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Macro-Prudential Policies and Financial Stability: A Theoretical Background

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I. Introduction

The regulation and supervision of financial institutions has for long concentrated on the traditional micro-prudential approach, which seeks to ascertain the state of health of individual financial institutions with the belief that once the institutions are healthy, financial stability would be attained as a matter of routine. However, the global financial and economic crises of 2007/2008 made it imperative to reexamine the whole process of banking regulation and supervision. The idea of macro-prudential framework has been to complement micro-prudential regulation and supervision in the desire to efficiently and effectively ensure soundness/stability of individual FIs and the whole system by moderating threats to FIs and financial stability. While micro-prudential regulation is a bottom up approach, and concentrates on individual financial institutions, macro-prudential regulation is more appropriate for determining vulnerabilities and threats to financial stability. Although the debate on the effectiveness of macro-prudential regulation is ongoing, there appears to be a consensus that it provides the most 'cornerstone solution' to financial instability by minimizing impacts of systemic risk events. It is agreed that both micro-and macro-prudential regulation should be strengthened with emphasis on complementarity relationship between them, which may result in more robust framework for financial regulation and supervision.

The paper is organized as follows: section two and three contains conceptual issues and theoretical perspectives, respectively, while section four looked at complementarity and differences between macro-prudential and micro-prudential regulation. Thereafter, section five reviewed objectives and rationale for macro-prudential regulation vis-à-vis its institutional framework and scope. Section six looked at instruments of macro-prudential regulation and the implication of the new Basel III, while section seven focused on institutional and governance structure as key elements of macro-prudential regulation. The paper further gave a general insight on how macro-prudential policy framework should be structured in section eight and later concluded in section nine.

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II. Macro-prudential Regulation: Conceptual Issues

The concept of macro-prudential was first used in a paper prepared by BIS for discussion by Euro-Currency Standing Committee in July 1978 on the implications of rising oil prices for international bank lending and the stability of the international banking system. In June 1979, Cooke Committee underscored the issue as micro-prudential concerns began to emerge as macro-economic problems (macro-prudential), highlighting precisely the link between prudential regulation and macroeconomy. Subsequently, in a background paper written by Bank of England in 1979, macro-prudential regulation was proposed as a complimentary wider perspective prudential regulation with focus on issues that mainly focus on the market as a whole as distinct from an individual bank or financial institutions, which could not be obvious nor addressed at the micro-prudential level. Thereafter, awareness continued to rise on the insufficiency of micro-prudential regulation in ensuring financial stability. The financial crises in the late 1990s, particularly the Asian financial crisis, drew more attention to the growing interdependence between the macroeconomy and the financial system, and emphasized the need to build resilience to systemic shocks. Since then, application of the concept, macro-prudential, has become more common in banking policy sphere.

In 2005, the International Monetary Fund (IMF) Handbook described a sound and well-functioning financial sector as one having macro-prudential surveillance and financial stability analysis, which was described as monitoring the effect of potential macroeconomic and institutional factors on the soundness (risks and vulnerabilities) and stability of financial systems as one of the key pillars.

Following the onset of the global financial crisis in 2008, the term macro-prudential became central in research related to strengthening regulatory and supervisory frameworks (Aaron Brandenburg Oct., 2011). Although the concept is often commonly used, a precise definition of macro-prudential policy remains ambiguous. This is partly because the objective of macro-prudential policy is largely informal, as there is neither a common framework nor a consensus on the indicators and instruments to be considered (Hannoun, 2011, Aaron Brandenburg, 2011, Jaime Caruana, 2011). In the IMF survey of 63 countries and the European Central Bank conducted in December 2010, not one respondent had a formal definition of macro-prudential policy. In a comment in the *Financial Times* of May 19, Howard Davies (director of the London School of Economics) and David Green (former head of international policy at the UK Financial Services Authority) said, "No one is yet clear, nationally or internationally, quite what this term (macro-prudential) involves."

