Systemic Surveillance and Use of Macro-Prudential Indicators

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I. Introduction

The clamour for Macro-prudential (MP) paradigm did not start in 2008 although, it must be acknowledged that the recent global financial and economic crises re-ignited the interest for an MP approach to regulatory intervention as well as heightened its importance and urgency. As at 2003, Borio stressed the need to strengthen the macro- prudential orientation of the regulatory and supervisory framework (Borio, 2003). Other earlier writers like Crockett (2000a and 2000b), Borio, et al. (2001) and Tsatsaronis (2002). Mortinnen, et al. (2005), emphasised the importance of MP analyses, influenced by the lessons of the banking crises experienced in the 1980s and 1990s. They called for a proper appreciation of emergent potential sources of risks rather than concentrating on the extant sources. The 2008 crises were indications that the new sources of risks were not fully appreciated or if they were appreciated, they were not proactively managed or contained.

Two major lessons that emerged and were reinforced by the 2008/2009 crises(the ghosts of which are still hovering around the globe) are the speed and high impact of contagion (accentuated by innovations in technology) and the dangers created by institutions that are too big(and complicated) to fail and too big to save (systemically important financial institutions). The too-big syndrome is not a new development because Borio (2003) emphasised that larger institutions have greater system-wide significance and as such, from an MP perspective, they would be subject to tighter prudential standards. This is indeed consistent with the traditional practice of at least subjecting them to more frequent and intense supervision. Lehman was both an example of the dangers of contagion and the too-big syndrome. Prior to the collapse of Lehman, the US and global financial markets were already in crises but these were still of manageable proportion. But the fragile trust and credibility that still existed vanished on September 15, 2008 when Lehman collapsed. The failure of Lehman (or the decision not to save it) was catastrophic because it put at risk the US funds market worth US$3.5 trillion and the entire global financial architecture. It not only impacted on others who held securities 'manufactured' by the firm, but also had a panic effect. By that weekend, (following the collapse of Lehman), more than US$200 billion had been pulled out from money market funds by retail and institutional investors. When

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other funds are included, the hemorrhage was up to US$400 billion (Duyn, et al, 2008). This was notwithstanding the fact that Lehman Brothers operated mostly from the US and that the sub-prime crisis was mostly a US/UK affair.

On the 'too-big-to-fail' issue, the combined assets of the BIG 5 in the UK are worth 4 times the GDP. Wolf (2008) estimated that a recapitalisation of 1.0 per cent of their assets would cost the British Government an increase in debt of 4.0 per cent of GDP, while 5.0 per cent recapitalisation would lead to 20.0 per cent of GDP in debts. Efforts to save the Citigroup were very difficult because of its size, complicated structure and operations (Muo, 2010). The contagion effect also relates to government policies. That is why up to this moment, the quantitative easing (QE3) programme of the US Fed is being criticised because of its impact on other countries. While Bernanke believes that it boosts US spending and growth and thus supporting the global economy (positive contagion), others like Guide Mantega (Brazil's Minister of Finance) and Masaaki Shirakawa (Governor, Bank of Japan) are concerned about the loose credit and volatile capital inflows into emerging markets.

This paper examines the practice of systemic surveillance through macro-prudential analyses and use of macro-prudential indicators. The rest of the paper is divided into 6 parts. Part 2 discusses macro-prudential (MP) surveillance; Part 3 covers the key methodologies and approaches while the MP indicators are x-rayed in Part 4. Part 5 reviews Nigerian experience with macro-prudential indicators (MPIs). Part 6 examines other issues in systemic surveillance and the paper is concluded in part 7.

II. What is Macro-Prudential Surveillance?

MP surveillance refers to a holistic approach to surveillance that examine the entire financial system rather than the individual institutions (micro surveillance). Borio(2003) states that the 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. On the contrary, the micro-prudential approach emphasises limiting the risk of episodes of financial distress at individual institutions, regardless of their impact on the overall economy. Thus, the MP approach falls squarely within the macroeconomic tradition. MP analysis assesses the banking and financial systems as a whole and covers the threats to financial stability, stemming from common shocks affecting all (or a large part of) institutions or contagion of individual problems to the rest of the system. MP analysis complements the work of micro-prudential supervisors, as the risk of correlated failures, or the economic or financial market implications of problems of financial institutions are not directly covered under the micro-prudential perspective, which is best rationalised in terms of consumer (depositor or investor) protection. Table 1 compares macro and micro approaches.

