

# Design, Institutional Arrangement and Implementation of Macro-Prudential Framework

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## I. Introduction

The design of policies to foster financial system stability and development has become a key area of focus among governments and international financial institutions. Policy focus reflects the growing evidence that financial sector growth and development can spur macroeconomics growth whereas financial instability can significantly harm growth and cause major disruptions as was seen in the financial crises of 1980s, 1990 and in 2007 to 2008.

The recognition of the need for stronger policies to foster financial stability and development, several entities around the world, including Governments, Multinational development agencies, regional development institutions and various standard setting bodies are focusing on further developing the tools and methodologies of financial sector analysis and assessment. A sound and well-functioning financial system is viewed as comprising three pillars that are necessary to support orderly financial development and sustained financial stability. The three (3) pillars include:

- Macro-prudential surveillance and financial stability analysis;
- Financial system supervision and regulation to help manage the risks and vulnerabilities protect market integrity and good governance of financial institutions; and
- Financial system infrastructure including: legal infrastructure for finance; systemic liquidity infrastructure; and transparency, governance and information infrastructure.

## II. Overview- The Credit Crisis

The international credit crisis which started in 2007 evolved out of a classical boom and bust cycle in the US property markets, where lending decisions in many cases did not take into account the effects on systemic stability. In an economic downturn, externalities from uncoordinated lending may be just as severe. To decrease overall

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riskiness and achieve sustainable capital ratios, banks may choose to cut back on new lending or sell off legacy assets. In both the boom and the bust phase, individual institutions do not take full account of the external effect of their lending decisions. Knock-on effects, such as the break-down of the interbank market following the collapse of Lehman Brothers, led to the crisis spreading internationally in 2008.

The “debt-deflation mechanism” refers to a process during which falling asset prices negatively impact on collateral value and availability of credit. A reduction in the availability of credit will drive asset prices down further and elevate delinquency rates among debtors. The “liquidity spiral”, a channel through which the unwinding of financial imbalances can cause stress in the financial system.

Liquidity risk has also been a concern in the course of the European sovereign debt crisis. Through Fannie Mae and Freddie Mac the US Government has helped to channel funds into the housing sector. Public sector support thus, contributed to excessive risk taking and rising asset prices. Also in Europe, mortgage financing enjoys implicit or explicit government sponsorship, either through the tax system or through the availability of otherwise subsidized funding. In Germany, public banks, and in particular the Landesbanken, contributed to excessive risk taking abroad.

The introduction of a macro-prudential policy framework is aimed at correcting blurred incentives and excessive credit growth and also scrutinise market distortions that arise as a result of public sponsorship or intervention. The priorities for effective macro-prudential policy framework are to provide better information on aspects where the absence of good information has proved very costly, and in particular:

- The inter-linkages between large, globally systemically important institutions;
- Emerging concentrations of risk in terms of both exposures and funding dependencies to certain institutions, countries and financial sectors;
- The transfer and ultimate holding of risk;
- System-wide leverage and maturity mismatches; and
- International financial integration through cross-border banking and investment flows.

In the Nigerian financial system the following interdependent factors led to the creation of a fragile system that brought the economy to the brink of collapse.

- Macro-economic instability caused by large and sudden capital inflow;
- Major failure in the corporate governance of banks;
- Lack of investors and consumers sophistication;
- Inadequate disclosure and transparency about the financial position of banks;

Critical gaps in the regulatory framework and regulation;  
 Uneven supervision and enforcement;  
 Unstructured governance & management processes at the CBN; and  
 Weakness in the business environment.

### III. Micro-prudential Regulation

Regulations in the financial sector are designed to limit the risk-taking behaviour of financial institutions and thus, prevent potential financial crises. With the failure of the investment bank Lehman Brothers in 2008, the financial system in the US and the EU came close to a complete meltdown.

Micro-prudential regulation examines the responses of an individual bank to exogenous shocks. It does not incorporate endogenous risk, and it neglects the systemic implications of common behaviour. Micro prudential regulation refers to Basel II type of regulation that focuses on risk taking behaviour of individual financial institutions. Loss spiral was a feature of: credit markets in 2007-08, the dotcom debacle of 2000-01, the Long-Term Capital Management crisis of 1998, the East Asian crisis of 1997-98, the stock market crash of 1987 and other modern financial crises.

Some critics argue that banks were not following micro-prudential rules strongly enough and so these rules must be deepened and made more comprehensive. We show below some financial soundness indicators.

**Table 1: The core set of financial soundness indicators**

Indicator	Indicates
Regulatory capital to risk-weighted asset	Capital adequacy
Regulatory tier I capital to risk weighted asset	Capital adequacy
Nonperforming loans net of provision to capital	Capital adequacy
Nonperforming loan to total gross loans	Asset quality
Sectoral distribution of loans to total loans	Asset quality
Return on asset and return on equity	Earning and profitability
Interest margin to gross income	Earnings and profitability
Noninterest expenses to gross income	Earnings and profitability
Liquid asset to total asset and liquid asset to short-term liabilities	Liquidity
Net open position in foreign exchange	Exposure to FX risk

Regulators must be careful about the application of micro-prudential rules, especially those on responding to market measures of value and risk, and ensure that they do not artificially create homogenous behaviour.

What went wrong with micro-prudential regulation? The general critique on micro-prudential regulation is that it failed to achieve the goal of maintaining the stability of the financial system as a whole. In other words, it failed to limit the systemic risk within the system. There are two particular dimensions of systemic risk which micro-prudential regulations could not handle. One was on the time dimension: with micro-prudential regulations, the evolution of risk-taking behaviour over time might result in a procyclicality problem. Micro-prudential regulations caused pro-cyclicality problems. The cross-sectional dimension caught attention as banks that were interconnected caused banking crises to occur simultaneously. This is regarded as a systemic risk on the cross-sectional dimension. The interconnectedness within the banking system are established from either a direct channel such as interbank lending or an indirect channel that banks share common exposures due to diversification at individual level.

A critical part of micro-prudential regulation in the last decade was the increasing use of market prices in valuation and risk assessment. This was done in the name of transparency, risk-sensitivity and prudence, but what it achieved was increasing homogeneity of market behaviour and as a result increased systemic fragility. The avenues through which market prices shaped behaviour include: mark-to market valuation of assets; regulator-approved market-based measures of risk, such as the use of credit spreads in internal credit models or price volatility in market risk models; and the use of credit ratings, where the signals are moving slowly, but positively correlated with financial markets. We believe that macro-prudential regulation is where the glaring deficit in regulation lies.

The microprudential perspective was therefore myopic in a period of credit contraction and deteriorating asset quality. There is a growing consensus that the most important manifestation of market failure in banking and financial markets through the ages is pro-cyclicality. The credit mistake is made during the booms even though it only becomes apparent in the bust. Loans made during booms have a higher probability of default than those made in periods of slow credit growth. Following the errors of prior regulation, counter-cyclicality has gained momentum as a regulatory principle.