III. Macro-Prudential: Theoretical Perspectives

On theoretical grounds, it has been argued that a reform of prudential regulation should integrate three different paradigms: the agency paradigm, the externalities paradigm, and the mood swings paradigm. The role of macro-prudential regulation is particularly stressed by the last two.

The agency paradigm highlights the importance of principal-agent problems. The main argument is that in the role of lender-of-last-resort and provider of deposit insurance, the government alters the incentives of banks to undertake risks, thereby inducing principal-agent problem (moral hazard). On the other, however, the coexistence of deposit insurances and insufficiently regulated bank portfolios induces financial institutions to take excessive risks. This paradigm, however, assumes that risk arises from individual institution, and hence, it is inappropriate to place emphasis on the system as a whole, which characterizes the macro-prudential approach.

In the externalities paradigm, the key concept is called monetary externality. This is defined as an externality that arises when one economic agent's action affects the welfare of another agent through effects on prices. As argued by Greenwald and Stiglitz (1986), when there are distortions in the economy (such as incomplete markets or imperfect information) policy intervention can make everyone better off in a Pareto efficiency sense. Indeed, a number of authors have shown that when agents face borrowing constraints or other sorts of financial frictions, pecuniary externalities arise and different distortions appear, such as over borrowing, excessive risk-taking and excessive levels of short-term debt. The International Monetary Fund policy study in 2010 argued that risk externalities between financial institutions and from them to the real economy tend to trigger market failures which justify macro-prudential regulation. In the mood swings paradigm, rationality and greed critically influence the behaviour of financial institutions' managers, causing excess of optimism in good times and sudden risk retrenchment on downturn. As a result, pricing signals in financial markets may be inefficient, increasing the likelihood of systemic trouble. A role for a forward-looking macro-prudential supervisor, moderating uncertainty and alerting to the risks of financial innovation, is therefore justified.

IV. Macro-Prudential vs. Micro-prudential Regulation

As a starting point, it is useful to distinguish between "micro-prudential" and "macro-prudential" approaches to financial regulation. A micro-prudential approach is one in which regulation is partial-equilibrium in its conception, and is aimed at preventing the costly failure of individual financial institutions. Many have argued that the weakness of the existing framework is that it is largely micro-prudential (Crockett 2000; Brio, Furfine and Lowe 2001; Borio 2003; Kashyap and Stein 2004; Kashyap, Rajan and Stein 2008; Brunnermeier, et al., 2009, Bank of England 2009, French et al 2010). It evaluate each firm independently and in isolation, largely without regard to spillover and feedback effects, and form the basis of traditional supervision and bank examination, e.g., the "supervisory review process" that constitutes Pillar II of Basel (BIS, 2001).

Micro-prudential supervision's focus on the risk of insolvency or distress at individual firm level reflects goals such as protecting consumers and taxpayers (via the deposit insurance fund) and reducing distortions from the safety net. In this way, micro-prudential supervision takes the economy as given and thus, exogenous to the supervisory decision-making process (Beverly Hirtle, TilSchuermann, and Kevin Stiroh, 2009). As a result of the important nexus and complementarities between micro- and macro-prudential regulation and supervision, care is usually taken to ensure proper mix towards the attainment and sustenance of financial stability.

By contrast, a Macro-prudential approach recognises the importance of general-equilibrium effects, and seeks to safeguard the financial system as a whole.

There seems to be agreement among both academics and policymakers that the overarching orientation of financial regulation needs to move in a macro-prudential direction. For example, Bernanke (2008) states: "Going forward, a critical question for regulators and supervisors is what their appropriate 'field of vision' should be. Under the current system of safety-and-soundness regulation, supervisors often focus on the financial conditions of individual institutions in isolation. An alternative approach, which has been called system-wide or macro-prudential oversight, would broaden the mandate of regulators and supervisors to encompass consideration of potential systemic risks and weaknesses as well." The combination of micro- and macro-prudential supervision is necessary for effective and efficient framework for establishing financial stability through stress testing and scenario analysis.

