SAARC

SAARCFINANCE Seminar on

Macro-prudential Policies in SAARC Countries

8-9 June 2017

Kathmandu, Nepal

Organized by:

Nepal Rastra Bank

Part I

Background and Seminar Objectives

Program Details

Welcome Remarks by Dr. Bhubanesh Pant, Act. Executive Director, Nepal Rastra Bank

Inaugural Address by Dr. Chiranjibi Nepal, Governor, Nepal Rastra Bank

Closing Remarks by Mr. Chinta Mani Siwakoti, Deputy Governor, Nepal Rastra Bank

Vote of Thanks by Dr. Prakash Kumar Shrestha, SAARCFINANCE Coordinator, Nepal Rastra Bank

List of Participants

Background

Macro-prudential policy has been defined primarily as the use of prudential tools to limit systemic risk. A central element in this definition is the notion of systemic risk—the risk of disruptions to the provision of financial services that is caused by an impairment of all or parts of the financial system, and can cause serious negative consequences for the real economy. Systemic risk is generally recognized as having two dimensions: vulnerabilities related to the build-up of risks over time ("time dimension"), and vulnerabilities from interconnectedness and the associated distribution of risk within the financial system at any given point in time ("cross-sectional" or "structural" dimension). In addressing these vulnerabilities, the macro-prudential policy complements the micro-prudential focus on the safety and soundness of financial institutions (Committee on the Global Financial System (CGFS) 2010). By mitigating systemic risks, macro-prudential measures ultimately aim to reduce the frequency and severity of financial crises.[1]

Macro-prudential policy encompasses a variety of instruments, including measures to address sector specified risk (for example, loan-to-value (LTV) and debt-to-income (DTI) ratios), counter cyclical capital requirements dynamic provisions, reserve requirements, liquidity tools, as well as measures to affect foreign currency based or residency based financial transactions.

Experience with macro-prudential policy is growing in many countries. A large number of countries have put in place dedicated institutional arrangements. Progress is being made also with the design and implementation of macro-prudential tools, and an increasing body of empirical research is available that evaluates the effectiveness of macro-prudential policy.[2] Consequently, macro-prudential policy has become an active policy area and a large number of countries have adopted it as an instrument to safeguard financial stability.

While macro-prudential policy tools have been in use in a number of emerging market economies well before the global financial crisis, their broader use is more recent and the establishment of dedicated macro-prudential policy frameworks has often been prompted by the crisis experience. Accordingly, the experience gained in many countries does not yet span a full financial cycle, and lessons and empirical evidence based on that experience remain tentative. The wide range of institutional arrangements and policies being adopted across countries suggests that there is no "one-size-fits-all" approach.

Macro-prudential policy pursues the following interlocking intermediate objectives (FSB 2009, CGFS 2010, and IMF 2013):

i. Increase the resilience of the financial system to aggregate shocks by building and releasing buffers that help maintain the ability of the financial system to function effectively, even under adverse conditions;

[1] https://www.imf.org/external/np/g20/pdf/2016/083116.pdf
[2] https://www.imf.org/external/np/g20/pdf/2016/083116.pdf

ii. Contain the build-up of systemic vulnerabilities over time by reducing pro-cyclical feedback between asset prices and credit and containing unsustainable increases in leverage, debt stocks, and volatile funding; and
iii. Control structural vulnerabilities within the financial system that arise through interlinkages, common exposures, and the critical role of individual intermediaries in key markets that can render individual institutions "too-big-to-fail".[3]

Though macro-prudential policy tools have received much attention in recent years, many central banks in South Asia do not have ample experiences in implementing these policies. Against this perspective, this seminar can serve as a useful platform for exchanging ideas and sharing experiences on macro-prudential policies of member countries in this region, including issues such as institutional arrangements and coordination of policies and operationlising the selection and application of macro-prudential instruments.

Seminar Objectives

This seminar aims to enhance a framework of the best practices of macro-prudential policies by sharing the experiences of the SAARC countries. In this regard, the specific objectives of the seminar are:

a. To understand the macro prudential policies implemented in the SAARC region and ;
b. To review the modalities of policies implemented by the SAARC member countries; and
c. To identify the problems and challenges for formulation and successful implementation of macro-prudential policies.

3 https://www.imf.org/external/np/g20/pdf/2016/083116.pdf

Program Details

	7 June 2017, Wednesday
19:00-21:00	**Welcome Dinner Hotel Radisson, Kathmandu**
	8 June 2017, Thursday
08:45-09:00	**Registration**
09:00-9:55	**Opening Session**
09:00-09:10	Welcome Remarks by *Dr. Bhubanesh Pant, Act. Executive Director, Office of the Governor, Nepal Rastra Bank*
09:10-09:25	Inauguration and Address by *Dr. Chiranjibi Nepal, Governor, Nepal Rastra Bank*
09:25-9:55	Keynote Address by *Dr. Md. Akhtaruzzaman, Economic Adviser, Bangladesh Bank*
9:55-10:25	**Hi-Tea /Group Photograph**
10:25-11:55	**Session I: Concepts, Issues, and Challenges.**
	Chair: *Professor, Dr. Sri Ram Poudyal, Board Member, NRB*
10:25-11:25	Paper Presentation by *Mr. Ilhyock Shim, Principal Economist, BIS*
11:25- 11:35	Lead Discussant: *Mr. Narayan Prasad Paudel, Executive Director, Banks and Financial Institution Regulation Department, NRB*
11:35-11:50	Questions/Responses
11:50-11:55	Remarks by the Chair
11:55-12:10	**Tea Break**
12:10-13:35	**Session II: Country Presentations**
	Chair: *Mr. Ramjee Regmi, Board Member, NRB*
12:10-12:30	Bangladesh
12:30-12:50	Bhutan
12:50-13:10	India
13:10-13:30	Questions/Responses
13:30-13:35	Remarks by the Chair
13:35-1:35	**Lunch Break**
14:35-16:00	**Session III: Country Presentations**
	Chair: *Mr. Maheshwor Lal Shrestha, Executive Director, Bank Supervision Department, NRB*
14:35-14:55	Pakistan
14:55-15:15	Sri Lanka
15:15-15:35	Nepal
15:35-15:55	Questions/Responses
15:55-16:00	Remarks by the Chair

18:30-21:00	**Dinner, Hotel Yak & Yeti, Kathmandu.**
	9 June 2017, Friday
09:30-11:00	**Session V: Panel Discussion on "Macro-prudential Policies in SAARC Region"** Chair: *Mr. Chinta Mani Siwakoti, Deputy Governor, NRB* Panelists: *Mr. Narayan Prasad Paudel, Executive Director, Banks and Financial Institutions Regulation Department, NRB* *Mr. Nara Bahadur Thapa, Executive Director, Research Department, NRB* *Mr. Anil Keshary Shah, President, Nepal Bankers' Association* *Mr. JP Sharma, General Manager, RBI*
11:00-11:15	**Tea Break**
11:15-12:00	**Closing Session**
11:15-11:25 **11:25-11:40** **11:40-11:50** **11:50-12:00**	Speech on Behalf of the Participants Distribution of Gifts and Certificates Closing Address by *Mr. Chinta Mani Siwakoti, Deputy Governor, Nepal Rastra Bank* Vote of Thanks by *Dr. Prakash Kumar Shrestha, SAARCFINANCE Coordinator and Director, NRB*
12:00-13:00	**Lunch**
13:00-18:00	**Post Seminar Tour**
19:00-21:00	**Dinner, Hotel Shambala, Maharajgunj, Kathmandu**

Welcome Remarks by Dr. Bhubanesh Pant, Act. Executive Director, Nepal Rastra Bank

Chief Guest Honorable Governor of Nepal Rastra Bank Dr. Chiranjibi Nepal,
Respected Deputy Governor of Nepal Rastra Bank Mr. Chinta Mani Siwakoti, Respected Board Members of Nepal Rastra Bank
Special Guest Dr. Mohammad Akhtaruzzaman, Economic Advisor of Bangladesh Bank,
Eminent Resource Person and Principal Economist at the BIS Mr. Ilhyock Shim,
Executive Directors and Other Officials of Nepal Rastra Bank
Media Friends,
Distinguished Guests,
Ladies and gentlemen,

On behalf of the Organizing Committee and Nepal Rastra Bank, it gives me immense pleasure to extend to you all a very warm welcome to this SAARCFINANCE Seminar on "Macro-prudential Policies in SAARC Countries" organized by Nepal Rastra Bank (NRB). It is an honor for the NRB to host this important seminar which is being held at an opportune time amidst challenging conditions for central banks of this region.

Ladies and Gentlemen,

Prior to 2007, there was a general consensus in central banks about most elements of monetary policy strategy and prudential supervision of the financial system. Then, starting in August 2007, the world was hit by the global financial crisis. The financial meltdown not only flattened the world economy, resulting in the most severe worldwide economic contraction since the Great Depression, but also called into question the basic policy strategies used to manage the economy.