MP policy frameworks address explicitly systemic risk, adopt a system-wide analytical perspective, and target tools at systemic risk. It subsumes its micro-prudential

counterpart, holds a better promise of economic performance and is more likely to deliver a safe and sound financial system. Indeed, the Financial Services Authority (FSA) (2009) holds that micro-prudential supervision is necessary but not sufficient to achieve a sound overall systemic stability and that is why the MP framework is imperative, a framework that goes beyond the micro issues to address the entire financial system.

Table1: Macro Vs Micro Prudential Perspectives

	Macroprudential	**Microprudential**
Proximate objective	Limit financial system-wide distress	Limit distress of individual institutions
Ultimate objective	Avoid output(GDP) costs	Consumer(investor/ depositor)protection
Model of risk	In part, endogenous	Exogenous
Correlations and common exposures across institutions	Important	Irrelevant
Calibration of prudential controls	In terms of system-wide distress, top-down	In terms of individual institutions, bottom-up

Source: Borio C. (2003). Towards a macroprudential framework for financial supervision and regulation? *Bank for International Settlement (BIS) Working Papers No 128, February*

MP policy is characterised by reference to three defining elements:

(i) Its objective: to limit systemic risk – the risk of widespread disruptions to the provision of financial services that have serious negative consequences for the economy at large.

(ii) Its scope: the focus is on the financial system as a whole (including the interactions between the financial and real sectors) as opposed to individual components (that take the rest of the system as given).

(iii) Its instruments and associated governance: it uses primarily prudential tools calibrated to target the sources of systemic risk. Any non-prudential tools that are part of the framework need to clearly target systemic risk.

MP perspective is concerned with the cross dimensions of scope, calibration, time and size. The scope of MP framework should be rather broad and should cover all institutions involved in fund intermediation and allocation of risks including non-bank financial institutions, financial markets, payment and settlement systems and market infrastructure. The prudential standards should be calibrated with respect to the marginal contribution of an institution to system-wide macro risk. It would make an

explicit distinction between the "systematic risk" (common exposure) charge and the "idiosyncratic risk" charge. Larger institutions, because of their greater system-wide significance, should be subject to tighter prudential standards. With regards to time dimension, cushions should be built up in upswings so as to be relied upon during burst cycle so as to strengthen the banks' ability to absorb deteriorating economic conditions, when access to external financing becomes more costly and constrained. Moreover, by leaning against the wind, it could reduce the amplitude of the financial cycle, thereby limiting the risk of financial distress in the first place. In other words, this strategy would add a welcome counterweight to the powerful *pro-cyclical* forces in the system.

MP policy also interacts closely with other spheres of public policy because those other policies 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. MP 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. Because of these inter-linkages, effective MP 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.

Even under the emerging financial architecture where the conventional roles of the central banks are being divided (as in the FSA model), it is argued and agreed that the central bank should monitor and regulate strategic risks because financial stability is closely aligned with the objectives of monetary policy and invariably requires a lender of last resort powers (Blinder, 2010). It is also noteworthy that the scope of Central bank responsibility is actually a continuum from micro to macro specifically as it moves from, consumer protection, supervision of non-systemically important financial institutions (SIFIs), supervision of systemically important financial institutions (SIFIs), financial stability to monetary policy (Goodhart, 2010).

III. Key methodologies/Approaches of MP Surveillance

The joint progress report to the G20 (FSB, IMF and BIS, 2011) summarises the key approaches and methodologies used across countries as:

> *Aggregate indicators of imbalances*: These indicators use macroeconomic data or balance sheet indicators (e.g., bank credit, liquidity and maturity mismatch, currency risk, and sectoral or external imbalances) to signal the

build-up of risks in the financial system and the economy at large.. Measures of credit growth can be complemented by other indicators, for example unusually rapid asset-price growth, to form indicators of systemic risk build-up that reflect the characteristics of individual economies.

Indicators of market conditions: These indicators focus on developments in financial markets that may lead to generalised distress. They are typically observed at higher frequencies than the aggregate indicators mentioned above and behave more like coincident indicators of financial stress. Indicators of risk appetite (e.g., spreads, risk premia), and of market liquidity conditions are used extensively in some jurisdictions.

Metrics of concentration of risk within the system: These metrics relate to the cross-sectional dimension of systemic risk and focus on the channels of contagion and amplification. Beyond basic measures of size and concentration, they capture more specifically common exposures and interconnectedness among financial institutions (including non-bank financial institutions), sectors (e.g., public and private), markets (e.g., funding and credit markets), and countries.