The current global financial crisis, which exposed gaps in public policy tools to deal with systemic risk, has given rise to the need for macro-prudential supervision and regulation to, among others, strengthen links among key components of a financial system, examine carefully how systemic risk varies over time, and determine the robustness of the system when hit by shocks or systemic risk. Excessive risk-taking, combined with lack of prudential supervision and loose monetary policy, is generally viewed as important contributors to the last financial crisis. The central banks and regulators have a fundamental role in ensuring financial stability by monitoring the performance of banks and other institutions, but their collective actions were clearly not enough to prevent the crisis. The global financial crisis, which has also become an economic crisis, has accentuated the importance of systematically introducing a macro-prudential approach for assessing soundness in financial systems as well as in individual financial institutions.

Regulators need to identify banks that do not manage their risks well. However, such monitoring should not only be concerned with the stability of individual institutions, but should also include a macro prudential orientation that comprises monitoring, regulation, and supervision to examine how risk is distributed across a financial system at any given point in time and identify as well as understand how aggregate risk evolves over time. Although the need for a macro-prudential approach has heightened over the past 15 years, the macro-prudential toolbox is still in the process of development and its concepts are as complex as they are poorly understood.

V. Macro-prudential Regulation: Objectives and Rationale

There appears to be a consensus among policy makers, theorists and academia on the main objective of macro-prudential regulation. As put by Bank of England in 2009, the main goal of macro-prudential regulation is to reduce the risk and the macroeconomic costs of financial instability. It is therefore often recognised as a necessary ingredient to fill the gap between macroeconomic policy and the traditional micro-prudential regulation of financial institutions. In other quarters, macro-prudential regulation is aimed at examining trends in the financial system and the economy as a whole that can impact financial stability and trigger large-scale financial crisis. Macro-prudential regulation thence focuses on the financial system as a whole to limit the chances of system-wide distress and avoid significant losses in terms of real output.

Macro-prudential regulation may also aimed at limiting the risk of widespread disruptions to the provision of financial services and thereby minimizing the macroeconomic cost of financial instability and disruptions on the economy as a whole; bearing in mind that systemic risk is driven largely by fluctuations in economic and financial cycles over time, and the degree of inter-connectedness of financial institutions and markets (Borio, 2003).

The justification for macro-prudential regulation therefore could be found in its perspective of ensuring stability of the financial system as a whole as opposed to individual firms within the system. This perspective also ensures monitoring of conjectural and structural trends in financial markets so as to give warning of the approach and potential impact of financial instability.

The goal of macro- prudential supervision and regulation is to reduce the probability of distress for the entire financial system when the distress has the potential to adversely impact on the real economy. This link incorporates a host of potential channels, including interdependence and linkages among large financial firms through clearing and settlement systems, common exposures, collective or "herd" behaviour, and market failures such as externalities or moral hazard, all of which have the potential to amplify shocks and spillover to the real economy. Supervisors have an incentive to "lean against the wind" of broader destabilising forces with counter-cyclical pressures. This approach takes the stability of both the financial system and the real economy as explicitly endogenous with respect to supervisory action, so supervisors have a clear objective to influence the path of the economy by acting on the banking system (Beverly Hirtle, TilSchuermann, and Kevin Stiroh, 2009).

VI. Macro-Prudential Instruments

A large number of instruments have been proposed, however, there is no agreement about which one should play the primary role in the implementation of macro-prudential policy.

Most of these instruments aim to prevent the pro-cyclicality of the financial system on the balance sheet (asset and liability sides) of the FIs. These include:

- Cap on loan-to-value ratio and loan loss provisions
- 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:

- Countercyclical capital requirement - to avoid excessive balance-sheet shrinkage from banks in trouble;

- Cap on leverage financing - 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.