Establishing a stronger and more effective macro-prudential policy framework was one of the main lessons drawn from the global financial crisis. Countries needed a framework that was responsive to the changing global financial environment.

Although the financial crisis made it very clear that there was the need for macro-prudential policies for enhancing the stability in the financial system there is scarce evidence on the implementation of these policies, and particularly in low-income and developing countries.

Ladies and Gentlemen,

Macro-prudential policy primarily aims to identify, contain, and prevent the buildup of systemic risk. In contrast with the traditional micro-prudential approach, macro-prudential policies cover the financial system as a whole, including interactions between the financial and real sectors, as well as the possible spillover effects on other economies. Several macro-prudential tools exist for authorities to address identified systemic risk including those related to credit, liquidity, and capital.

At the national level, macro-prudential policies can contribute to assuring financial stability by tackling various externalities associated with the financial sector.

Ladies and Gentlemen,

Over the last decade, South Asia’s deeper global financial linkages have been accompanied by greater financial integration. As the region becomes more interconnected, a key priority is

to ensure that the dynamic environment is supported by better coordinated and potentially consistent macro-prudential policies to adequately control systemic risks.

However, the design of these policies depends on the characteristics of each country. The literature has primarily focused on studying macro-prudential tools in developed countries, while the research on the desirability of these measures and how they should be designed for low income and developing countries, including those of the SAARC region, is quite limited. While there is a widespread consensus on the need to consider such macro-prudential policies in these countries, there is much less agreement on what tools should be used or how they should be designed. These and other overriding issues, I believe, will be definitely addressed in this Seminar.

Ladies and Gentlemen,

Let me know introduce you to the format of this Seminar as we have a rich agenda for today and tomorrow. We will begin with the inaugural address by our Honorable Governor followed by Special Address by Dr. Mohammad Akhtaruzzaman, Economic Advisor of Bangladesh Bank, who we are very fortunate to have today with us. Dr. Akhtaruzzaman has been at the centre of this issue for quite some time and will share with us his views on the many important aspects of macro-prudential policies.

We are equally privileged to have Mr. Ilhyock Shim, Principal Economist at the BIS, who will be making a presentation in the next session focusing on topical issues such as "Operational Aspects of Macro-prudential Policies and Tools "Interactions of Macro-prudential Policies with other Policies," and "Emerging Issues for the SAARC Region." Given their wide experiences and in-depth knowledge in the seminar theme, the perspectives of both Dr. Akhtaruzzaman and Mr. Shim will be very valuable for our discussions and deliberations in the subsequent sessions.

We then proceed to the country presentations where we have spread the discussions over two technical sessions, with a lunch break in between. It will be interesting to notice the differences and similarities in terms of the macro-prudential policies initiated for safeguarding financial stability in the SAARC countries.

Prior to the concluding session, tomorrow morning will feature a panel discussion on "Macro-prudential Policies in the SAARC Region." This session will provide a good opportunity to discuss the challenges in implementing macro-prudential policies in the region as we continue to live with increasing economic uncertainty and financial volatility.

Ladies and Gentlemen,

I am especially pleased to see that our Seminar has attracted quite a diverse group of speakers, panelists and participants, combining intellectual brilliance with practical experience.

I hope the ideas and outcomes shared and exchanged during the Seminar would help us to further comprehend macro-prudential issues and assist us in designing appropriate policies.

With these expectations, I once again welcome you all to this Seminar.

Thank you very much!

Inaugural Address by Dr. Chiranjibi Nepal, Governor, Nepal Rastra Bank

Deputy Governor of Nepal Rastra Bank Mr. Chinta Mani Siwakoti,
Board Members of Nepal Rastra Bank Dr. Sri Ram Poudyal and Mr. Ramjee Regmi
Special Guest and Economic Adviser at Bangladesh Bank Dr.Mohammad Akhtaruzzaman,
Eminent Resource Person and Principal Economist at the BIS Dr. Ilhyock Shim, Executive Directors of Nepal Rastra Bank
Seminar Participants,
Media Friends,
Distinguished Guests,
Ladies and Gentlemen,

It gives me great pleasure to address this august gathering at this SAARCFINANCE Seminar on "Macro-Prudential Policies in SAARC Countries." This theme seems to be very appropriate as significant macro-prudential policy reforms worldwide are being designed to respond to the increasingly interconnected nature of financial institutions, markets and systems.

Ladies and Gentlemen,

Macro-prudential policy has become an indispensable public policy in safeguarding financial stability across the world. This new perspective has spawned profound changes and impacts on our understanding of how the whole economy operates when the impacts of financial policies and actions are considered.

Macro-prudential policies have become part of the policy paradigm in emerging and advanced economies alike, but less so in most countries of the SAARC region. These policies primarily use prudential tools to limit systemic risk and thus minimize disruptions in the provision of key financial services that can have serious repercussions on the economy.

Ideally, a sound macro-prudential policy needs to be based on the determination of the economic cycles, assessment and measurement of the build-up of systemic risk and also the impact of the stance of other public policies like monetary and fiscal policy on the risk taking behavior of the financial sector.

Ladies and Gentlemen,

In this digital era that seeks to encourage electronic transaction settlement system with the aim of minimizing the use of cash, the adoption of macro-prudential supervision would persuade banks to adequately manage their investment portfolios and foster risk management. Macro-prudential approach also elicits broad implementation of contingency plans by banks to bolster internal controls and provide early warning signals for the speedy resolution of problem areas.

However, unlike the case of monetary policy where there has been a clear consensus about the crucial role of the policy rate and supported by clear and coordinated communication, a comparable consensus is still absent in the literature on macro-prudential policy.

Likewise, there are some complex issues with regard to the implementation of macro-prudential policies in countries in this region. These include a) constructing an appropriate tool kit to tackle with systemic risk; b) evolving an optimal mix of rules and discretion while using macro-prudential policies; and c) extending the perimeter for macro-prudential instruments to encompass the shadow banking system.

Ladies and Gentlemen,

Prior to the global financial crisis of 2007-09, Nepal Rastra Bank had accorded more focus on micro-prudential policies. As the financial crisis exposed the gaps in existing supervisory

and regulatory framework, regulators worldwide hastened to embrace macro-prudential policies due to their significance in overcoming the inherent flaws associated with the traditional micro-prudential approach. NRB also followed suit and issued a host of macro prudential measures to make BFIs more resilient.

The principal macro-prudential policies implemented by NRB are related to strengthening the capital of banks and financial institutions, implementing risk based supervision, making necessary arrangement for system audit, and enhancing corporate governance in BFIs. Likewise, some of the core elements of macro-prudential regulation include risk management guidelines to banks, stress testing guidelines, liquidity monitoring, fixation of credit to core capital and deposit (CCD) ratio, loan to value ratio, and single borrower limit, among others. I will not go into the details of these as they will be examined in the country presentation session. What I want to stress here, however, is that NRB has been implementing macro-prudential measures together with the monetary policy for facilitating in maintaining financial stability as well as in attaining higher economic growth.

Ladies and Gentlemen,

Let me conclude.

The significance of the macro-prudential approach has been acknowledged for quite some time and rightly so. Developing, enhancing and implementing effective macro-prudential policy measures are the core for promoting and maintaining ongoing financial system stability.

Systemic risks and the associated policies warrant close and active attention of supervisors and regulators. Prudential policies need to go beyond traditional supervision. What is important is not the validity of the approach, but rather how to apply it in practice.

This Seminar presents a unique opportunity for us to understand the macro-prudential approach for maintaining financial stability. It is my sincere hope that all the participants would maximize the opportunity offered by this Seminar to enhance their capacities in this area through active participation and sharing of experiences.

In closing, I wish you an insightful and productive deliberation and trust that the Seminar will leave you with additional insights to tackle the challenges that lie ahead in this field.

Thank you for your attention.

Closing Remarks by Mr. Chinta Mani Siwakoti, Deputy Governor, Nepal Rastra Bank

My Friends from Nepal Rastra Bank

Seminar Participants,

Ladies and Gentlemen,

It is indeed a great pleasure for me to address this closing session of this SAARCFINANCE Seminar on "Macro-prudential Policies in SAARC Countries." I am very grateful to all of you for making this event a very productive and successful one.

Ladies and Gentlemen,

Let me begin by recapitulating upon some issues pertaining to the theme of this Seminar. As you are all aware, macro-prudential policies are at the forefront of current economic discussions. They encompass tools aimed at containing systemic risk and pursuing financial stability. You may all remember that it was the global financial crisis of 2007-09 that underscored the need for relevant national authorities, including central banks, to develop surveillance systems that discover, at their initial stages, the build-up of macroeconomic risks, vulnerabilities or threats that can jeopardize financial system stability.

Ladies and Gentlemen,

Experience with macro-prudential policy is increasing, and many countries have put in place dedicated institutional arrangements. Progress has also been witnessed with respect to the design and implementation of macro-prudential tools, complemented by an increasing body of empirical research on the effectiveness of these tools.