Macro stress testing: Tools that have been developed to test the resilience of individual institutions are being adapted to stress test financial systems by augmenting the methodology in order to: incorporate market dynamics under extreme (tail-risk) scenarios and the amplification arising from network effects; and better assess the interactions between financial system distress and the real economy, including through multi-round adverse feedback effects. The importance of conducting top-down and bottom-up stress tests simultaneously to cross-check results is being widely recognised.

Integrated monitoring systems: While the metrics and approaches described above are useful on their own, they can often be combined into comprehensive monitoring systems and sometimes into composite indicators. This can provide a more coherent picture of conditions across the financial system, tailored to specific domestic circumstances. Various institutions have developed or are in the process of developing such frameworks for the analysis of systemic risk.

They warned however that, *the usefulness of specific metrics and indicators depends on a range of country and context-specific factors.... The analysis of signals provided by the indicators need to take account of the broader economic context. For example, the policy response to a credit boom would differ if strong growth could be attributable to productivity gains in the corporate sector or to a relaxation of lending standards. Quantitative indicators are often combined with qualitative information and intelligence gathered through regular contacts with market participants. Such information can provide timely insight into trends and identify areas that require a more systematic investigation.*

It is important to stress that in terms of broad framework, there are differences between the European Union (EU) and the International Monetary Fund (IMF).

The MP Framework by the European Central Bank has three building blocks (Morttinen et al, 2005).

1. Assessing current financial position of banks-their ability to withstand disturbances (profitability, liquidity and capital adequacy);
2. Analysing actual and potential sources of risk to which the banks are exposed and the size of those exposures. These may be from macroeconomic developments, sectoral developments or inter-linkages between institutions (credit risks, financial market risks, operational and legal risks, liquidity, infrastructure and contagion risks); and
3. The resilience of the banks vis-à-vis different sources of risk and vulnerabilities.

For the IMF, a MP analyses framework revolves around the following:

Assessing the risk of shock in the financial system.
Recourse to financial stability indicators.
Analysing micro-financial interactions.
Monitoring macroeconomic situation (IMF, 2006).

Beyond the broad framework, there are also differences in terminologies and even the number and measurement of the indicators. Thus, while ECB refers to it as macro-prudential indicators, the IMF refers to it as Financial Soundness Indicators (FSIs), which also subdivided it to two, namely, core and encouraged**.** Argesti, et. al (2008) undertook a comprehensive comparison of the two approaches, noting that the areas of differences have been greatly narrowed down and that countries should adopt what is most suitable to their context.

IV. Macro-Prudential Indicators (MPI)

MPIs or FSIs are aggregated micro prudential indicators and they are used to assess different sources of risk to the financial sector: financial strength (capital ratio), vulnerabilities (asset qualities/liquidity); for non-financial sectors: assess risks from exposure to these sectors and for peer groups: identify exact sources of risks (Craig, 2002). Broadly, those most commonly used include:

(i) tools to address threats to financial stability arising from excessive credit expansion and asset price booms, particularly in real estate markets, both residential and commercial (e.g., dynamic capital buffers, dynamic provisions, loan-to-value (LTV) and debt service-to-income (DTI) ratios), but also the terms and conditions of transactions in wholesale financial markets (e.g., margins);

(ii) tools to address key amplification mechanisms of systemic risk linked to leverage (e.g. capital tools) and maturity mismatches (e.g., market and funding liquidity tools),including adjustments to take into account the prominent role played by ballooning intra-financial system exposures in the run-up to the current crisis (e.g., risk weights or limits on intra-financial system exposures); and

(iii) tools to mitigate structural vulnerabilities in the system and limit systemic spillovers in times of stress, such as additional loss absorbing capacity for SIFIs. Disclosure requirements that target common exposures, risk factors and interconnectedness (rather than the risk profiles of individual institutions on a standalone basis), and specific requirements for SIFIs in the context of effective resolution framework are also key supportive instruments in this area.

Infrastructure policies (robust payment and settlement systems, trading infrastructure, etc.) are systemic by definition and have always been a core policy strand, well before the crisis. Measures to enhance robustness of financial market infrastructure could help address the cross sectional dimension of systemic risk, and are considered complementary macro-prudential tools for the purposes of this paper, which focuses on changes in prudential standards.