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### **III.1 Vulnerability**

Macro stress tests are employed to identify vulnerabilities in the wake of a simulated adverse outcome. In particular, macroeconomic imbalances and systemic vulnerabilities stemming from large inflows have long been of concern to policymakers. The macroeconomic effects of large inflows include overheating of the economy and appreciation of the currency, which can reduce competitiveness. From a macro prudential perspective, the relevant concern was the contribution of capital inflows to the build-up of systemic vulnerabilities.

### **III.2 Types of Risk**

There are different types of risk: credit risk, liquidity risk and market risk. They are different because they would each be hedged differently. Credit risks are best hedged by finding uncorrelated or negatively correlated credits: the credit of oil companies with inventories of oil may be inversely related to the credit of airlines. Liquidity risks are best hedged across time: the more time you have before you have to sell an asset, the more you can hold assets that are hard to sell quickly. Market risks, like the value of equity markets, are best hedged using a combination of time and diversification.

The success of macro-prudential supervision relies crucially on the quality of the analysis produced. The proper assessment of risks and systemic risks is important in two respects. On the one hand, supervisors need to be able to accurately identify and prioritise relevant threats to financial stability. Risk assessment needs to be forward-looking to give supervisors enough time to act upon the evidence produced. On the other hand, the evidence needs to be robust enough so that policy makers or market participants can be convinced to act upon it.

### **III.3 Systemic Risk**

#### **What is Systemic Risk?**

The Dodd-Frank Act addresses systemic risk in the context of avoiding financial instability. The Act created a Financial Stability Oversight Council (FSOC), which is made up of the heads of various Federal regulators.

The FSOC describes systemic risk as follows: Attempt to capture risk to the stability of the financial system as a whole, as opposed to the risk facing individual financial institution or market participant. In this approach, systemic risk includes all potential sources of instability in the financial system, not just the failure of a single large firm.

The direct links between market participants, e.g. securities houses, banks, hedge funds, money market funds etc. form a network of mutual claims and liabilities that constitute a possible channel for contagion. Forced asset sales provide for another channel of contagion. By driving down market prices, forced sales may affect other institutions that hold assets similar to those of the troubled institutions.

Systemic risk has its origin, in three important areas where risks need to be monitored:

- the build-up and unwinding of financial imbalances over time;
- shared exposures to macro risk factors; and
- Possible contagion effects and systemic risk contribution of individual institutions.

The proper assessment of systemic risks is important in two respects. On the one hand, supervisors need to be able to accurately identify and priorities relevant threats to financial stability. Risk assessment needs to be forward-looking to give supervisors enough time to act upon the evidence produced. Where systemic risk has its origin, we distinguish three important areas where risks need to be monitored:

- the build-up and unwinding of financial imbalances over time;
- shared exposures to macro risk factors; and
- possible contagion effects and systemic risk contribution of individual institutions.

Market-based information such as CDS spreads or spreads in the interbank market are used to determine the level of stress in the financial system. Data on delinquency rates, the amount of non-performing loans or market information on the value of securitised debt is used to assess the quality of financial institutions' loan portfolios. Survey data on banks' credit conditions and loan supply to corporates and households can help to assess the availability of credit to the non-financial sector. The identification of systemically Important financial institutions (SIFIs) also needs to take incentive effects into account. To exemplify, cross-border exposure is an important indicator when monitoring contagion risk. To the extent that financial institutions are exposed to foreign markets, either through cross-border funding or cross-border lending, problems can easily spill-over from one country to another. A macro-prudential approach to regulation and supervision will necessarily calibrate instruments based on some measure of systemic risk.

To inform and guide timely policy decisions, systemic risk measures should be able to capture the time and cross-sectional dimensions of systemic risk. This means that they should signal the gradual build-up of imbalances and vulnerabilities, including providing assessments of likelihood and potential impact of shocks, but that they should also flag concentrations of risk within the system. Countries have used a wide range of indicators and models to assess systemic risks. The main measurement approaches can be categorized as follows:

**Metrics of concentration of risk within the system:** The metrics relate to the cross-sectional dimension of systemic risk and focus on the channels of contagion and amplification.

**Macro-stress testing:** The importance of conducting top-down and bottom-up stress tests simultaneously to cross-check results is increasingly recognised.

Due to its system-wide perspective, macro prudential policy requires an ability to capture the build-up of systemic risk also in the shadow banking system. This is defined as 'the system of credit intermediation that involves entities and activities outside the regulated banking system'. Capturing the risks in the shadow banking system may require regulatory action or even legislation to enable collection of relevant data.

The Nigerian fragile financial system was the result of inadequate bank disclosures and transparency, inadequate legal and regulatory framework, poor risk management practices, among others. The poor state of affairs, the CBN conducted a diagnostic review of the banking industries to establish its true health and determine the way forward. The diagnostic reviews of the banks revealed the following defects:

- A high percentage of non-performing loans in some banks, which exceeded by far, the industry average. The poor asset quality was attributed to poor corporate governance practices, weak risk management practices, lax credit administration processes and non-adherence to the banks' credit risk management policies;
- The poor asset quality impacted negatively on the earnings and capital of some banks thereby threatening their going concern status;
- Huge exposure to the capital market and oil and the gas sector. Consequently, some banks were required to increase their provision for loan losses, which impacted negatively on their profitability and shareholders' funds;
- Some banks were significantly undercapitalized for their levels of operation and needed to urgently inject fresh funds, ranging from about N5.8bn to N109.23bn;
- The capital adequacy ratios recorded in some banks below the prescribed minimum threshold of 10.0 per cent, which implied that the capital of such banks were inadequate to support their levels of operation;
- The affected banks did not meet the minimum liquidity ratio of 25.0 per cent set for banks and could also not meet their maturing obligations without resorting to the CBN discount window, thereby providing proof of their illiquid status; and
- Pervasive poor corporate governance practices, especially in the areas of disclosure and financial reporting.

#### **III.4 Indicators of Systemic Risk**

To measure systemic risk, macro-prudential regulation relies on several indicators. As mentioned in Borio (2003), an important distinction is between measuring contributions to risk of individual institutions (the cross-sectional dimension) and measuring the evolution (i.e. pro-cyclicality) of systemic risk through time (the time dimension).

Market price based measures of risk end up being highly pro-cyclical, falling in the build-up to booms and rising in the subsequent crashes. Micro-prudential behaviour

can endogenously create macro-prudential risks.

Risk is created by trying to match simple assets to complex liabilities. But perceptions and measures of risk are 'procyclical'. The idea of using regulatory and other policy measures to avoid systemic risk is not new and has been pursued by policy makers around the world for some time. A number of Asian countries, for instance, have long used restrictions on loan-to-value ratios, capital inflows and other ad hoc measures to limit internal or external vulnerabilities. More than ten years ago, the BIS called for "marrying the micro and macro-prudential dimensions of financial stability".