Although the theoretical framework of macro-prudential policy is being created relatively fast and is becoming increasingly strong, a number of uncertainties remain regarding its implementation. In this respect, the wide range of institutional arrangements and policies being adopted also indicates that there is no 'one-size-fits-all' model. This is equally true for countries of the SAARC region.

Ladies and Gentlemen,

It needs to be emphasized that macro-prudential policy should target to contain systemic vulnerabilities, and not be overloaded with objectives that it is unsuited to achieve. To attain its goals, macro-prudential policy must be supported by strong supervision and enforcement and complemented by suitable monetary, fiscal and other financial sector policies. In turn, effective macro-prudential policy can help these other policies attain their goals.

Strong complementarities and interactions between monetary and macro-prudential

Policies reinforce the need for a strong macro-prudential framework. Complementarities explain why central banks have a strong interest in ensuring the effective pursuit of macro-prudential policy and are often at the forefront in the push for the establishment of macro-prudential frameworks.

Ladies and Gentlemen,

Though policymakers now have a unique opportunity to develop a macro-prudential perspective into the post-crisis framework for financial stability, this also poses new challenges. Sound macro-prudential policy demands a deeper knowledge of how effectively the various tools will function, and also how they might interact with monetary and fiscal

policy. Yet another challenge pertains to the diverse nature of macro-prudential objectives and instruments. Which tools to employ, how to calibrate them, and when to deploy them will all depend on how the authorities view the vulnerabilities involved.

To overcome the challenges and potential pitfalls, the implementation of macro-prudential policies requires a disciplined and transparent process, in particular effective communication with the public. Transparency and clear communication are indispensable for instilling public and market confidence and promoting accountability.

Moreover, central bank implementation of macro-prudential policy measures needs to be timely and decisive to limit the build-up of systemic risks. Policy actions and discretion should be backed by clear legal authority and the same degree of autonomy and independence that pertains to monetary policy actions.

Ladies and Gentlemen,

I am sure that the foregoing issues must have been widely examined and discussed at length during the seminar. Specifically, yesterday's presentations coupled with sharing of country's experiences must have underscored the significance of the emerging issues on macro-prudential policies for the SAARC region including the relevance of macro-prudential policies, interactions with other policies as well as the institutional arrangements. Likewise, this morning's panel session must have provided you a good insight into the challenges of implementing macro-prudential policies in the SAARC region. Overall, I believe some sort of a general consensus must have forged on these issues.

I hope the participants are now able to evaluate the major considerations in developing a macro-prudential regulatory and supervisory framework in accordance with best practices. It is my hope that whatever knowledge that has been gained in this seminar by the participants will be applied in their respective workplaces.

Finally, my many thanks to you all for your stimulating and lively discussions in this seminar and for making it a success. I wish my foreign friends all the best, and a safe journey with pleasant memories of their productive stay in Kathmandu. Before that, however, I do hope that you will have some time to enjoy both the beauty and the flavor of Nepalese culture.

Thank you.

Vote of Thanks by Dr. Prakash Kumar Shrestha, SAARCFINANCE Coordinator, Nepal Rastra Bank

Respected Deputy Governor, Mr. Chinta Mani Siwakoti
Economic Adviser, Bangladesh Bank, Dr. Md. Akhtaruzzaman
Executive Director, Dr. Bhubanesh Pant
Distinguished Delegates from Central Banks and Ministry of Finance in SAARC Countries,
Distinguished participants from Insurance Board, Security Board and Central Dept. of Economics
Ladies and Gentlemen,

It is my great privilege to extend a vote of thanks at this SAARCFINANCE Seminar on "Macro-prudential Policies in SAARC Countries". During the past one and half day, we spent our time on discussion and sharing of experiences on this very important theme.

This seminar has been the culmination of many months of preparation. As the member-secretary of Program Management Committee for this seminar and SAARCFINANCE Coordinator of NRB, I must thank all involved in organizing this event and making it a unique experience.

First of all, I would like to thank Honorable Governor of Nepal Rastra Bank, Dr. Chiranjibi Nepal for inaugurating the seminar and delivering the inaugural speech by encouraging us for this seminar.

I am extremely grateful to Economic Adviser of Bangladesh Bank, Dr. Akhtaruzzaman for delivering the keynote speech and sharing us very stimulating ideas by managing time to come all the way from Bangladesh for this seminar.

I would also like to thank Dr. Ilhyock Shim, Principal Economist, Economics and Financial Markets for Asia and the Pacific, Monetary and Economics Department, BIS for addressing our seminar as an expert on macro-prudential policy. His presentation has been very beneficial to all of us.

I would also extend my heartfelt thanks to all distinguished persons for sharing their knowledge in the panel discussion in the morning session, and special thanks to our Deputy Governor, Mr. Chinta Mani Siwakoti for chairing the panel discussion and delivering closing remarks together with distribution of certificates and gifts to distinguished participants of this seminar.

This program would not have been successful without the active participation from SAARC member countries. I would like to thank all distinguished participants from our neighboring SAARC countries. Except Afghanistan and Maldives, participants from other six SAARC member countries are here in this seminar and have shared their country experience. I hope you have enjoyed the program and learnt something to take home that would be useful for policy making. At the same time, I would also like to express my sincere thanks to Nepalese participants from different organizations apart from Nepal Rastra Bank.

All the esteemed session chairs also deserve heartiest thanks for providing their time for this seminar despite their busy schedule. Without their firm handling of the sessions, I feel the sessions would not have been managed smoothly.

Last but not least, I would like to heartily acknowledge the contribution of Chair and members of Program Management Committee, my fellows at the Secretariat and support group who have worked tirelessly to ensure that the event run without any serious lapses. They all deserve congratulations. I also wish to thank Hotel Radisson for providing a venue for this program.

Lastly, I wish all foreign participants a safe trip back home. I hope all of you would bring home wonderful memories of Nepal.

Thank you all very much!!!

LIST OF PARTICIPANTS

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Mr. Ajay Sinha from RBI delivered the remarks representing all participants on the Seminar. Mr. Sinha stated that the Seminar had been very successful. Presentations by experts and country participants had been insightful and had provided great takeaways for everyone. Mr. Sinha also stated that the hospitality of NRB had been phenomenal for which he thanked NRB and the Seminar Secretariat.

Part II

Keynote Presentation by Dr. Md. Akhtaruzzaman, Economic Adviser, Bangladesh Bank

"Concepts, Issues, and Challenges of Macroprudential Policies" by Mr. Ilhyock Shim, Principal Economist, BIS

Country Papers

Keynote Presentation

Marco-prudential Policies And its Role in Ensuring Financial Stability

08 June 2017

Presented by

Dr. Md. Akhtaruzzaman

Economic Adviser

Bangladesh Bank

(Central bank of Bangladesh)

E-mail: drmd.akhtaruzzaman@bb.org.bd

Event: SAARCFINANCE Seminar on Macro-prudential Policies in SAARC Countries
June 8-9, 2017, Kathmandu, Nepal

The views expressed here are those of the presenter and should not be attributed to Bangladesh Bank

Outline

- Background
- Financial stability objectives –*what is the issue?*
- Definition and objectives
- Why Macroprudential Policy Needed ?
- Widely used Macroprudential Tools
- Macroprudential policy for financial stability
- Important aspects of macroprudential policies – SAARC context
- Institutional arrangement – Bangladesh Perspective
- Macroprudential policy tools used in Bangladesh
- Other relevant issues, challenges and risks regarding macroprudential policies

Background

- The global financial crisis has raised a number of questions concerning the role of central banks in the area of financial stability.
- Any changes in their role may affect the aptness of their governance arrangements.
- Immediate challenges were
  - ✓ *the difficulty of specifying a mandate for financial stability by the central bank.*
  - ✓ *ensuring that any financial stability mandate is consistent with the other mandate(s) of the central bank.*

Financial stability objectives –*what is the issue?*

- Three problems overwhelmed objective-setting for financial stability:
  - *defining universally what is meant by the term;*
  - *adequately quantifying the objective;*
  - *dealing with the large number of dimensions, many of these involving trade-offs or competing.*
- Together, these problems make the tracking down of appropriate financial stability tools much more difficult to achieve the objectives than those of price stability.
- Financial stability is remarkably a ***multidimensional issue***.

Financial stability objectives –*what is the issue?*

- As a ready reference the ***inflation targeting*** example, to achieve price stability objectives commonly point to a numerical reference level or range for a specific index (representing the relevant set of prices), and a time frame that reflects concern about a particular trade-off (i.e., avoid to add unnecessary real economic volatility).

- While the contrast with objectives for price stability may be exaggerated, ***"financial stability"*** alone as an objective leaves widely open the important questions of how much stability is desired, in what elements of financial system behaviour it is desired, and at what expense with respect to other policy concerns?

Macroprudential Policy – *Definition and Objective*

- Policies that use 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.
- These policies primarily aim to dampen the volatility of the financial cycle and limit the potential for destabilizing imbalances within the financial system.
- Objective of the these policies is to address systemic risk and maintain financial stability.

Why Macroprudential Policy Needed ?