Selialia, et. al (2010) highlighted three main approaches for identifying MPIs /FSIs. The first approach is to adopt the standards established by international organisations such as the IMF, BIS and ECB. The second approach is based on the underlying economic theories of financial instability as espoused by Davis (1999) that data requirements for MP analysis are dictated by the theories underpinning the concept of financial instability. Examples of the theories include the monetary approach and the concept of uncertainty and asymmetrical information and agency costs. The third approach is based on the linkages or interactions between the financial sector and other sectors of the economy. It is summarised with the aid of the circular flow of income and expenditure. The most important issue is that the indicators should be analytically and empirically relevant, that is, there should be a sensible basis for expecting a relationship between the indicator and financial instability, and indicators should have predictive power or be classified as leading indicators in the sense that changes in one variable precede changes in another.

Table 2: Macro-prudential indicators derived from economic theories

Theories	Main Emphasis	Recommended Indicators
Theories of financial fragility	Debt accumulation: rising corporate and household debts relative to assets	Macroeconomic variables, real estate, economic sector growth, income gearing, corporate and household debts, sectoral balance sheet, credit markets and investment trends
Monetarist Approach	Growth of monetary aggregates; monetary policy in general	Monetary aggregates, interest rates, inflation, exchange rates
Risk of bank runs	Use of micro-data from balance sheet and P&L statements	Capital adequacy, overall interest rate margin, return on assets, share prices, interbank claims and liabilties
Uncertainty, credit rationing and Asymmetrical information	Disaster myopia. Summarise and emphasise other theories. Deviation from long-term averages are emphasised	Loan spreads, rapid growth of markets, sectoral distribution of credit, bank credit ratios, net worth of customers
International aspects	Vulnerability to external shocks, role of international capital flows	Foreign reserves, balance of payment transactions, foreign currency borrowing, capital inflows and contagion, commodity prices

Source: Selialia et al (2010), p.13

Following the IMF classification, there are core indicators (essential to all countries, and covers the banking industry due to its critical role in financial stability and could be compiled for many countries) and encouraged indicators (relevant to some countries, depending on structure).

The core indicators are:

- Regulatory ratios (non-performing loans/total loans, distribution of loans and large exposures/capital)
- Earnings and profitability (return on equity, return of assets, interest margins and expenses ratio)
- Liquidity (liquid asset ratio, liquid assets/short-term liabilities)
- Market risks (foreign exchange net open position, duration (maturity mismatch)

The Encouraged indicators are

- Other banking sector FSI (leverage ratio, trading income, gross derivatives position)
- Liquidity in the security market (bid-ask spread, average daily turnover)
- Non-banking financial institutions (leverage)
- Non-financial sectors (corporate leverage, ROE, Foreign exchange, real estate)

The ECB on its own monitors scores of indicators categorised as:

Internal factors

- Profitability, balance sheet and capital adequacy
- Demand and supply (Competitive) position
- Risk composition
- Market assessment risk

External factors

- financial fragility
- asset price developments
- cyclical and monetary developments

Contagion factors

- Interbank market

The differences between the IMF's FSI and ECB's MPI are as follows. The FSI is a broad framework that covers the whole economy while the MPI covers other parts of the economy as counterparties to the financial sector and its compilation approach dwells comprehensively on the risks facing the banking industry. Furthermore, the MPIs were more aligned with accounting and supervisory standards and thus, little adjustments were made by authorities that adopted these standards, unlike the case of the FSIs. The origins of the two measures are also different; the FSIs are outcomes of the EU integration and in particular, the mandate to ensure smooth conduct of

policies for smooth prudential supervision and financial stability. The MPIs were the outcome of the global crises of 1980s and 1990s, especially the Asian crises where data and information gaps hindered detection and response to the crises, (Argresti et al, 2008).

The amendments to the IMF guide have significantly narrowed the gap between the two. It is also important to stress that both measures have the same goal: to provide quantitative benchmarks for banking soundness, they overlap significantly in the banking sector indicators and both measure capital adequacy, asset quality, earnings and profitability, liquidity and sensitivity to risks

V. MPIs in Nigeria

Nigeria is a part of the globe and is affected by global developments. There is no doubt that CBN pays attention to financial stability and is engaged on MP regulations. It has a Deputy Governor for Financial Stability and a Financial Policy and Regulation Department with responsibility for MP regulation/supervision. This reflects a structural design indicating strategic redirection. The CBN Pillar Two revolves around ensuring financial stability under which the agenda are to establish financial stability committee, deal with macro prudential issues, engage in capital market development (as an alternative to bank funding) and the enthronement of countercyclical fiscal policies (the other three pillars: enhancing the quality of banks, enabling healthy financial sector evolution and ensuring that the financial sector contributes to the development of the real economy). The Financial Stability Committee is already functional, stress testing is a biannual affair, and like in other climes, efforts are being made to identify D-SIBs (domestically systemic important banks; the ones termed too big to fail!) for "bumper to bumper" monitoring. The Bank also has its bi-annual Financial Stability Report which gauges and publishes the health of the financial system. It has adopted and calculates a set of Financial Soundness Indicators. These FSIs for December 2010 and 2011 are shown in the Table below:

Table 3: FSIs for December 2010 and December 2011

SN	Indicators	December 2010	December 2011
1	**Asset Based Indicators**		
	NPL/TL	17.2%	4.9%
	CLA/TA	18.7%	25.7%
	LA/STL	19.8%	31.2%
2	**Capital Based Indicators**		
	RC/RWA	7%	17.8%
	T1C/RWA	4.1%	18.1%
3	**Income and Expenses Based Indicators**		45.2%
	IM/GI		36%
	PC/NIE	27.1%	75.4%
	NIE/GI		

NPL-Non performing loan; ***TL***-Total loan; ***CLA***-Core Liquid Assets; ***TA***-Total Assets; ***LA***-Liquid Assets; ***STL***- Short-term liabilities; ***RC***-Regulatory Capital; ***RWA***-Risk Weighted Assets; ***T1C***-Tier One Capital; ***IM***-Interest Margin; ***GI*** Gross Income; ***PC*** Personnel Cost; ***NIE***-Non-Interest Expense

Extracted from CBN Financial Stability Report, December 2010 and 2011.

These MPIs or FSIs are useful and usable in ensuring MP surveillance but given our recent history and experiences, there is need to adopt and/or develop other indicators. This is because while the issue of MP surveillance and application of MPIs are global, local peculiarities should influence the scope and usage of these instruments. Indeed, FSA (2009) warned that *the usefulness of specific metrics and indicators depends on a range of country and context-specific factors.... The analysis of signals provided by the indicators need to take account of the broader economic context.* Furthermore, Kamgna et al (2009) undertook a study of the Central African States (CEMAC Zone) and concluded that Central banks in that region should focus on the following 6 indicators. Claims on the private sector, FDI and a combination of exports and credits to the private sector increase the risk of degradation in the banking sector; and increase in exchange rate, increase in the internal resources of the banks and the rate of inflation which reduce the risk of degradation in the banking system. Selialia, et al (2010) also did a study of the South African situation with context specific consideration.

Consequently, these indicators are to be considered as relevant for the Nigerian situation:

Sectoral exposure to stocks, oil and gas, real estate, aviation and government contracts;
Distribution and concentration of credits;
Rate of credit expansion relative to the growth of the economy;
The extent to which banks are dependent on the interbank market;
Foreign exchange trends: exchange rates and flows;
Quantum and terms of access of foreign funds; and
Exposure to non-banking financial institutions (NBFIs) which may indicate unwholesome fund flows.

Whether using the existing MPIs (as already discussed), designing a new set of 'local content' indicators, or adopting more from the basket of IMF/ECB FSIs/MPIs, it is important to remember that each indicator monitors different risks. Capital adequacy MPIs monitor financial strength; ability to absorb shocks. Asset quality MPIs – vulnerability to credit risk exposure; Market risk MPIs – vulnerability to currency and maturity mismatch and Liquidity MPIs- vulnerability to loss of access to funding. It should further be noted that these indicators should be analysed and utilised in combination; that stress testing is a critical element of MP analyses and supervision and that data should be sourced from various sources for proper analysis. Craig (2002), also emphasizes the need to enhance the role of these indicators by, among other things, strengthening their analyses by determining economic linkages between the MPIs, integrate them with stress testing, and identify relevant information from all possible sources, adopt the compilation guide and encourage its

dissemination.

The MPIs are meant to indicate threats to the financial system following which appropriate measures are taken depending on the nature, direction and seriousness of the threats. The commonly used instruments and when they are used are shown below.

Table 4: Commonly used MP instruments

SN	Focus of Instruments	Examples of Instruments
1	Tools that 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 Reserve requirements
2	Tools that address key amplification mechanisms of systemic risks	Limits on maturity mismatches Caps on foreign currency lending Limits on net open currency positions or mismatches Levy on non-core funding
3	Tools that mitigate structural vulnerabilities and limit spill over from stress	Additional loss absorbency related to systemic importance Disclosure policy for markets and institutions targeting systemic risk Resolution requirements for SIFIs

Source: FSB, IMF and BIS, (2011).