Government policies that aim to enhance the availability of credit to households and states can contribute to the build-up of systemic risk.

### **III.5 Past crisis Evidence**

Historic evidence suggests that financial distress in many cases follows a boom and bust cycle in asset prices and lending volumes. Although for different reasons, the emerging market crises of the late 1980s and early to late 1990s in the Latin American countries and in South-East Asia, all followed similar patterns which involved a simultaneous boom in lending and asset prices before the crisis broke out. The US subprime crisis, but also the European sovereign debt crisis, provide more recent examples of how easy credit and a prolonged boom in asset prices laid the foundations for the subsequent problems in the financial sector.

The global crisis affected the Nigerian economy in two ways:

- The exit of portfolio investors from the Nigerian stock market; and
- A significant reduction in governance revenues.

### **III.6 Long forecasts**

More recent approaches look at much longer forecast horizons of several years to give supervisors enough time to act upon signals of future distress. The models aim at detecting signs of exuberance in asset prices and credit volumes.

Market-based information such as CDS spreads or spreads in the interbank market are used to determine the level of stress in the financial system. Data on delinquency rates, the amount of non-performing loans or market information on the value of securitized debt is used to assess the quality of financial institutions' loan portfolios. Survey data on banks' credit conditions as well as loan supply to corporates and households can help to assess the availability of credit to the non-financial sector.

Cross-border exposure is an important indicator when monitoring contagion risk. To the extent that financial institutions are exposed to foreign markets, either through cross-border funding or cross-border lending, problems can easily spill-over from one country to another.



#### **IV. Macro-Prudential Regulation**

Risk is taken as exogenous under the micro-prudential perspective, in the sense of assuming that any potential shock triggering a financial crisis has its origin beyond the behaviour of the financial system. The macro-prudential approach, on the other hand, recognises that risk factors may configure endogenously, i.e. as a systemic phenomenon. In line with this reasoning, macro-prudential policy addresses the interconnectedness of individual financial institutions and markets, as well as their common exposure to economic risk factors. It also focuses on the pro-cyclical behaviour of the financial system in the effort to foster its stability.

Macro-prudential regulation is an orientation or perspective of regulatory and supervisory arrangements. It means calibrating them from a system-wide or systemic perspective, rather than from that of the safety and soundness of individual institutions on a stand-alone basis. It means following a top-down approach, working out the desirable safety standard for the system as a whole and, from there, deriving that of the individual institutions within it. It means taking explicitly into account the fact that drivers of risk depend on the collective behavior of financial institutions (are "endogenous").

Macro-prudential regulation is any policy that promotes financial stability or limits systemic risk. Effective resolution frameworks reduce moral hazard and ex-ante risk taking and therefore support macro-prudential objectives. The framework for SIFI resolution has four building blocks:

- strengthened national resolution regimes;
- cross-border cooperation arrangements;
- improved recovery and resolution plans by financial institutions; and
- resolvability assessments.

Macro-prudential regulation also addresses the too-big-to-fail problem or that of SIFIs. The distinction between the time and cross-sectional dimensions of aggregate risk is critical under macro-prudential regulation. In the time dimension, the core issue is the extent to which prudential tools are calibrated with respect to aggregate variables (such as total credit) or sector-specific ones, such as credit to a particular part of the economy. In the cross-sectional dimension, it is primarily the issue of the breadth of institutional coverage, otherwise known as the "perimeter of regulation". The main advantage of cross sectional dimension is that it is less vulnerable to regulatory arbitrage. The main advantage of time dimension is that it can be more targeted and less blunt.

The key issue in the time dimension is to mitigate or dampen financial system pro-cyclicality, i.e., how financial system-wide risk could be amplified by interactions

within the financial system and between the financial system and the real economy, sometimes leading to financial crises.

The key issue in the cross-sectional dimension is to reduce systemic risk concentrations, which can arise from similar exposures across financial institutions (from assets, liabilities, dependence on common services) or because of the direct balance-sheet linkages among them (e.g., counterparty risk).

It would be an illusion to expect that a macro-prudential framework could ensure, on its own, the appropriate degree of financial stability. Other macroeconomic policies would have to play a role. In particular, monetary policy is key (e.g., Borio and Lowe (2002)). Monetary policy sets the universal price of leverage in a given currency area, and as such it is harder to circumvent.

## **V. Macro-Prudential Design**

Challenges in successfully implementing macro-prudential policies and institutional frameworks are:

- Design and collection of better information and data to support systemic risk identification and modeling;
- Design of techniques to identify and measure systemic risk that utilise this information and help inform the design of policies;
- Design of an effective macro-prudential toolkit of powers and instruments, including the criteria for the choice and calibration of the instruments and methods to assess their effectiveness, as well as the respective merits of rules versus discretion; and
- Design of appropriate governance arrangements for the exercise of the macro-prudential policy powers.

The design of a macro-prudential framework cannot escape the perennial question of the balance between rules and discretion. The main advantage of rules is that, once in place, they do not require continuous justification or explicit decisions. If well structured, they can thus, act as automatic stabilizers. Designing effective rules can be difficult. Rules should be simple and understandable. And a degree of discretion will be inevitable.

To assess vulnerabilities of the financial system, supervisors need to assume a holistic view of financial risks. Data availability remains an issue, in particular with respect to the so-called shadow banking system. The shadow banking system comprises entities that conduct bank-like activities, such as credit intermediation and liquidity transformation, but are not supervised as banks. Market infrastructures and utilities, i.e. payments system, clearing and settlement houses and central counterparties provide critical functions to the system and could be exposed to systemic risk factors. To gain a more complete picture of the vulnerabilities in the financial system, data on

non-bank financial institutions and households and cooperates should be included in the exercise.

The design choices open to authorities will depend on their economic and financial system structures as well as prevailing law and market practices.

### **V.1 Macro-Prudential Challenges**

We defined macro-prudential policy as a policy that uses primarily prudential tools to limit systemic or system-wide financial risk, thereby limiting the incidence of disruptions in the provision of key financial services that can have serious consequences for the real economy, by:

- dampening the build-up of financial imbalances and building defences that contain the speed and sharpness of subsequent downswings and their effects on the economy; and
- identifying and addressing common exposures, risk concentrations, linkages and interdependencies that are sources of contagion and spill over risks that may jeopardise the functioning of the system as a whole.

### **V.2 Defining Element of Macro-Prudential Policy**

The defining elements of macro-prudential policy are the objective (limiting systemic or system-wide financial risk), the scope of analysis (the financial system as a whole and its interactions with the real economy), a set of powers and instruments and their governance (prudential tools and those specifically assigned to macro-prudential authorities). Non-prudential instruments that are to be considered part of the macro-prudential policy toolkit, should: target explicitly and specifically systemic risk; and be underpinned by the necessary governance arrangements for the institutional framework chosen to conduct macro prudential policy to ensure there is no slippage in their use (clear mandate, necessary degree of operational independence and accountability).