- Microprudential regulations alone may not always ensure safety and soundless of financial system.
- The GFC, emanated in mid 2007, is a good example of limitations of microprudential approaches.
- Systemic risks must be taken care of on a continuous basis. To this end, macro-prudential policies could make significant contribution in restraining or allaying those risks.

Widely used Tools of Macroprudential Policies

- Time-varying capital requirements
- Dynamic provisions
- Ceilings on credit or credit growth
- Caps on loan-to-value (LTV) and loan-to-income (LTI) ratios
- Caps on debt service-to-income (DTI) ratio
- Minimum margin requirements
- Reserve requirements
- Limits on maturity mismatches
- Caps on foreign currency lending
- Limits on net open currency positions (NOP) or mismatches
- Additional loss absorbencey related to systemic importance (for d-sibs, g-sibs)
- Disclosure policy for markets and institutions targeting systemic risk,
- Resolution requirements for systemically important financial institutions

Macroprudential policy for financial stability

- Financial stability is fundamentally concerned with maintaining a stable provision of financial services to the wider economy.
- This serves as the motivation for applying any macro-prudential policy instrument.
- By moderating exuberant increases in the supply of credit, macroprudential policy may help to contain asset bubbles.
- Macroprudential policies address the sources of systemic risk and thus contribute to maintaining stability of the financial system.

Organizational changes after GFC

Macroprudential policy as a shared responsibility

❖ ***Formation of a macroprudential or systemic risk council*** *to coordinate the work of the various agencies responsible for financial stability.*

- *Whether such* a **council is simply a vehicle for joint analysis** and generating peer pressure or a decision-making body in its own right?

- Do the agencies represented on **the council retain autonomy over their own spheres of interest,** or can the council direct policy actions by member (and even non-member) agencies?

Organizational changes after GFC

Macroprudential policy as a shared responsibility

- **The European Systemic Risk Board (ESRB),** which became operational in early 2011, **has no formal directive powers but is allowed to issue recommendations or warnings** to a wide range of European supervisory agencies and to member states directly where systemic risks are deemed to be significant. Direction of recommendations or warnings will be subject to majority decision by the ESRB's governing body.

- **In the United States**, the Financial Stability Oversight Council (FSOC), established in 2010, **has some formal decision-making powers and can designate institutions and financial services providers** that require heightened prudential standards, and make binding recommendations to primary supervisors with respect to heightened regulatory requirements.

Organizational changes after GFC

Macroprudential policy as a responsibility of the central bank; disconnect the territory of microprudential regulators

- **A second approach**, exists ***in Japan and Sweden***, is to delegate ***responsibility for macroprudential policy primarily to the central bank*** while leaving responsibility for microprudential policy to other agencies.
- If the central bank only to ***"lean against the wind"*** in executing monetary policy, the need for interaction with microprudential authorities will be limited. But ***greater interaction will be needed if the central bank's macroprudential role involves regulatory measures***, such as determining a macroprudential superimpose (overlay) on capital or liquidity requirements.
- In such cases, ***the central bank could become the regulator and the microprudential agencies would become the policy implementers***. This arrangement could trigger inter-agency rivalry and complicate the independence of the microprudential regulators with respect to their spheres of responsibility.

Organizational changes after GFC

Central bank as macro- and microprudential policy agency; separate financial product safety regulator

- ✓ **A third variant**, which was recently introduced ***in the United Kingdom***, is **to integrate macro- and microprudential policy within the central bank** while maintaining a separate financial product safety regulator.
- ✓ In principle, this **provides improved access to information and expertise**. However, potential advantage and actual gain are not necessarily the same.
- ✓ Silos of responsibility within the organisation could still fragment information and analysis. **Differing intellectual frameworks implied by the various functions** could inhibit communication.
- ✓ **Crossing divisional boundaries is not easy and may indeed be inappropriate** in some instances (eg with respect to commercial secrets, yet-to-be-announced policy actions etc).

Organizational changes after GFC

Central bank as macro- and microprudential policy agency; separate financial product safety regulator

- Whether these gaps can be bridged, and silos avoided, by bringing these functions together under forceful management is an open question.
- In the new arrangements implemented in United Kingdom, the various policy functions will be clearly separated, with a Prudential Regulation Authority (PRA), a Financial Policy Committee (FPC) and a Monetary Policy Committee (MPC).
- Coordination of the analysis are ensured in part by cross-membership of the top officials represented in the committees and authorities. But coordination of decision-making is strictly limited to specified actions, which do not include anything that alters the role and independence of the MPC.

Organizational changes after GFC

Central bank as macro- and microprudential policy agency; separate financial product safety regulator

- Several elements of the UK approach have already been adopted in France. Reforms introduced in 2010 consolidate several regulators into an autonomous super-regulator, the Prudential Supervisory Authority (PSA), which is located within the Bank of France, chaired by the Governor and explicitly mandated for financial stability.
- Measures were also taken to improve consumer protection under the Financial Markets Authority (FMA), which will remain independent but will work in close cooperation with the PSA.
- The choice of internal decision-making structures within the central bank will have important implications when it comes to dealing with potential conflicts and trade-offs.

Organisational changes relating to financial stability function

Central bank as macro- and microprudential policy agency; separate financial product safety regulator

- Where the same committee makes ***decisions on both monetary and financial stability policy***, coordination costs will be reduced, allowing in principle for maximum synergies and more rapid reactions.
- But for accountability, ***the actions and analysis of a single committee would need substantial disclosure in order to clearly articulate the nature of the trade-offs*** and the reasons for specific choices in any given situation.
- Decision processes that are delegated to separate decision- making boards – ***each with their own disclosure requirements – presumably make trade-offs more obvious***, since each decision-making group will relatively quickly identify the other as a barrier to success.

Organisational changes relating to financial stability function

Separate macroprudential agency with distributed implementation

- **The last approach** involves the creation of ***a specialist agency for the macroprudential function***.
- A separate agency would probably ***have advantages of a clear dedication to macroprudential issues*** and speed of decision-making. However, implementation could be a problem, since ***the policy instruments used to implement macroprudential policy*** are usually assigned to other policy objectives or are under the control of other agencies.
- It would also raise issues with respect to the autonomy of the other agencies, as is the case with ***arrangements involving macroprudential councils***.
- The ***United States*** was the only country where such ***a reform proposal was considered***. But it ***did not materialise*** in legislation.

Important aspects of macro-prudential policies – SAARC context

- **Cross country effectiveness of macro-prudential policy tools**

  Empirical evidence on the effectiveness of macro-prudential policies in influencing credit flows and asset prices is still at a preliminary level and sometimes inconclusive , partly attributable to limited experiences, incomplete data on the use of the policies. Moreover, information on what policies are used in practice across a large set of countries say, SAARC and over a longer period is still lacking.

- **Rule-based versus discretionary policies**

  Rules-based macro-prudential policies offer predictability and strengthen the expectations channel of policy; predictable policy measures are less distortive, which may lessen the resistance against them. In reality, for macro-prudential policy this may not happen always and thus necessitates some flexibility.

Important aspects of macro-prudential policies – lean against monetary policy

- **Interactions with other macroeconomic policies esp. monetary policy**
  - *Monetary and macro-prudential policies are complements.*
  - *Both sets of policies affect the demand for credit by reallocating spending over time, e.g., inducing consumers and firms to borrow less or by inducing them to borrow more.*
  - *Monetary policy is loosened and macro-prudential policy is appealed to deal with the financial stability implications of looser monetary policy.*
  - *Fiscal policy can play an important role in a financial stability framework. For instance, tax policy may help addressing sectoral developments with potential financial stability implications.*
  - *There is a perceived tension between macro-prudential and monetary policies which might become particularly severe in times of stress.*

Important aspects of macro-prudential policies – SAARC context

- **International policy coordination**
- *Successful implementation of macro-prudential policies requires due consideration of cross-border implications associated with macro-prudential policies.*
- *However, in a globally interconnected world, lack of coordinated collective action create biases in favour of inaction or insufficiently forceful action and or absence of timely macro-prudential action at the national level calling for international coordination of national macro-prudential policies to impede sporadic cross boarder spill over of contagion effect.*

Institutional arrangement – Bangladesh Perspective

- Bangladesh Bank exercises macroprudential polices to comply with its implicit mandate in collaboration with other financial sector regulators.
- Formation of Financial Stability Group headed by Minister of Finance is under process at the end of Government of Bangladesh.
- Bangladesh Bank established Financial Stability Department in May 2012. This department designs and implements several macro-prudential tools. Also, this department publishes financial stability reports (FSR) on quarterly and yearly intervals.
- An Interagency Coordination Council was formed in 2012 incorporating heads of all financial sector regulators (BB, BSEC, IDRA, RJSC, MRA) aided by a Coordination Council Technical Group (CCTG).