It is important to take note of the following:

The instruments are often used in combination (e.g., some countries have varied LTV and DTI ratios jointly to tame real estate booms). The use of multiple instruments has advantages (it provides greater assurances of effectiveness by addressing different sources of risk) but may be difficult to coordinate and also harder to communicate than single tools;

Instruments to address excessive credit expansion in the system tend to target specific types of exposure. Differentiation by currency has been used in jurisdictions where growth in foreign currency-denominated lending was of concern. The flexibility of a more tailored and targeted approach is self-evident, but there are also limitations. For example, it requires more granular data, has higher administrative costs, may be more susceptible to circumvention and, if taken too far, could inadvertently result in intrusive credit allocation;

To contain the risk of unsustainable real estate booms, a number of jurisdictions have taken actions to restrict mortgage credit. Instruments include LTV, DTI and changing the terms on mortgage insurance; and

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 and designing them may be difficult, especially when multiple instruments are being used in combination. This is why rules are often complemented with discretion.

Some of these policies might have unintended consequences. The British Bankers Association (2012), identified some of the unintended consequences of some MP measures as follows:

Table 5: Unintended Consequences of Some MP Instruments

S/N	MP Instrument	Unintended Consequences
1	Counter-cyclical buffer	Increased exposure to riskier sectors to maintain ROE
2	Sectoral capital requirements	Shift risk to other sectors
3	Maximum leverage ratio	Increase incentive to hold risky assets or complex off balance-sheet arrangements
4	Counter-cyclical liquidity buffer	May encourage riskier activities and inefficient use of liquidity which is a loss to the economy
5	LTV/LTI restrictions	May exclude some borrowers from the market. Drive activities to the shadow market

Source: British Bankers Association (2012).

It is also important to note that some MP instruments are more effective under certain circumstances than the other as indicated in this work by Lim et. al (2011).

Table 6: Effectiveness of Macro-prudential instruments

Reductions in:	**Pro-cyclicality of Credit**	**Pro-cyclicality of Leverage**	**Inter-connectedness Of Foreign funding**	**Inter-connectedness of wholesale funding**
Caps on LTV	Statistically Significant	Not statistically significant		
Caps on DTV	Significant	Significant		
Limits on Credit Growth	Significant	Significant		
Limits on NOP	Significant	Significant	Statistically significant	Not significant
Limits on maturity mismatch	Significant	Significant	Not statistically significant	Statistically significant
Reserve requirements	Significant	Significant		
Time varying/dynamic provisioning	Significant	Significant		
Countercyclical/ time varying capital requirements	Not statistically significant	Significant		

LTV-Loan to value; DTI-Debt to Income; NOP: Net Open Position
Source: Lim et al (2011) Macro-Prudential Policy: What Instruments and How to Use Them: Lessons from Country Experience. IMF Working Paper 11/238

These instruments should also be regularly updated. The EU has already proposed a regulation to mitigate pro-cyclical effects of prudential regulations and most importantly, to ensure that banks accumulate capital during boom years to be applied as shock absorbers during recession. This involves the introduction of a fixed conservation buffer (graduated between 2016 and 2018), variable countercyclical buffer and an option to introduce a systemic buffer.

Table 7: Proposed Capital Buffer under the Capital Requirement Directive (CRD) IV

Capital Buffer under the current CRD draft	Conservation buffer	Counter-cyclical capital buffer	Systemic buffer
Use	Permanent	Judgment based on European Systemic Risk Board (ESRB) guidelines	Judgment
Objective	Ensure sufficient capital to absorb losses during stress period	Mitigate risks due to excessive credit growth	Prevent and mitigate long-term noncyclical systemic or macro-prudential risks not covered by regulation
Level	2.5%(built gradually between 2016-2018	Up to 2.5% (but higher level can be imposed by national authorities)	Up to 5% as follows: 0-3% national discretion 3-5% with opinion from EC
Applicability	All banks	All banks	All banks or a subset
Authority	Competent authority or designated authority	Designated authority	Competent authority or designated authority

Source: IMF (2012).