### **V.3 Steps to Address Pro-cyclicality**

Key steps have been taken to address pro-cyclicality since the crisis of 2007 and 2009 are clearly macro-prudential issues, in the sense of being prudential in character and targeting systemic risk specifically. Basel III includes a number of provisions that should dampen pro-cyclicality. In addition to steps taken to reduce the pro-cyclicality of risk-weighted assets and the minimum requirement (e.g., the use of stress parameters for the trading book), Basel III put in place a specific macro-prudential overlay in the form of a counter-cyclical capital buffer.

The buffer is designed to be accumulated during periods when systemic risk builds up, as signaled for instance by excessive credit growth, and can be used without restrictions when risks materialize.

Banks with credit exposures to several jurisdictions would need to hold a buffer that reflects the weighted average of a bank's domestic and international exposures. Importantly, the buffer is activated by the host authorities (i.e., the authorities where the exposures are located) and the arrangements contain reciprocity clauses. This reciprocity agreement represents an important step towards achieving a better coordination between home and host authorities.

Margining practices are defined broadly to include the haircuts applicable to funding collateral as well as the mark-to-market and collateral requirements applicable to over-the-counter (OTC) derivatives. Accounting standards for loan loss provisioning, while not set to address procyclicality, can have a first-order impact on it.

International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) have issued exposure drafts for expected loss provisioning approaches that would facilitate earlier recognition of credit losses and thus, help to dampen pro-cyclicality. Such limits can be calibrated with respect to aggregate credit or specific exposures, e.g., by sector. Examples include time-varying, discretionary caps on loan-to-value (LTV), debt-to-income, loan-to-income ratios, or criteria for loans' eligibility. Liquidity requirements on foreign currency exposures have also been introduced recently to limit excessive credit growth (such as in Korea).

The first protection for the stability of the financial system is to enhance the resilience of each individual institution to adverse shocks. This should be expected to reduce spillovers from failures. Thus, the Basel III standards for increased bank capital and liquidity provided a strong anchor for macro-prudential policies. In addition, several provisions in Basel III would help to address systemic risk and interconnectedness among (global) systemic institutions by mitigating the risks arising from firm-level exposures.

#### **V.4 Systemically Important Financial Institution (SIFI)**

In November, the G20 endorsed the FSB's policy framework to address the moral hazard risks and externalities posed by Systemically Important Financial Institutions (SIFIs). The key policy objectives of the FSB SIFI framework are to: increase their loss absorption capacity to reduce the likelihood of their failure; facilitate the orderly restructuring or unwinding of a failing SIFI to reduce the impact of its failure on the financial system; intensify supervisory oversight for SIFIs; and strengthen core financial market infrastructures to reduce contagion risk from failure. Effective resolution frameworks reduce moral hazard risk and ex-ante risk taking behaviour and therefore support macro-prudential objectives.

## VI. Difference between Micro-and Macro-Prudential Regulations

### The macro and micro prudential perspectives: understanding the difference.

Following Borio (2003), the macro-and micro-prudential perspectives differ in terms of their objectives and understanding on the nature of risk. Traditional micro-prudential regulation seeks to enhance the safety and soundness of individual financial institutions, as opposed to the macro prudential view, which focuses on welfare of the financial system as a whole. Further, risk is taken as exogenous under the micro-prudential perspective, in the sense of assuming that any potential shock triggering a financial crisis has its origin beyond the behaviour of the financial system. The macro-prudential approach, on the other hand, recognises that risk factors may configure endogenously, i.e. as a systemic phenomenon. In line with this reasoning, macro-prudential policy addresses the interconnectedness of individual financial institutions and markets, as well as their common exposure to economic risk factors. It also focuses on the pro-cyclical behaviour of the financial system in an effort to foster its stability.

**Table 2: The Macro- and Micro-prudential Perspectives Compared**

	<b>Macro-Prudential</b>	<b>Micro-prudential</b>
Proximate Objective	Limit financial system-wide distress	Limit distress of individual institutions
Ultimate Objective	Avoid output (GDP) costs	Consumer (investor/depositor) protection
Characterisation of Risk	Seen as dependent on collective behaviour ("endogenous")	Seen as independent of individual agents' behaviour ("exogenous")
Correlations and Common exposures across institutions	Important	Irrelevant
Calibration of prudential controls	In terms of system-wide risk; top-down	In terms of risk of individual institutions; bottom-up

Source: C. Borio, 2003

Because of potential synergies and possible tensions between macro-prudential and other public policies, the main challenge is how to set up a framework to support policy consistency across the authorities responsible for macro-prudential and other policies. Solutions will need to be tailored to country-specific circumstances.

### VI.1 Macro-Prudential Framework

In November 2010, G20 Leaders called on the FSB, IMF and BIS to do further work on macro prudential policy frameworks, including tools to mitigate the impact of excessive capital flows, identification of best practices, which will be the basis for establishing in future international principles or guidelines on the design and

implementation of the frameworks. It traces the progress in implementing macro-policy frameworks along three broad lines:

- advances in the *identification and monitoring* of systemic financial risk;
- the designation and calibration of *instruments* for macro prudential purposes; and
- building *institutional and governance* arrangements in the domestic and regional context.

G-20 leaders noted that effective macro-prudential frameworks require institutional arrangements and governance structures, tailored to national circumstances that can ensure an open and frank dialogue among policy-makers on policy choices that impact on systemic risk, resolve conflicts among policy objectives and instruments and mobilise the right tools to limit systemic risk.

Important progress has been made in understanding the origins of systemic risk and the recent developments in some highly indebted advanced economies have furthermore underlined the need for a truly macroeconomic perspective on systemic risk. As sovereign debt and balance-of-payments crises have returned to the developed countries, and a number of emerging markets are experiencing excessive capital inflows, macro-prudential supervisors are challenged to respond. The new Macro prudential framework aims to fill a perceived gap between monetary policy and micro prudential supervision. Monetary policy is traditionally dedicated to tackling price stability, while financial supervision has up to now been concerned with risk to individual financial institutions. What was missing prior to the financial crisis was a policy framework to ensure close coordination between the two policy realms, as well as a clear mandate for supervisors to tackle systemic risk at the macro level. A macro-prudential policy framework therefore must not ignore the effect of monetary policy on financial stability. Another area of concern for the European macro-prudential supervisor can be the link between government and bank finances. The strong exposure of European banks to their home sovereign, and other European sovereigns, has added to systemic risk in the euro area.

The micro-prudential supervisor may wish to raise capital standards to ensure that individual institutions survive in a stress situation, whereas the macro prudential supervisor may be concerned with the risk of a credit crunch. In most jurisdictions, the final say remains with the micro-prudential supervisor, which potentially limits the effectiveness of macro-prudential supervision.