Macro-financial Status of Bangladesh Economy

- Banking Sector Asset to GDP ratio (End-December 2016): 67.09%
- Domestic credit to private sector (% of GDP) [In 2015]: 43.93%
- Inflation (In March 2017): 5.39%
- GDP Growth (In FY 2016): 7.11%
- Export – GDP ratio (2015): 17.34%
- Import – GDP ratio (2015) : 24.75%
- Bank capital market exposure:
- Foreign Exchange reserve (April 2017: USD 32.5 billion
- NPL ratio of the banking industry: 9.2%
- Provision maintenance ratio of banks: 88.9%
- Bank Cluster-wise NPL : SCB 25.05%, PCB 4.58 %, DFI 26.02% and FCB 9.56 %
- Banking Sector Capital to Risk Weighted Assets Ratio (End-Dec 2016): 10.8% (Minimum requirement CRAR+CCB : 10.625%)

Macro-prudential policy tools used in Bangladesh

- Loan-to-value limits
- Time varying reserve requirement (CRR and SLR)
- Advance-to-deposit ratio (ADR) for banks
- Cap on capital market exposure of banks
- Countercyclical capital buffer
- Limits on net open currency position
- Framework for identifying domestic systemically important banks (D-SIBs) and imposition of surcharges on them
- Resolution requirement (LOLR) and disclosure policy for D-SIBs

- **Some other initiatives having macro-prudential focus:**
  - Central Database for Large Credit (CDLC) to prepare a Corporate Watch List.
  - Systemic Risk Dashboard.
  - Working paper on Dynamic Provisioning.
  - Interbank Transaction Matrix and Bank Health Index and HEAT Map.

Other relevant issues, challenges and risks regarding macro-prudential policies

- The effectiveness of macroprudential policies in taming the financial cycle and curbing excessive risk-taking is likely to be weak.
- Defining regulatory perimeter.
- Tighter macroprudential action may create the scope of regulatory arbitrage.
- Regional cooperation is crucial for effective conduct of some macroprudential tools particularly with cross-border operations. Experience sharing among the SAARC countries may help one another in designing suitable macroprudential policy tools.
- Risks of macroprudential policy being over-applied.
- Macroprudential policy cannot directly address asset price bubbles.

Way Forward

- Formation of credit registry (CIB, CDLC for large credit);
- Bangladesh and India have already developed the same;
- Establish a permanent committee of financial stability; India already formed this and formation of the same in Bangladesh is progressing;
- Making necessary changes in acts/laws who will be responsible for financial stability and defining clearly the roles and responsibilities of each authorities involved.
- Establishment of Financial Reporting Authority will look after transparent disclosure rules and its compliance
- Corporate governance practice including loan restructuring policy and Bank Intervention Resolution Plan (BIRP) need to be in full force to enhance effectiveness of financial stability tools

THANK YOU

BANK FOR INTERNATIONAL SETTLEMENTS

Concepts, Issues and Challenges of Macroprudential Policies

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SAARCFINANCE Seminar on "Macroprudential Policies in the SAARC Countries", Kathmandu, Nepal, 8 June 2017

The views expressed are those of the presenter and not necessarily those of the Bank for International Settlements.

I. Macroprudential policy: concepts, frameworks and interactions with other policies

Macro-financial stability framework

- Very general concept
- Encompasses both prudential policies (micro- and macro-prudential) and macroeconomic policies (eg, monetary and fiscal).
  - In addition to prudential measures, financial stability can be supported by
    - monetary policy instruments (interest rate policy, balance sheet policy, reserve requirements, credit growth limits, etc),
    - fiscal policy (budgetary expenditures and tax code, etc), and
    - FX policy instruments (measures affecting capital flows and FX markets, etc).

The term "macroprudential"

- Alexander Lamfalussy, a General Manager of the BIS, initiated the concept of macroprudential supervision in the late 1970s.
  - The Cooke Committee in 1979 coined the term.
- After experiencing the Asian crisis in the late 1990s, the BIS have developed the conceptual framework of macroprudential regulation and supervision, and led the analytical effort (Crockett (2000) and Borio (2003)).
- The recent international financial crisis intensified the official sector's interest in the term "macroprudential".

Definition of "macroprudential policy"

- BIS 80th Annual Report (June 2010)
  - The broad goal of macroprudential policy is to limit systemic risk – the risk of financial system disruptions that can destabilise the macroeconomy.
  - To implement macroprudential policy, instruments typically used in the prudential regulation and supervision of individual financial institutions are adapted to limit risk in the financial system as a whole.
- BIS-IMF-FSB Report (Feb 2011)
  - A policy that uses primarily prudential tools to limit systemic risk 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.

Macro- and micro-prudential approaches

	Macroprudential	Microprudential
Proximate objective	limit financial **system-wide** distress	limit distress of **individual** institutions
Ultimate objective	avoid **output (GDP) costs** linked to financial instability	consumer (investor / depositor) protection
Characterisation of risk	**Seen as dependent on collective behaviour (endogenous)**	**Seen as independent of individual agent's 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 risks of individual institutions; bottom-up

Macroprudential policy framework (G20, 2010)

- A macroprudential policy framework consists of
  - ultimate objectives
  - operating targets
  - scope
  - implementation process in two steps
    1) measuring financial stability threats
       financial / macro data collection, macroprudential risk analysis
    2) taking macroprudential policy measures
       macroprudential policy tools to mitigate identified risks
  - governance

Two dimensions of macroprudential approaches

- Cross-sectional dimension: systemic risk
  - Risk that a malfunctioning of the financial system as a result of either large losses triggering the failure of financial institutions or the seizing-up of financial markets will lead to a slowdown or a contraction of real economic activity
  - Concerned about likelihood and severity of systemic events.
- Time dimension: procyclicality
  - A mutually reinforcing mechanism in which a financial system can amplify business fluctuations
  - Dynamic interactions between real and financial sectors

Systemic risk

- Sources of systemic risk
  - Interconnectedness
  - Common exposure and balance sheet structure
  - Size
- Boundary of a system: global, regional, national or industry
  - Scope of business of a financial institution
  - Perimeter (institutional coverage of the regulatory umbrella) and geographical coverage of regulation
  - Mismatch problems?

Procyclicality

- Sources: risk perceptions and incentives
  - Risk measurement
  - Collateral arrangements
  - Capital
  - Liquidity
  - Provisioning
  - Accounting and valuation
  - Compensation
- Systemic risk and procyclicality

Macroprudential approaches: levels and tools

- Level of analysis (facets of systemic risk)
  - Interactions between real sector and financial system
  - Stability of the financial system (interactions within financial system)
- Tools
  - Microprudential tools: institution- or market-specific,
    - Aim at increasing resilience of individual institutions or markets (eg Basel II, Liquidity regulation)
  - Macroprudential tools: system-level measurement of risk, prudential tools applied uniformly across all institutions
    - Aim at directly leaning against credit booms and asset bubbles (LTV ratio, debt-service-to-income ratio, etc)
    - Capital requirement and provisioning as a function of indicators of macro vulnerability (eg credit cycle)

Micro- and macro-prudential policy tools

- Microprudential and macroprudential perspectives may rely on very similar set of tools, but have different approaches to calibrating and applying them.
- Macroprudential policy relies on a range of instruments. Most of them proposed thus far are adaptations, recalibrations or re-orientations of existing policy instruments in use for microprudential purposes.
- Quantitative tools
  - Minimum capital and liquidity requirements, LTV ceilings, etc
- Qualitative tools
  - Pillar 2-type actions, moral suasion, public statements

Operational objectives and implementation challenges

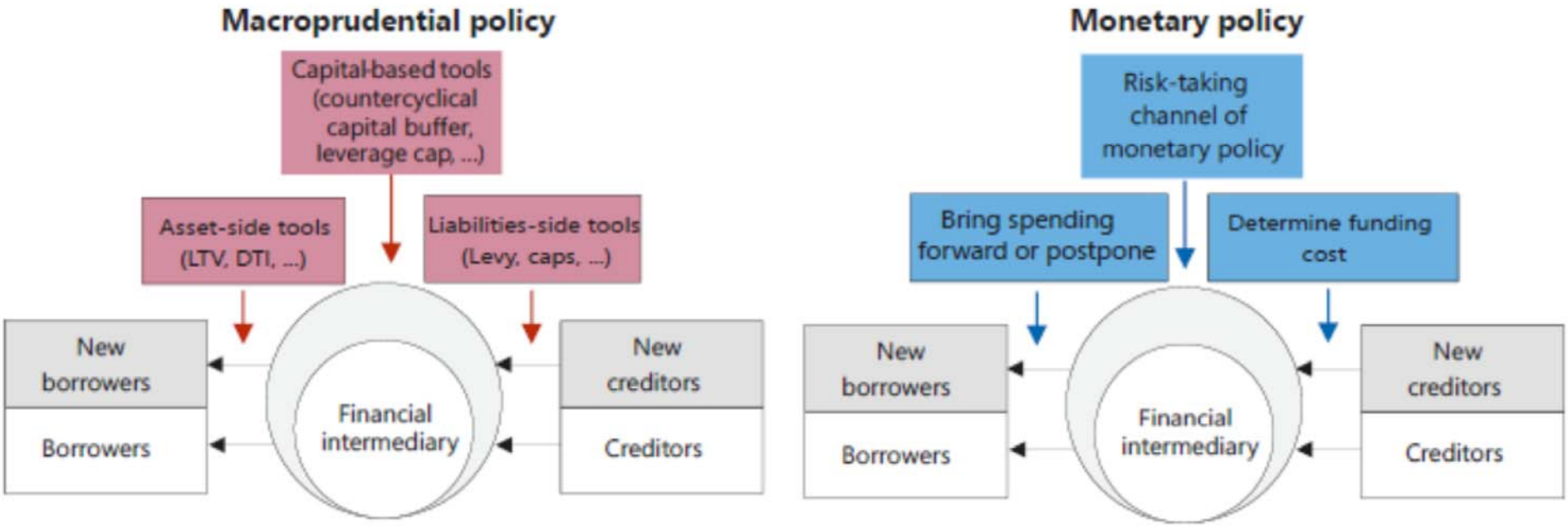
- Operational objectives
  - Build up buffers against systemic distress
  - Mitigate credit booms and asset price bubbles / avoid credit crunches and asset market collapses
  - Provide incentives for financial institutions to take less risk by make it costly
- Challenges in implementation
  - One instrument, many goals?
  - Minimise avoidance and leakages
  - Rule vs discretion under political influence
  - International coordination of macroprudential policy