VI. Other Issues in Systemic Surveillance

VI.1 Managing the Too Big Institutions

Effort must be made to identify and pay special attention to too-big institutions and domestic systemically important banks. The ultimate goal is to reduce risk of systemic financial crises and the resulting damage. Big banks should be subjected to special prudential requirements so as to build confidence in the system and avoid instability, protect depositors and avoid the contagion of the impact of the collapse of one firm on the other, (FSA, 2009). Some of the options include:

subjecting the largest, systemically important financial institutions to higher capital and liquidity requirements, larger capital buffers/reserves and possibly tighter restrictions on leverage. The aim here would be to reduce the probability of such a firm getting to the point of failure and requiring public support. At the margin, higher capital and liquidity buffers would also reduce the impact of failure; and

restricting the range of activities that the largest financial institutions can engage in, or the extent to which they can engage in higher risk activities. This would be on the basis that in the last crisis the main source of many institutional difficulties was over-expansion into activities that are well beyond their core' business and the range of experience of their boards and senior managements. A further step on this path could include consideration of the creation of 'narrow banks' whose function would be to provide liquidity and payment services and whose activities would be limited to investing in 'safe' assets. This would be intended to create a clear barrier between utility banking and riskier, highly leveraged trading activities. Such approaches would again be intended to reduce the probability of failure of the banks at the core of any country's financial system. The new model might have addressed some of these concerns restricting the size of financial institutions, either in absolute terms or in relation to the size of the particular market or markets in which they are active. This might be achieved through regulatory or competition policy or some combination of the two. Such an approach would seek to avoid any institution becoming 'too big' in the first place, thereby allowing its failure to be absorbed in an orderly way.

FSA (2009) also itemises the drawback and challenges of some of these policy options. They are:

First, there is a difficult boundary issue – where does the regulator draw the line between those financial institutions that are to be subject to these requirements and those that are not? As noted above this may be obvious in some highly concentrated banking systems, but it is not in other, more diversified banking systems. Moreover, it is difficult to envisage how such a 'list' could be drawn up. While it might be felt appropriate, in certain circumstances, to allow a relatively large firm to fail, in other circumstances the correct response might well be to support a small firm. This illustrates the point that authorities need to have regard to the systemic nature of the situation as well as of the individual firm. The former cannot be predicted. That said, it might be misleading to think of the divide between 'systemic' and 'non-systemic' as being hard. It may be possible to develop a sliding scale approach, where supervisory requirements of a firm increase with the consequences of the spillovers from its failure.

Second, it is unclear whether the 'price' extracted ex-ante (e.g. through higher capital or liquidity requirements) will be sufficient to offset the impacts on incentives

(particularly on the part of management) that will come from knowledge that the institution falls into the category of too-big-too-fail. That said, boards and senior management of the largest firms – as well as their counterparties, rating agencies etc. – might well have already concluded that they fall into this category. Hence, any incentives effects might be marginal.

Third, setting higher requirements determined solely by a financial institution's size risks blunting the incentive for management to strengthen controls and risk management. Fourth, restrictions on the size of a financial institution or the range of activities it undertakes, while attractive in some respects, are difficult in practice to implement. As the current crisis demonstrates, today's markets are global, as are many of the customers of major financial institutions. Those customers need large, global banks capable of offering a broad range of services. Restrictions on banks' activities would reduce economies of scale and scope and limit diversification benefits for both banks and to some extent their customers. In addition, it is far from clear that specialisation in a relatively narrow field (e.g. mortgage lending) helped to avoid problems during the current crisis. Banks' high-risk activities are not confined to their trading books.

Finally, although theoretically attractive, it is difficult to see how any split between utility banking and investment banking could be implemented so as to avoid the risk of contagion between the two types of bank. However, the combination of higher capital requirements for trading risks, coupled with increased supervisory scrutiny of these risks, might well mean that some banks decide to reduce their activities in this area. But we can learn from the framework for global systemically important finance institutions as approved by FSB in 2011 as follows:

> Requirements for *resolvability assessments and for recovery and resolution planning* for global systemically important financial institutions, and for the development of institutions-specific cross-border cooperation agreements so that home and host authorities of G-SIFIs are better prepared for dealing with crises and have clarity on how to cooperate in a crisis;
>
> Requirements for banks determined to be globally systemically important to have *additional loss absorption capacity* tailored to the impact of their default, rising from 1.0 per cent to 2.5 per cent of risk-weighted assets (with an empty bucket of 3.5 per cent to discourage further systemicness), to be met with common equity;
>
> *More intensive and effective supervision* of all SIFIs, including through stronger supervisory mandates, resources and powers, and higher supervisory expectations for risk management functions, data aggregation capabilities, risk governance and internal controls (IMF, 2012).

Therefore, the CBN should: establish a methodology for identifying domestic systemically important banks and approve a specific list of entities; establish an approach for domestic systemically important institutions: a methodology for assessing the systemic importance of domestic institutions which should take into consideration the impact of a D-SIB's failure on the domestic economy (for example having regard to bank-specific factors such as size, interconnectedness, substitutability/financial institution infrastructure, complexity –including the additional complexities from cross-border activity); establish a list of these institutions and conditions for retaining the membership of that list (permanent or flexible membership?); and design a set of policy tools to be applied to contain the systemic risks posed by D-SIBs.