Macro-prudential policies sometimes require controversial policy action, resistance may also come from outside. Raising prudential standards when markets are

booming, while encouraging the system to draw down on its buffers in a crisis situation might prove difficult, if the macro-prudential supervisor has no right to intervene directly and faces resistance from policy makers, market participants or other interest groups.

Regulatory and supervisory authorities not only have a different objective function than private sector financial institutions. They have also different tools and access to a much wider range of data enabling them to assume a system-wide perspective. Their primary goal is to ensure financial stability by assessing systemic risk and responding to upcoming threat.

### **VI.1.1 Capital-related instruments**

Basel III envisages a so-called capital conservation buffer, a countercyclical buffer as well as a SIFI surcharge, which can all be seen as macro-prudential tools.

#### **Precautionary capital buffers**

The primary goal of macro-prudential regulation should be to increase resilience of the financial sector, rather than to control the credit cycle or manage asset price risk. In other words, the macro prudential framework can only be one, albeit important, component of a broader framework designed to promote financial and macroeconomic stability.

Macro-prudential policy also interacts closely with other spheres of public policy because:

Other policies have an impact on systemic risk. For example, the stance of monetary policy can affect risk-taking incentives. Similarly, fiscal policy and public debt levels can be an important source of vulnerability for the financial sector.

Macro-prudential policy interventions, in turn, have macroeconomic effects. For example, raising capital requirements in a credit boom may to some extent dampen aggregate demand and, hence, influence the macroeconomic policy environment. Given these inter-linkages, effective macro-prudential frameworks require institutional arrangements and governance structures tailored to national circumstances, that can ensure an open and frank dialogue among policymakers on policy choices that impact on systemic risk, resolve conflicts among policy objectives and instruments, and mobilise the right tools to limit systemic risk.

Stronger macro-prudential policy framework centre on a three-step monitoring process. The first step comprises a broad review of non-bank credit intermediation that aims to identify the main trends and areas where additional scrutiny is warranted. In the second step, the authorities narrow down the focus onto the areas where systemic risks are most likely to be building, by drawing on a set of 'risk factors'

that highlight incipient problems. The third step involves a detailed assessment of the potential systemic risks identified, through an analysis of the possible impact on the system as a whole of severe distress or failure of the most vulnerable shadow banking entities and/or activities.

Monitoring should be regular, so that nascent risks are identified in time. It is vital that national authorities work together closely and effectively to assess the potential for cross-border spillovers and contagion of shadow banking risks, including regularly exchanging information and assessments. The identification and availability of relevant data is critical for an effective macro-prudential policy framework.

The principal interconnections and common exposures to shocks within the financial system. Priorities include:

- Improving information on maturity and liquidity mismatch, and on leverage, for both the banking and shadow banking systems;
- Improving information on common risk exposures and interconnections through;
- Granular information on major international banks' main exposures to, and sources of funding from, key markets, sectors and instruments;
- Consistent data on the principal bilateral exposures of the large systemically important banks and on their main individual funding providers;
- Enhancements to data on sectoral balance sheets, international banking, portfolio investment and capital flows; and
- Strengthening data on credit default swaps (CDS), over-the-counter (OTC) derivatives and complex structured products, and facilitating the reporting and aggregation of data collected by trade repositories.

Better data is an essential component of the macro prudential toolkit, but it is not a substitute for strong analysis and good policy judgment.

In some countries, the introduction of capital controls was primarily motivated by the desire to address systemic vulnerabilities associated with rapid domestic credit growth that was fuelled by capital inflows. Structural policies that promote robust market operations and resilient market infrastructures are aimed at reducing the risks associated with interconnectedness and contagion. The performance of macro prudential frameworks depends crucially on how well structural policies are designed

## **VII. Macro-Prudential Tool Kit**

### **VII.1 Macro-Prudential tools**

Most of these instruments are aimed to prevent the pro-cyclicality of the financial system on the asset and liability sides, such as:

- a. Cap on loan-to-value ratio and loan loss provisions
- b. Cap on debt-to-income ratio



The following tools serve the same purpose, but additional specific functions have been attributed to them, as noted below:

- Counter-cyclical capital requirement - to avoid excessive balance-sheet shrinkage from banks in trouble;
- Cap on leverage (finance) - to limit asset growth by tying banks' assets to their equity (finance);
- Levy on non-core liabilities - to mitigate pricing distortions that cause excessive asset growth; and
- Time-varying reserve requirement - as a means to control capital flows with prudential purposes, especially for emerging economies.

To prevent the accumulation of excessive short-term debt:

- a. Liquidity coverage ratio
- b. Liquidity risk charges that penalize short-term funding
- c. Capital requirement surcharges proportional to size of maturity mismatch
- d. Minimum haircut requirements on asset-backed securities

In addition, different types of contingent capital instruments (e.g., "contingent convertibles" and "capital insurance") have been proposed to facilitate bank's recapitalization in a crisis event.

### **VII.1 Effectiveness of Macro-prudential Tools**

For the case of Spain, Saurina (2009) argues that dynamic loan loss provisions (introduced in July 2000) are helpful to deal with pro-cyclicality in banking, as banks are able to build up buffers for bad times.

In the sphere of emerging markets, several central banks have applied macro-prudential policies (e.g., use of reserve requirements) at least since the aftermath of the 1997 Asian financial crisis and the 1998 Russian financial crisis. Most of these central banks' authorities consider that such tools effectively contributed to the resilience of their domestic financial systems in the wake of the late-2000s financial crisis. Tools must be developed to prevent systemic threats resulting from non-bank financial intermediation.

### **VII.2 Choosing Effective Policy Tools**

To reduce the risk of a systemic breakdown, supervisors may try to indirectly manage exposures over the cycle and amongst institutions. The authorities have a host of potential instruments to choose from. Policy tools under consideration range from rather indirect measures, which alter the cost of funding through capital and liquidity requirements, to very direct measures to control threats from excessive credit expansion" and "tools to address structural vulnerabilities and key amplification mechanisms of systemic risk expansion". The following are potential instruments to address threats to credit expansion and structural vulnerabilities and system risk.

### **VII.2.1 Capital-Related Instruments**

Basel III envisages a so-called capital conservation buffer, a countercyclical buffer as well as a SIFI surcharge, which can all be seen as macro-prudential tools.

### **VII.2.2 Precautionary Capital Buffers**

The primary goal of macro-prudential regulation should be to increase resilience of the financial sector through capital buffers, rather than controlling the credit cycle or manage asset price risk.

### **VII.2.3 Counter-cyclical Capital Buffers**

The effectiveness of macro-prudential policy instruments critically hinges on both their ability to slow down credit growth in a boom phase and to avoid credit contraction in a crisis situation. Counter-cyclical risk-weights could be designed to fluctuate around a long-term average, which reflects through-the-cycle default probability. Reducing risk weights, however, would allow banks to strengthen their capital base, without having to reduce the size of their balance sheet or to go to the market for additional funding.