Macroprudential policy governance

- Macroprudential policy responsibility assigned to an independent central agency or formal committee, involving the central bank in a key role
- Clarity of mandate, adequacy of powers and strong accountability
- Clear macroprudential policy communications
  - Link financial stability assessments to policy decisions
  - Manage public expectation about what macroprudential policy can do
- Establish macroprudential authorities at both national and international levels (US, UK, European Union, etc)

Macroprudential tools and monetary policy are interrelated

Graph IV.A



LTV = loan-to-value; DTI = debt-to-income.

Source: H S Shin, "Macroprudential tools, their limits and their connection with monetary policy", panel remarks at the IMF Spring Meeting on "Rethinking macro policy III: progress or confusion?", Washington DC, April 2015, www.bis.org/speeches/sp150415.htm.

- Both monetary policy and macroprudential policy influence the financial intermediation process, operating on the assets, liabilities and leverage of intermediaries.
- Both policies can induce a reallocation of spending over time by influencing the cost and availability of credit for consumers and firms.
- They differ in scope and impact. Macroprudential policy often targets specific sectors, regions or practices (eg through loan-to-value limits and debt-service ratio rules), whereas interest rates have a more pervasive impact on private sector incentives and on the financial system.

Complementarity of monetary policy and macroprudential polices

- Lower interest rates induce economic agents to borrow more, while macroprudential policies restrain borrowing.
- When macroprudential policies are pulling in same direction as interest rate policy, they are more successful.
- By contrast, when they are pulling in opposite directions, macroprudential policies should be far less effective.
- Bruno, Shim and Shin (2017) show that over 2004-2013 in Asia-Pacific, macroprudential policies were tightened quite often at the same time as monetary tightening, and that when banking/bond inflow measures moved in the opposite direction to interest rate policy after 2008, they were not successful in affecting capital inflows.

Macroprudential policy and other policies

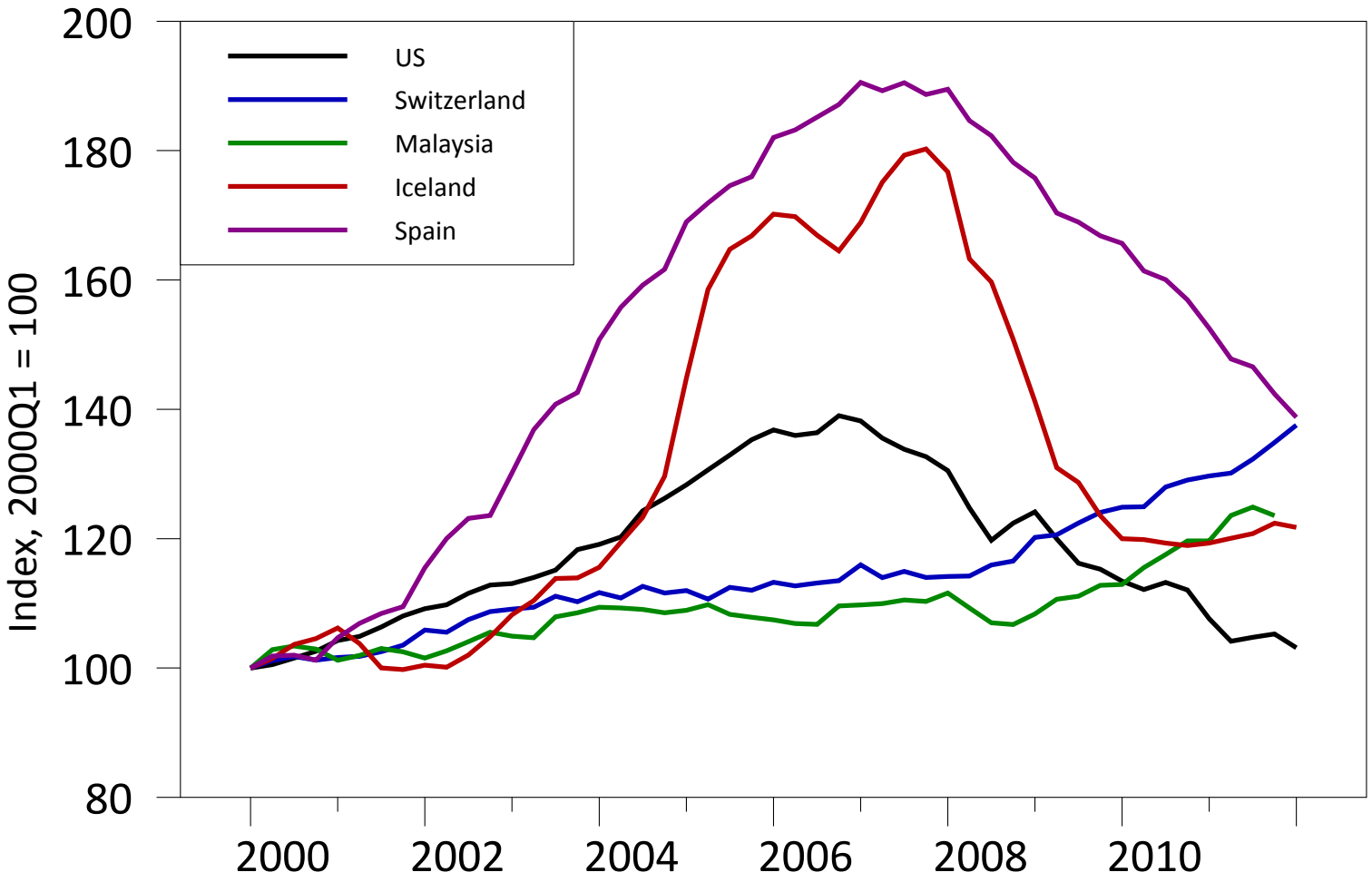
- In his assessment on the effectiveness of macroprudential measures, Borio (2014) stressed that the experience so far indicates that it would be imprudent to rely solely on macroprudential frameworks when seeking to tame financial booms and busts.
- He also emphasised that financial cycles such as credit cycles were very powerful, so other policies such as monetary and fiscal policies should also play a role in addition to macroprudential policy.