VI.2 Moving Beyond the Mainstream Banking System

Financial stability concerns go beyond banks to non-bank financial institutions, financial markets, payment and settlement systems and market infrastructure. Until recently, there were little demarcations between these institutions and the banks. The new banking model tries to create the demarcation either absolutely or through the HOLDCO and ring-fencing mechanisms. There are also shadow and fringe operators even though it might be argued that their impact might not be enough to destabilise the system. While capturing the systemic implications of NBFIs requires institutional collaboration, the issue of fringe institutions ('the system of credit intermediation that involves entities and activities outside the regulated banking system') poses a different challenge. This is more so in Nigeria where their activities have created confidence crises for the banking system. The FSB recommended a three-point framework for capturing and managing the systemic implications of these shadow institutions.

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 to areas where systemic risks are most likely to be building, by drawing on a set of 'risk factors' that highlight incipient problems. The set may include indicators of rising maturity and liquidity transformation, measures of increasing leverage, and signals of imperfect credit risk transfer practices. The authorities must also be alert to signs of regulatory arbitrage, which adds to systemic risk by undermining the effectiveness of financial regulation. 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.

VI.3 The Issue of Stress-Testing

Stress testing (ST) is the process of:

Defining potential adverse future economic scenarios;

Measuring the sensitivity of the banks market, investment and operational risk portfolios to changes in economic variables resulting under extreme scenarios defined above;

Aggregating the results and quantifying the overall negative impact on planned profitability, capital levels and liquidity positions; and

Comparing the results to the board approved risk appetite levels and implementing risk reduction business strategies, policy changes if the result of the stress test exceeds the risk appetite.

Stress-testing may be top-down or bottom-up. Bottom up ST refers to the process where the stress loss impact is measured on each and every loan contract, trading or investment position, operational process, taking into account, the specific terms and conditions of that contract. It is top-down when it is done at the portfolio and not individual account level and an implicit assumption is made that the risk characteristics of each account in the portfolio is the same. ST is an inescapable aspect of MP surveillance and the CBN should not relent in its regular utilisation of this instrument

VI.4. The Issue of Governance

MP policy interacts closely with other spheres of public policy because those other policies 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. MP policy interventions, in turn, have macroeconomic effects. For example, raising capital requirements in a credit boom might to some extent dampen aggregate demand and, hence, influence the macroeconomic policy environment. Because of these inter-linkages, effective MP 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. There exist monetary stability committee and the financial services coordinating council. But other countries have moved beyond the financial services authority to the establishment of the systemic risk board with membership drawn from a cross section of stakeholders in banking, finance, government, academia and statisticians. As the IMF report indicates, it involves a lot of institutional, legislative and institutional re-engineering.

VII. Concluding Remarks

The ghost of 2008 crises is still very much around and evidences include the Europe wide protest of November 14, 2012 and the continuous worry about the future of the Euro and Eurozone; endless Greece bailout discussions, tensions and drama, miserable global growth rate in the past four years and the key issues that dominated the just concluded US Presidential elections. The key lesson of 2008 is that history repeats itself because men-and women-always ignore the lessons of history. If the wrenching experiences of 2008 are to be avoided, we must ensure systemic surveillance through macro-prudential analyses, application of MPIs and instruments and continually update the indicators and instruments, processes and governance issues must be ensured.

The CBN has already gone a long way in this direction, with a functional financial stability board, regular measurement and publication of MPIs and also regular stress testing. The scope of the MPIs should be improved to include some indicators that are particularly relevant to Nigeria's situation. The instruments should be adopted with caution, noting those that have worked and are likely to work given our peculiarities. Identifying and managing the too-big institutions requires serious attention and institutional building for systemic risk management continues to be a challenge.

Going forward, the challenges faced in the adoption and implementation MP analyses are numerous. Abolo (2012) identifies some of them as how the consuming institutions can manage micro- and macro-regulations, the independence and power to conduct effective MP analysis, coordination between institutions and authorities, the most effective instruments and frameworks and whether to be rule – based or discretionary in outlook as well as how to ensure harmony between monetary, fiscal and prudential policies. There are situations in which several international authorities take positions that are at times not exactly the same. Whatever the case, the CBN should continue to forge ahead on the MP roadmap, ensuring that it develops a globally attuned but locally relevant institutional and analytical framework as well as the international and local institutional collaboration necessary for the attainment of MP analyses and systemic surveillance.

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