### **VII.2.4 Dynamic Provisioning**

Dynamic or statistical provisioning can be used to smooth reported profits over the cycle and to provide a further buffer in addition to equity capital. From a macro-prudential perspective, dynamic provisioning can be used to discourage banks from granting too much credit.

### **VII.2.5 Credit-Related Instruments**

Credit-related instruments such as loan-to-value or debt-to-income ratios, or outright lending limits, can be used to control lending more directly over the cycle.

### **VII.2.6 Loan-to-Value Ratios**

Standard loan-to-value ratios are a common instrument in the residential mortgage business.

### **VII.2.7 Dynamic Haircut-Setting and Margining**

Haircuts on collateral value and margin requirements limit the maximum exposure that market participants can take, i.e. analogous to LTV ratios in bank lending. Haircuts and margins are set by a dealer or central counterparty to manage and limit their exposure in dealing with clients. From a macro-prudential perspective it makes sense to reduce hair-cuts and margin requirements in a counter-cyclical manner to avoid a squeeze in market liquidity. As prudential tools are the key instrument in the framework, where tensions exist between their use from a micro-and macro-prudential perspective, mechanisms need to be in place to assess and ensure their consistency.

## **VII.3 An Overview of the New Supervisory Bodies in EU, US & UK**

Table below provides an overview of the new institutional framework at the European level, in the US and in the UK, respectively.

	<b>EU European Systemic Risk Board (ESRB)</b>	<b>US Financial Stability Oversight Council (FSOC)</b>	<b>UK Financial Policy Committee (FPC)</b>
Mandate	<ul style="list-style-type: none"> <li>- Prevent or mitigate systemic risks to the EU financial system</li> <li>- Contribute to smooth functioning of the internal market and ensure sustainable financial sector growth</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and respond to emerging threats to UD financial stability</li> <li>- Promote market discipline, eliminate bailout expectations</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and assess systemic risks in the UK financial system</li> <li>- Select the most appropriate policy tools to address systemic risks</li> </ul>
Instruments	<ul style="list-style-type: none"> <li>- Systemic risk warnings and non-binding recommendations to EU member states</li> <li>- No formal directive power but recommendations can be made public on a "comply or explain" basis</li> </ul>	<ul style="list-style-type: none"> <li>- Recommendations to supervisory authorities on heightened prudential standards</li> <li>- Designation of systematically relevant non-bank financial institutions and financial market utilities</li> <li>- Reporting to Congress on regulatory gaps</li> </ul>	<ul style="list-style-type: none"> <li>- Recommendations on systemic risks to the Financial Services Authority (FSA) and financial institutions</li> <li>- Directive powers requiring micro-prudential authorities to implement specific tools</li> </ul>
Governance structure	<ul style="list-style-type: none"> <li>- Chair: ECB President</li> <li>- Plus 37 voting members, including central bank governors and 28 non-voting members from supervisory agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Chairs: US Secretary of the Treasury</li> <li>- Plus nine voting and five non-voting members from supervisory agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Chair: Governor of the Bank of England</li> <li>- Plus 11 voting members (6 from BoE), one non-voting Treasury member</li> </ul>
Information collection and analysis	<ul style="list-style-type: none"> <li>- ECB, European Banking Authority, national central banks, Advisory Technical Committee (ATC), Advisory Scientific Committee (ASC)</li> </ul>	<ul style="list-style-type: none"> <li>- Office of Financial Research (OFR), Federal Reserve and other financial regulatory agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Bank of England</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>- Fills an institutional void in EU systemic risk monitoring and macro-prudential supervision</li> </ul>	<ul style="list-style-type: none"> <li>- All regulatory bodies under single watch; can bring institutions under the scope of federal oversight</li> </ul>	<ul style="list-style-type: none"> <li>- Can implement specific macro-prudential tools (e.g. minimum capital requirements)</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>- Supervision continues to be nationally based</li> <li>- Complex governance structure</li> </ul>	<ul style="list-style-type: none"> <li>- Regulatory landscape remains complex; leadership effectively unchanged from pre-crisis set-up</li> </ul>	<ul style="list-style-type: none"> <li>- No direct supervision over financial firms or markets</li> </ul>

Note: for the UK, interim FPC, and Formal legislation for the FPC still in process.  
Sources: Kern et al, (2012), FSOC, ESRB and Bank of England.

**a. The European Systemic Risk Board (ESRB)**

In the EU, the European Systemic Risk Board (ESRB) complements three other supervisory agencies, which deal with securities markets (ESMA), banks (EBA), and insurance companies and occupational pension funds (EIOPA). While supervisory powers still lie with the national authorities, the role of the ESRB is to issue warnings and recommendations addressed at national policy makers. The ESRB's success will depend crucially on the quality of the analysis produced and persuasiveness of the recommendations issued.

**b. The Financial Stability Oversight Council (FSOC)**

In the US, The Dodd-Frank Act assigned the task of monitoring systemic risk to the Financial Stability Oversight Council (FSOC). The FSOC is concerned with the identification of systemic risks, with a special focus on the monitoring of systemically important financial institutions. One of its main tasks is the designation of non-bank financial institutions and financial market utilities that are considered too big to fail and should be brought under heightened supervisory scrutiny. The FSOC is institutionally rather independent from the central bank, but closer to the US Treasury, with the Secretary of Treasury holding the chair and the Office of Financial Research (OFR).

**c. The Financial Policy Committee (FPC)**

The macro-prudential supervisory body in the UK, i.e. the Financial Policy Committee (FPC), has been modeled after the Monetary Policy Committee, which determines the monetary policy stance; the FPC has the task of determining the macro-prudential policy stance. The FPC analyses excessive credit growth and systemic risk in the UK financial system.

**VII.4 Commonly used macro-prudential instruments****Tools to address threats from excessive credit expansion in the system**

- Time-varying capital requirements (e.g., risk weights);
- Dynamic provisions;
- Ceilings on credit or credit growth;
- Caps, possibly time-varying, on loan-to-value (LTV) ratio;
- Caps, possibly time-varying, on debt service-to-income (DTI) ratio;
- Minimum, possibly time varying, margin requirements; and
- Reserve requirements

**Tools to address key amplification mechanisms of systemic risk**

- Limits on maturity mismatches;
- Caps on foreign currency lending;
- Limits on net open currency positions or mismatches; and
- Levy on non-core funding.

### **Tools to mitigate structural vulnerabilities and limit spillovers from stress**

Additional loss absorbency related to systemic importance;

Disclosure policy for markets and institutions targeting systemic risk; and

Resolution requirements for SIFIs.

The instruments are often used in combination. Calibrations are often based on discretion and judgment rather than rules, although some countries have used rule-based instruments. While rules have merits – they can help to overcome policy inertia, enhance accountability, and create greater certainty for the industry.

In respect of the time-dimension of systemic risk, the Basel III framework puts in place three elements to address pro-cyclicality: a maximum leverage ratio, a capital conservation buffer and a countercyclical capital buffer.