To prevent the accumulation of excessive short-term debt, the following instruments are considered:

- Liquidity coverage ratio;
- Liquidity risk charges that penalise short-term funding;
- Capital requirement surcharges proportional to size of maturity mismatch; and
- Minimum haircut requirements on asset-backed securities

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

VII. Basel III

Several aspects of Basel III reflect a macro-prudential approach to financial regulation. Indeed, the Basel Committee on Banking Supervision acknowledges the systemic significance of financial institutions in maintaining financial stability. 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.

Other traditional instruments include:

- Financial Soundness Indicators (FSIs): This covers capital adequacy, asset quality, earnings and profitability rates, liquidity and sensitivity to market risk as well as indicators of market liquidity, corporate and household financial health, and real estate prices. The Indicators are set out below according to IMF compilation guide;
- Conduct of Stress Testing: This is used to determine the impact of shocks on the various indicators; and
- Early Warning Models: These models, among others, analyses the sectoral and market vulnerabilities, country risk arising from spillover and contagion in the financial system.

VIII. Institutional and Governance Structure

The institutional architecture is a core element of macro-prudential policy. The choice of a specific institutional setup depends on myriad of conditions, and international best practices are yet to emerge. However, there appear to be two (possibly overlapping) key elements: an authority with a clear mandate for macro-prudential policy; and a formal mechanism of coordination or consultation across policies aimed at financial stability.

The need to identify an authority that oversees systemic risks and decides or recommends policy actions reflects: the need for clarity of responsibility for containing systemic risk, with appropriate incentives to act; the need for clarity of responsibility over policy instruments; and the complexity of identifying and monitoring systemic risk, given the breadth of analyses required and the underlying data needs. Such an authority could be a body (e.g., a committee or council) or institution (e.g. a central bank, supervisory agency); and an existing or a new one.

The need for coordination arises because macro-prudential policy interacts with other policies, as noted above. Because financial stability may not be an objective of these other policies, policy conflicts may arise, hence the need for more formal coordination or consultation mechanisms. These may take an institutional form, such as committee or council, or other forms, such as a requirement for the macro-prudential authority to be consulted or offer advice on key decisions affecting the financial system. Coordination is especially important when formal authority over tools affecting specific sources of systemic risk rests with bodies other than the macro-prudential authority. The financial services regulatory coordinating committee (FSRCC) in Nigeria is an example of such coordinating body.

IX. How Should the Macro-Prudential Policy Framework be structured?

The discussion under the appropriate structure is defined by three key elements of the macro-prudential policy framework: The analytical framework to identify and monitor systemic risks; processes to identify and collect the necessary data; and the ongoing assessment of risks to the stability of the financial system as a whole (e.g., trends, scale, probability, timing, system resilience) and their prioritization. The operational set of instruments to contain risks and prevent them from becoming systemic; rules governing the use of these instruments; and assessments of policy effectiveness. The institutional architecture of macro-prudential policy, including mechanisms of governance, accountability, and transparency; and coordination of macro-prudential policy with other public policies aimed at preserving financial stability.

X. Some Unanswered Questions

The arguments for and the merits of macro-prudential notwithstanding, there are questions still begging for answers which include:

- What conflict can arise between macro-prudential and other policy objectives?

    - In broad term, stability of the financial system and macro-prudential designed to achieve it should be consistent with other desirable economic goals;
    - Instability in the financial system is likely to mean that the economy as a whole is unable to function efficiently; and
    - At the margin, however, there may be trade-offs.
- How far is it possible or sensible to 'silo-size' macro-prudential policy making?
- What actually failed?
    - Was it the inappropriate or insufficient use of existing instruments or the inability of those instruments to deliver financial stability?
- How should the objective of macro-prudential policy be defined? How broad or narrow should it be?

XI. Conclusion

As the stability of the financial system often has regional and global dimensions, the multilateral aspects of macro-prudential policy will need to be fully considered, by ensuring that frameworks in individual countries are mutually consistent, while taking into account, country-specific circumstances. Whatever the mechanism, recent experience has demonstrated that financial stability, and macro-prudential policy, needs to be given higher priority than in the past.

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