invariably provide systems with appropriate expertise in analysing financial sector developments, interacting with financial markets, safeguarding payments system and providing lender-of-last-resort financing. This is the more reason today why central banks are expected to play a critical role in macro-prudential policy implementation and prevention of financial instability, especially in the aftermath of the global financial crisis. Given the privileged position of the central banks, especially in the surveillance of the banking and financial system and as the monetary policymakers, they are key players in the macro-prudential policy process (Garcia, and Pedro 2003)

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5.1.6 Communication

Like today's monetary policy communication process in which the average citizen understands that the authority will ordinarily hike the policy rate to dampen inflationary pressure for instance, communication about macro-prudential policy needs to be made simple. The technicalities and complications of systemic risk diagnosis coupled with the vagueness of the link between curbing of systemic risk with macro-prudential instruments need to be made simpler and easily comprehensible. Simple and effective communication of the mandates, process and dynamics of macro-prudential policy is needed to neutralise, particularly the bias against tightening during upswing and also helps to build a surviving political abode. The use of familiar risk concepts and instruments already in use has been widely advocated, Domanski and Tim (2011) as a sure way of facilitating easy and coherent communication.

Overall, it is important to constitute the necessary institutional arrangements, which though are not a sufficient condition for the successful formulation/implementation of macro-prudential policy and prevention of systemic risk. In this regard, the existing synergy between the CBN Financial Stability Committee, Monetary Policy Committee and the Financial Services Regulation Coordinating Committee (FSRCC) should be sustained. Fundamentally critical to a successful implementation of macro-prudential policy, especially in Nigeria, is the need for effective diagnoses of systemic risk, reduce the information gap between policymakers and the public which will help improve the analytical toolkit as well as engagement in research to come up with models that show the interactions between the real and financial sectors of the economy.

5.2. Conclusion

There is a broad consensus on the need for the wide-spread adoption of macro-prudential polices to limit systemic risk. The aim is to strengthen the resilience of the financial system to adverse real or financial shocks and contain the accumulation of risk over the business or financial cycle.

Implicit in the objectives of macro-prudential policy framework is the intention to curtail systemic risk. The cyclical and structural dimensions of systemic risk are key concepts of macro-prudential policy and, therefore, need to be specified further to give guidance for the use of macro-prudential policy instruments. This may involve the development of a core macro-prudential policy narrative described in a manner that is simple enough to easily engage the public. For a start, a suite of familiar instruments like capital and liquidity ratios and LTV limits offer an easy in-road to fully engage the public and successfully build a sustainable constituency for financial stability.

The major challenges have, however, been making macro-prudential policy operational and overcoming the challenges of successful implementation. Measuring systemic risk presents another challenge because of its various dimensions and the difficulty in recognizing and forecasting the event which invariably has important implications for the implementation of macro-prudential policy and the accountability of macro-prudential authorities. The success of implementing macro-prudential policy requires a good governance arrangement that not only guarantees independence, but also provides essential analytical tools and coordinating structure (robust logistical capabilities) as well as accountability.

A centralised authority should fully control the policy instruments under a clear mandate. Whereas there is no one-size-fits all governance model for macro-prudential policy, there is a consensus that central banks should play a leading role. The central bank by nature takes a system-wide and medium-term perspective and this is fully aligned with that of macro-prudential policy. In other words, since macro-prudential policies are often implemented via supervisory regulation, the Twin Peaks model (with central banking and prudential supervision in a single institution) may be particularly well-suited for macro-prudential policy. The synergy to be derived from combining the systemic and prudential perspective in one institution is one explanation for the increased popularity of this model in the aftermath of the crisis. Ease and coherence of communication is another reason why building the young regime around a small number of fairly familiar risk concepts and instruments already in use is advocated. Irrespective of the type of macro-prudential policy framework that is chosen, considering its expertise and analytical capacity as well as its comprehensive overview of the financial system and economy at large, the central bank should play a key role, particularly in the process of assessing and measuring of systemic risk. The apex bank must also be fundamentally involved in the design, deployment and implementation of anti-systemic risk policies. It is expected that with a continuous deepening of knowledge on the transmission mechanism between objectives, indicators and instruments, the overall policy framework will become flexible.

Finally, it should be clearly noted that macro-prudential supervisory frameworks alone cannot guarantee an end to financial instability. A macro-prudential supervisor trying to prevent instability will have an incentive to severely limit the financial system's capability to innovate and to take risks. This will prevent the financial sector from fulfilling its resource allocation responsibilities. Furthermore, when incipient instability appears, the macro-prudential supervisor (and likely its government) will be under greater pressure to engage in bailouts to prevent or limit the instability. As important as the objectives of macro-prudential policy are, their effects around the world will be only as good as the quality of implementation and the quality of supervision that builds on them. It is all about how prudential supervisors should do their job and the perspectives of supervision. The policy tools are the tools of prudential regulation and supervision and so the implementation process for macro-prudential policy is as good as given but adequate attention should be accorded to the right attitude and motivation.

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Appendix A. Macro-prudential Instruments

Risk measurement methodologies	**By Banks**	Risk measures calibrated through the cycle or to the cyclical trough
	By Supervisor	Cyclical conditionality in supervisory ratings of firms; Develop measures of systemic vulnerability (e.g. commonality of exposures and risk profiles, intensity of inter-firm linkages) as basis for calibration of prudential tools; Communication of official assessments of systemic vulnerability and outcomes of macro stress tests.
Financial reporting	**Accounting standards**	Adoption of flexible accounting standard which is counter -cyclical - dynamic provisions.
	Prudential filters	Adjust accounting figures as a basis for calibration of prudential tools; Prudential provisions as add -on to capital; smoothing via moving averages of such measures; time -varying target for provisions or for maximum provision rate.
	Disclosures	Disclosures of various types of risk (e.g. credit, liquidity), and of uncertainty about risk estimates and valuations in financial reports or disclosures.
Regulatory capital	**Pillar 1**	Systemic capital surcharge; Reduce sensitivity of regulatory capital requirements to current point in the cycle and with respect to movements in measured risk; Introduce cycle -dependent multiplier to the point -in-time capital figure; Increased regulatory capital requirements for particular exposure types (higher risk weights than on the basis of Basel II, for macroprudential reasons).
	Pillar 2	Link of supervisory review to state of the cycle.

Funding liquidity standard		Cyclically-dependent funding liquidity requirements; Concentration limits; FX lending restrictions; FX reserve requirements; currency mismatch limits; open FX position limits.
Collateral Arrangements		Time-varying Loan-to-value (LTV) ratios; Conservative maximum loan-to-value ratios and valuation methodologies for collateral; Limit extension of credit based on increases in asset values; Through-the-cycle margining
Risk Concentration Limits		Quantitative limits to growth of individual types of exposures; (Time-varying) interest rate surcharges to particular types of loans.
Compensation Schemes		Guidelines linking performance-related pay to ex ante longer-horizon measures of risk; back-loading of pay-offs; Use of supervisory review process for enforcement.
Profit Distribution Restrictions		Limit dividend payments in good times to help build up capital buffers in bad times.
Insurance Mechanisms		Contingent capital infusions; Pre-funded systemic risk insurance schemes financed by levy related to bank asset growth beyond certain allowance; Pre-funded deposit insurance with premia sensitive to macro (systemic risk) in addition to micro (institution specific) parameters.
Managing Failure and Resolution		Exit management policy conditional on systemic strength; Trigger points for supervisory intervention stricter in booms than in periods of systemic distress.

Source: Adapted from Galati and Moessner (2011).