In both the build-up and release phase of the buffer, the exercise of judgment remains critical. Jurisdictional reciprocity principle is designed to protect banks from credit cycles outside the home country, and addresses incentive challenges to circumvention.

## **VIII. Implementing Macro-Prudential Framework**

### **Implementation in Basel III**

Basel III reflects a macro-prudential approach to financial regulation. Specifically, concretely, under Basel III, banks' capital requirements have been strengthened and new liquidity requirements, a leverage cap and a countercyclical capital buffer have been introduced. Also, the largest and most globally active banks are required to hold more and higher-quality capital, which is consistent with the cross-section approach to systemic risk.

Institutional strength of the supervisory system, effectiveness of the tools used as well as quality of the analysis produced represent key success factors. The criterion of success is strengthening the resilience of the financial system to deal with stressful conditions, credit and asset prices, and act as an effective speed limit. It can influence risk perceptions and attitudes – the price of risk – and as such complement closely macro-prudential tools.

The macro-prudential approach was originally designed with *private* sector sources of financial instability in mind; hence the prominence of booms and busts in private sector credit and asset prices. Most recent experience has reminded us that the public sector, too, can be a source of financial instability. This has implications for the design of the indicators of systemic risk and policy response. The review of the securitisation framework, including calibration, reliance on ratings and identifying arbitrage opportunities; and development of recommendations on re-launching sound securitisation markets would be required.

Macroeconomic and financial stability consequences of surges in capital inflows can be difficult to manage. Countries have been using a range of policy measures to address these challenges, including macroeconomic policies (e.g., exchange rate

appreciation, fiscal tightening and foreign exchange intervention). Macro-prudential policies have also been used to address financial stability risks associated with capital inflows.

In the area of system-wide global monitoring, significant progress is already being made. International efforts include those of the FSB Standing Committee on Assessment of Vulnerabilities, the IMF's regular bilateral and multilateral surveillance, the IMF-FSB Early Warning Exercise, the G-20 Mutual Assessment Process, and various work streams at the BIS, notably the regular monitoring by the CGFS that informs regular discussions among central bank Governors. A key concern is that macro-prudential tools may create the potential for cross-border regulatory arbitrage.

## **IX. Institutional Arrangements for Macro-Prudential Policy Making**

Institutional arrangements for macro-prudential policymaking should be conducive to effective mitigation of systemic risk. This involves several aspects: having a clear objective; providing incentives and tools for authorities to act commensurate with that objective; supporting accountability and transparency of decisions; and ensuring effective coordination across policy areas that have a bearing on financial stability.

The existing institutional design of macro-prudential policy is by discussing a set of common elements: mandate; powers and instruments; accountability and transparency mechanisms; composition of the decision-making body; and arrangements for domestic policy coordination.

### **a. Mandate**

A formal mandate can improve the clarity of decision making.

### **b. Powers and instruments**

The recent IMF macro-prudential survey suggests that emerging frameworks highlight the importance of information collection and decision-making powers. The power to request information directly from private firms is critical. Powers to communicate risk warnings and to recommend or direct the adjustment of regulatory instruments are quite common in existing and emerging frameworks. Examples include the ability to issue non-binding recommendations to other authorities—as established for the ESRB in the European Union, the Financial System Stability Council (FSSC) in Mexico, the Financial Policy Committee (FPC) in the United Kingdom, and the Financial Stability Oversight Council (FSOC) in the United States. The recommendations are often subject to a “comply or explain” mechanism (e.g., in EU, UK and US), or to publish recommendations.

### **c. Accountability Arrangements**

The case for clear accountability arrangements is strengthened given that 'costs' of macro-prudential measures (restrictions on certain activities) are felt immediately,

while 'benefits' (lower incidence of financial distress) accrue over the long-term and are hard to measure. Transparency and clear communication of policy decisions will include ex-ante statements of strategy, publication of records of meetings, Financial Stability Reports and annual performance statements with an ex-post assessment of policy effectiveness.

**d. Composition of the Decision-Making Body for Macro-Prudential Policy**

In many countries, macro-prudential policy is conducted through committee arrangements. The creation of such committees is most obviously desirable when multiple bodies have a financial stability mandate, inter-agency committees can bring together different perspectives on the sources of systemic risk and the potential for regulatory arbitrage, as well as identifying the most appropriate tools. Central banks are always represented and often play a leading role. The central bank may have clear responsibility for both macro-prudential and micro-prudential policy (as in Malaysia and, prospectively, the UK), or account for a large share of the votes in the committee (as in the ESRB).

Finance ministries are often involved in setting objectives and priorities for macro-prudential policy. Finance ministries are often involved in setting objectives and priorities for macro prudential policy, and have an important role if changes in legislation are expected to be needed to mitigate systemic risk. Regulatory and supervisory agencies play a key role in macro-prudential policy by adjusting the prudential tools under their control to meet macro-prudential objectives, and by intensifying micro-prudential supervision. The role of securities and market conduct regulators in monitoring and addressing systemic risk in capital markets should also be recognized.

**e. Mechanisms for Domestic Policy Coordination and Consistency**

An essential function of any institutional arrangement is therefore to promote coherence in the application of all policies that have a bearing on financial stability. Committee-type arrangements can help to address possible frictions between the objectives of different policies, promoting the resolution of conflicts. For example, tension may arise over when to draw-down on counter-cyclical buffers.

Although monetary and fiscal policies remain formally outside the macro-prudential policy framework, there are nevertheless potential benefits in coordinating these and other policies with macro-prudential policy. Policy coordination typically relies on the overlapping membership of policy committees. Coordination arrangements also need to recognise that macro-prudential policy clearly cannot be a substitute for sound macroeconomic policy. Monetary and fiscal policies need to continue to focus on correcting macroeconomic imbalances, with macro-prudential policy focused on ensuring that systemic risk is well-contained. Such a clear division of labour helps protect the independence arrangements for monetary policy that are needed for maintaining price stability.



## **X. Macro-Prudential Supervision**

Macro-prudential supervision, aims to preserve financial stability by preventing the build-up of systemic risk and containing shocks to the financial sector and the real economy as a whole. To this end, macro-prudential supervision assumes a market-wide perspective: rather than being concerned with the viability of individual institutions. Macro-prudential policy looks at the viability of the financial system as a whole.

The macro-prudential policy instruments are mainly derivations of micro-prudential tools, such as capital requirements or loan-to-value ratios, which incorporate a perspective on systemic risk. Macro-prudential policy in a wider sense also includes measures that affect the legal, fiscal or monetary regime. The role of a forward-looking macro-prudential supervisor, moderating uncertainty and alert to the risks of financial innovation, is therefore justified.