II. Macroprudential policy in practice

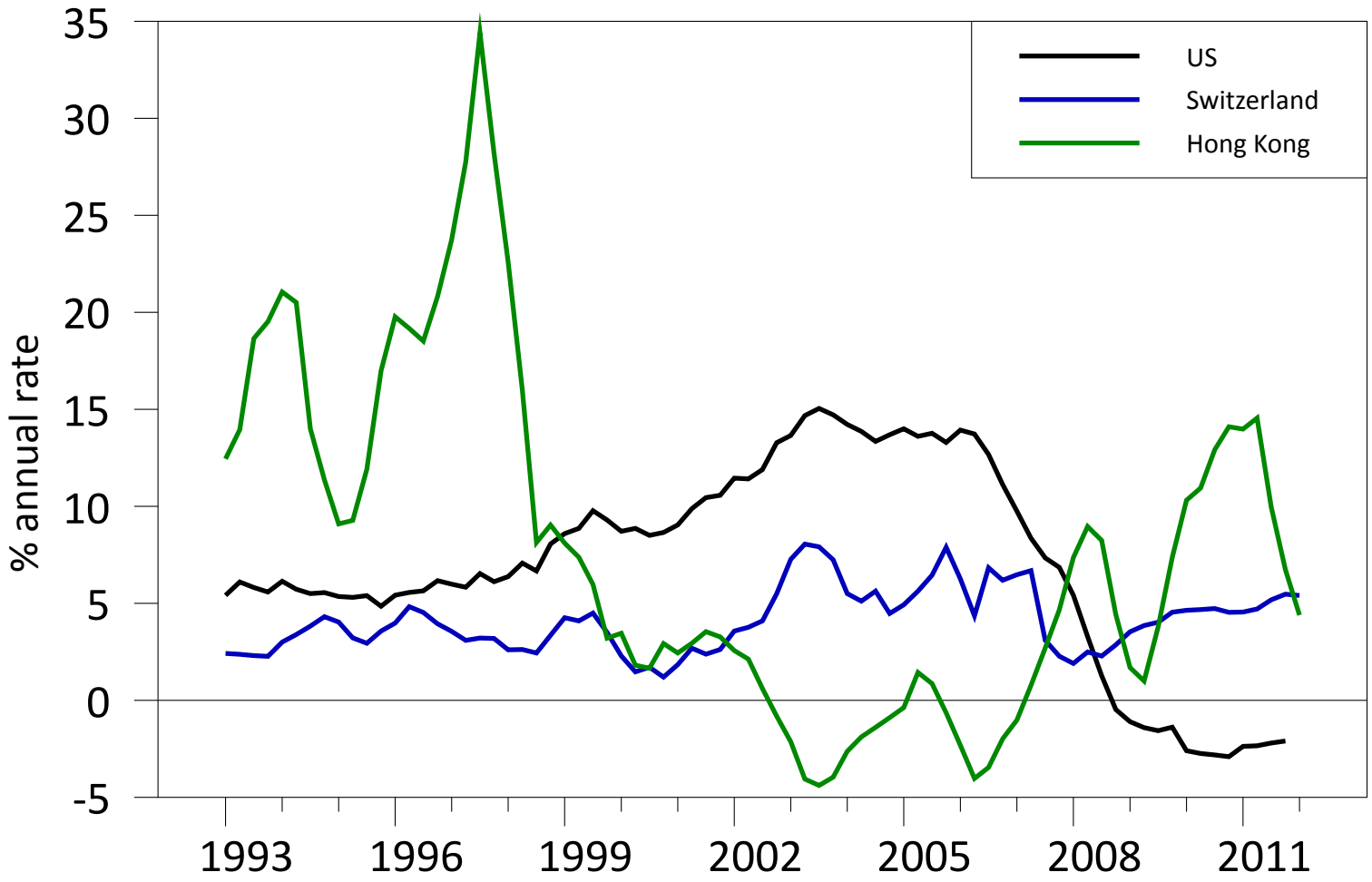
Taxonomy of macroprudential tools (Shin 2012)

	Policy Tool	Advantages	Drawbacks
Asset Side Tools	Loan-to-Value (LTV) cap	Low administrative burden	Ineffective during rapid housing boom
	Debt service-to-Income (DTI) cap	Ties loan growth to wage growth	High administrative capacity needed for data on income
	Loan-to-Deposit Caps	Low administrative burden	Distorts bank funding Not applicable to foreign banks
	Reserve Requirement	Low administrative burden	Ineffective with low interest rates, burdens central bank
Liabilities Side Tools	Levy on non-core bank liabilities	Price based measure. Acts on broad liability aggregates	Needs legislation. Cannot narrowly target FX vulnerability
	Levy on FX-denominated bank liabilities	Price-based measure Enhances monetary policy Counters FX risk	Needs legislation Narrow base of levy
Bank Capital-Oriented Tools	Countercyclical capital requirements	Conforms to Basel III	Difficulty in calibration Level playing field issues
	Forward-looking provisioning	Modifies bank incentives	Objections from accounting standard setters
	Leverage cap	Modifies bank incentives	Not price based Open to circumvention Vulnerable to bank FDI