The macro-prudential supervisor also collects and analyses data. Macro-prudential supervision operates mainly with two communication instruments, namely policy recommendations and risk warnings. By issuing policy recommendations, macro-prudential supervisors assume an indirect control over micro-prudential instruments. A conflict of interest can arise if the macro-prudential supervisor wishes to relax lending conditions as a countercyclical measure, while the micro-prudential supervisors are concerned with the quality of the credit portfolio of the affected institutions. The micro-prudential supervisor may wish to raise capital standards to ensure that individual institutions survive in a stress situation, whereas the macro prudential supervisor may be concerned with the risk of a credit crunch. In most jurisdictions, the final say remains with the micro-prudential supervisor, which potentially limits the effectiveness of macro-prudential supervision. Supervisory action is based on discrete decisions or on predetermined rules, depending on the policy framework and the instruments used. Micro-prudential supervisor is responsible for data gathering and maintaining the contact with financial institutions.

By issuing policy recommendations, macro-prudential supervisors assume an indirect control over micro-prudential instruments and as such have no direct control over these instruments. A conflict of interest can arise if the macro-prudential supervisor wishes to relax lending conditions as a countercyclical measure, while the micro-prudential supervisors are concerned with the quality of the credit portfolio of the affected institutions. The macro-prudential supervisory authority may be given to a single entity, existing (such as central banks) or new, or be a shared responsibility among different institutions (e.g., monetary and fiscal authorities). The management of systemic risk in the U.S. is centralised in the Financial Stability Oversight Council (FSOC), established in 2010. It is chaired by the and its members include the Chairman of the Federal Reserve System and all the principal U.S. regulatory bodies. In Europe, the task has also been assigned since 2010 to a new body, the European Systemic Risk Board (ESRB), whose secretariat is ensured by the European Central Bank. Compared with its U.S. counterpart, the ESRB lacks direct enforcement power.



## **XI. The Role of Central Banks**

In pursuing their goal of maintenance of price stability, central banks remain attentive to the evolution of financial markets. A complementary relationship between macro-prudential and monetary policy has been advocated. The organisational structure of institutions such as the Financial Stability Oversight Council and European Systemic Risk Board reflect that central bankers have a decisive participation.

The macro-prudential approach calls for a fundamentally different way in which threats to financial stability are addressed. Two issues are of major concern: preventing the build-up of systemic risk by managing credit and asset price cycles and increasing resilience of the financial system to systemic shocks.

In Nigeria, the CBN in 2009, ordered the diagnostic review of banks that were exposed to the capital market. The exercise revealed a lot of defects. The CBN therefore implemented a number of initiatives in the interest of the banks and the depositors to safeguard the stability and soundness of the system. The initiatives are summarised below:

- The CBN intervened in eight banks by removing the executive management teams and the board of directors and appointing new ones to run the affairs of the affected banks. It also injected N620 billion in the form of Tier 2 Capital (seven-year convertible bond) into the banks;

- The Bank also established the Asset Management Corporation of Nigeria (AMCON) as a special purpose vehicle SPV to free banks of their toxic asset burden;

- Established the Financial Stability Committee (FSC) to strengthen systemic stability in the financial system, through the formulation of monetary policy and macro-prudential rules. The FSC and the Monetary Policy Committee are at the core of the new macro-prudential framework;

- Implemented a risk-based and consolidated supervision framework in line with international best practice;

- Adopted a Common Year-End for Banks in Nigeria with effect from December 31, 2009. Furthermore, implemented the International Financial Reporting Standards (IFRS) in December 2012;

- The CBN streamlined its organizational structure to ensure better supervision and regulation of the industry;

- The CBN through the Financial Services Regulation Coordinating Committee (FSRCC), fostered collaboration and harmonized its policies with those of other regulatory agencies, such as SEC, NAICOM, PENCOR, etc., for better supervisory impact; and

- The CBN has strengthened corporate governance in banks by limiting the tenure of managing directors to a maximum of ten years. Also, the former top management of the CBN and the NDIC are no longer eligible to hold offices in Nigerian banks, including their subsidiaries, for a maximum period of five years after their exit from service.

## **XII. Financial System Stability in Nigeria**

The CBN has established a Macro-prudential Division in March 2010 in its Financial Policy and Regulation Department to:

- Provide early warning signals that would protect the entire financial system from distress, rather than focusing only on individual institutions in the system;
- Avoid large and burdensome costs to the economy, by adopting more cost-effective distress resolution mechanisms;
- Identify the collective risks faced by the banking system rather than those faced by individual banks; and
- Examine risks that might arise from contagion as a result of the interaction of banks as part of the financial system, rather than only on a bank-by-bank basis.

Effort have been made by the CBN and other financial institutions in the system to drift the nation towards financial stability. The following are some of the issues that have been addressed to achieve the objective of financial stability;

- A comprehensive prudential guideline was put in place in 2010;
- Banks were to develop and implement a risk based pricing model;
- Review of the existing code of corporate governance for banks;
- Creation of a unit responsible for AML/CFT issues;
- Financial infrastructure; and
- Several measures to contain liquidity crisis which included:
  - Reduction of liquidity ratio from 30 per cent to 25 per cent
  - Injection of N620 into eight ailing banks
  - CBN guarantee of interbank market transactions
  - Adoption of Basel II and IFRS in 2012.

## **XIII. Conclusion**

In summary, macro-prudential issues are different from micro-prudential issues. They are about how interdependencies and endogeneities in the system lead individual firms to behave homogeneously. The use of market prices in valuation and risk assessment is a major source of homogeneity, especially along the credit cycle.

Systemic resilience requires heterogeneity of views and behaviour. In the pursuit of standards, 'best-practices' and microprudence, regulation have artificially created homogeneity and systemic fragility. Where possible we must design micro-prudential regulations in a way that minimises their macro-prudential consequences and given that this will not always be possible, we must complement micro-prudential regulation with macro-prudential regulation.

The financial crisis, which started in 2007, has revealed a number of short-comings of the regulatory and supervisory regime. With the benefit of hindsight, it seems that the focus of prudential supervision had been too narrow and the instruments used to prevent systemic risk were insufficient.

In search of a truly macro-prudential response to systemic risk, supervisors would need

to break new ground. With the institutional framework already established, the search for suitable policies and instruments remains ongoing. Choosing adequate policy instruments and applying them in a sensible manner will be key to achieving the stated objectives of macro-prudential supervision. In the EU, US and other jurisdictions, new supervisory bodies have been established to fill the institutional gap between monetary policy, micro-prudential and macro-prudential.

The financial system has witnessed a rapid growth that has not been supported by appropriate measures designed to encourage prudent risk management practices. This fact, taken along with other issues, such as corporate governance failures, the absence of investor and consumer sophistication, inadequate disclosure and transparency, critical gaps in the regulatory framework and regulation, uneven supervision and enforcement by regulators, as well as macro-economic instability that was caused by large and sudden capital inflows, among others, has precipitated the crises that have negatively impacted the financial system.

The CBN, as part of its ongoing efforts to attain and promote financial stability, has recently articulated various policies aimed at addressing any likely constraint to the stability of the financial system.

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