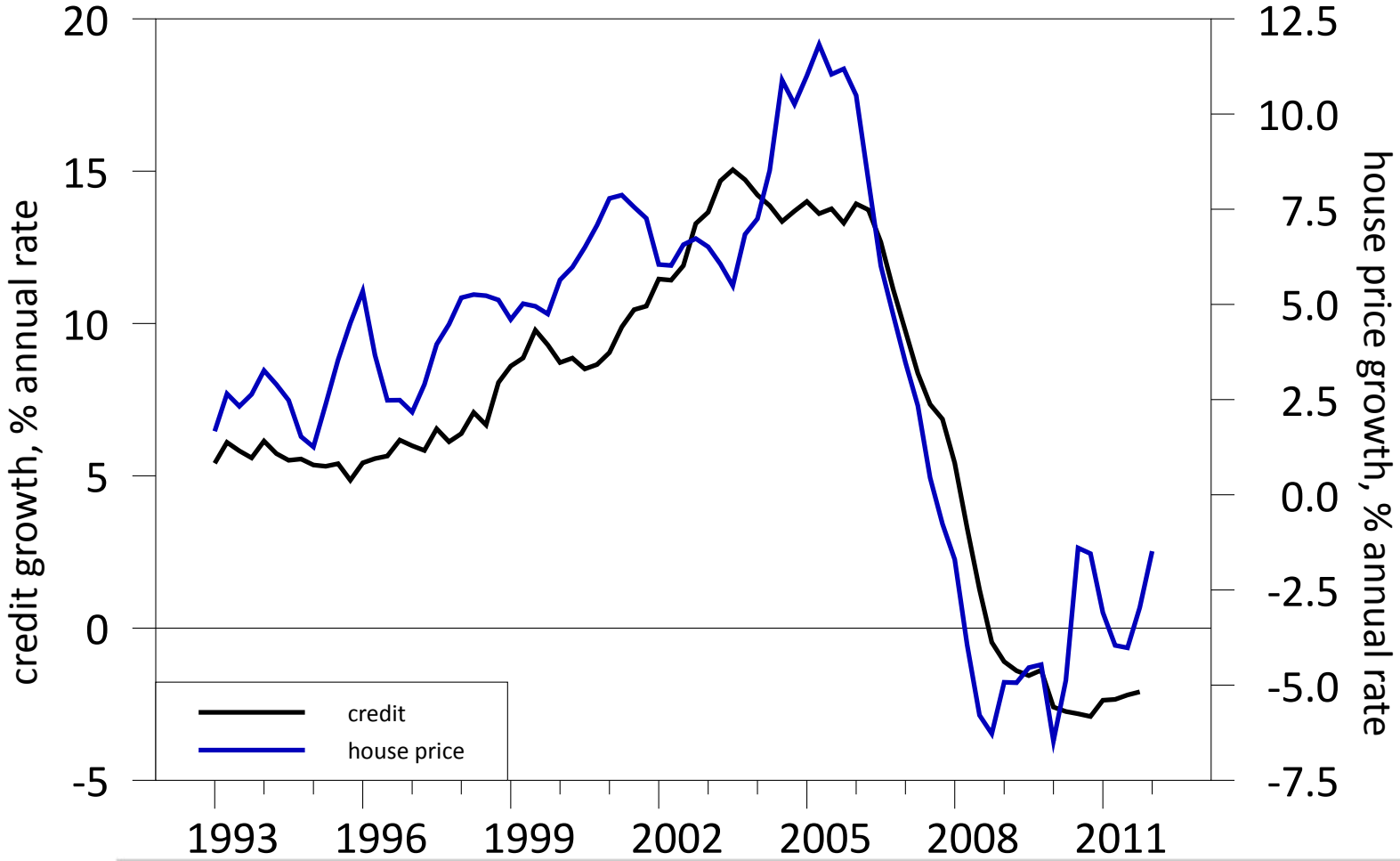
The housing boom and bust



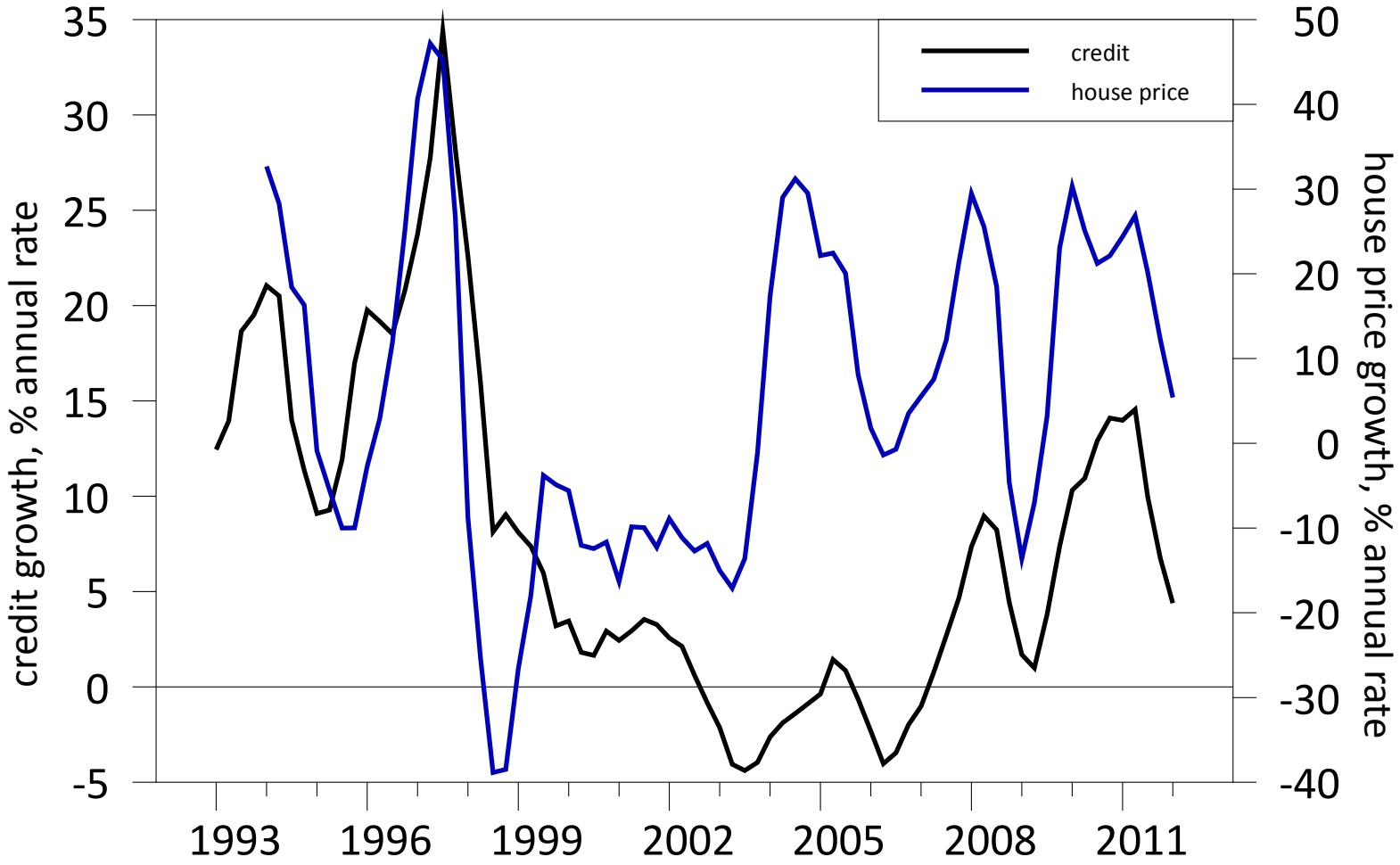
Housing credit growth



United States: Credit growth tracks house price growth



Hong Kong SAR: Credit growth tracks house price growth



Global macroprudential policy action databases

- IMF's macroprudential survey (Dec 2010)
  - 49 economies replied, 40 economies took Macropru. actions: prudential tools, RRs, and limits on FX lending.
- IMF Global Macroprudential Policy Instruments survey
  - By Monetary and Capital Department during 2013–14
  - 18 instruments, 119 countries, 2000-2013, annual data
- Database on policy actions for housing markets by Shim, Bogdanova, Shek and Subelyte (BIS QR, Sep 2013)
  - 9 types, 60 economies, from 1980 (or earliest available) to 2012, monthly data.
  - Available at NBER International Finance data catalogue
- Granular macroprudential database (BOE WP, Dec 2016)
  - 26 categories, 71 economies, 1990-2015, quarterly data

Database on housing market policies (Shim et al 2013)

- Consider 8 types of measures affecting general credit and housing credit
  - Non-interest rate monetary policy measures
    - reserve requirements (RR)
    - credit growth limits (Credit)
    - liquidity requirements (Liq)
  - Prudential measures targeting housing credit
    - max LTV ratios (LTV) and loan prohibitions
    - max DSTI ratios and other lending criteria (DSTI)
    - risk weights on housing loans (RW)
    - loan loss provisioning for housing loans (Prov)
    - exposure limits to property sector (Expo)

Database on housing market polices (Shim et al 2013)

- 60 countries: Asia-Pacific (13), central and eastern Europe (15), Latin America (7), Middle East and Africa (4), western Europe (19) and North America (2).
- Coverage period: January 1990 (or earliest available) to June 2012, monthly/daily.
- Sources: annual reports, financial stability reviews, monetary bulletins, press releases from central banks, financial regulators and ministries of finance, etc
- Timing based on implementation date, not announcement date.
- Publicly available at http://www.bis.org/publ/qtrpdf/r_qt1309i.htm

	China
June 2006	On 1 June 2006, the authorities reduced the maximum LTV ratio applied to housing loans extended by commercial banks from 80% to 70%, while the ratio remained at 80% for housing loans to owner-occupiers with a property size below 90 square metres.
July 2006	On 5 July 2006, the central bank raised the reserve requirement ratio by 0.5 percentage points, from 7.5% to 8% for state-owned commercial banks and joint-stock commercial banks, and from 8% to 8.5% for urban credit cooperatives and financial institutions with capital adequacy ratios below a certain level.
August 2006	On 15 August 2006, the central bank raised the reserve requirement ratio by 0.5 percentage points to 8.5% (and to 9%, respectively).
September 2006	
October 2006	
November 2006	On 15 November 2006, the central bank raised the reserve requirement ratio by 0.5 percentage points to 9% (and to 9.5%, respectively).
December 2006	
January 2007	On 15 January 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 9.5% (and to 10%, respectively).
February 2007	On 25 February 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 10% (and to 10.5%, respectively).
March 2007	
April 2007	On 16 April 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 10.5% (and to 11%, respectively).
May 2007	On 15 May 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 11% (and to 11.5%, respectively).
June 2007	On 5 June 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 11.5% (and to 12%, respectively).

July 2007	
August 2007	On 15 August 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 12% (and to 12.5%, respectively).
September 2007	On 25 September 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 12.5% (and to 13%, respectively). On 27 September 2007, the authorities imposed a maximum LTV ratio of 60% for borrowers applying for second mortgage loans. On 27 September 2007, the authorities raised the minimum lending rate from 0.9 times to 1.1 times the benchmark lending rate of a given maturity.
October 2007	On 25 October 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 13% (and to 13.5%, respectively).
November 2007	On 26 November 2007, the central bank raised the reserve requirement ratio by 0.5 percentage points to 13.5% (and to 14%, respectively).
December 2007	On 25 December 2007, the central bank raised the reserve requirement ratio by 1 percentage point to 14.5% (and to 15%, respectively).
January 2008	On 28 January 2008, the central bank raised the reserve requirement ratio by 0.5 percentage points to 15% (and to 15.5%, respectively).
February 2008	
March 2008	On 25 March 2008, the central bank raised the reserve requirement ratio by 0.5 percentage points to 15.5% (and to 16%, respectively).
April 2008	On 25 April 2008, the central bank raised the reserve requirement ratio by 0.5 percentage points to 16% (and to 16.5%, respectively).
May 2008	On 20 May 2008, the central bank raised the reserve requirement ratio by 0.5 percentage points to 16.5% (and to 17%, respectively).

Policy actions by type and region

Number of policy actions[1] Table 3

Region	Asia-Pacific [13][2]	Central and eastern Europe [15]	Latin America [7]	Middle East and Africa [4]	North America [2]	Western Europe [19]	All economies [60]
RR	150 (6.5)	221 (8.5)	87 (7.9)	6 (1.1)	7 (1.6)	52 (1.4)	523 (4.9)
Credit	4 (0.2)	7 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.1)	14 (0.1)
Liq	30 (1.3)	4 (0.2)	6 (0.5)	0 (0.0)	0 (0.0)	13 (0.4)	53 (0.5)
Monetary total	184 (7.9)	232 (8.9)	93 (8.4)	6 (1.1)	7 (1.6)	68 (1.9)	590 (5.5)
LTV	56 (2.4)	11 (0.4)	2 (0.2)	0 (0.0)	4 (0.9)	21 (0.6)	94[3] (0.9)
DSTI	20 (0.9)	12 (0.5)	1 (0.1)	1 (0.2)	2 (0.4)	9 (0.2)	45[4] (0.4)
RW	14 (0.6)	19 (0.7)	5 (0.5)	3 (0.5)	0 (0.0)	9 (0.2)	50 (0.5)
Prov	16 (0.7)	10 (0.4)	6 (0.5)	1 (0.2)	0 (0.0)	4 (0.1)	37 (0.3)
Expo	11 (0.5)	8 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	20 (0.2)
Prudential total	117 (5.0)	60 (2.3)	14 (1.3)	5 (0.9)	6 (1.3)	44 (1.2)	246 (2.3)
Total	301 (12.9)	292 (11.3)	107 (9.7)	11 (2.0)	13 (2.9)	112 (3.1)	836 (7.9)

[1] The values in brackets show the average number of policy actions per country per decade. The number of years for each country that we use for calculating the average value is the difference between June 2012 and the earlier of the two coverage years shown in Table 1. [2] The figures in square brackets indicate the number of economies in each region. [3] The sum of policy actions involving maximum loan-to-value (LTV) ratios and loan prohibitions. The number of actions involving maximum LTV ratios only is 81. [4] The sum of policy actions involving maximum debt-service-to-income (DSTI) ratios and other lending criteria. The number of actions involving maximum DSTI ratios only is 28.

Sources: National sources; authors' calculations.

Policy actions over time

Number of policy actions per country per decade[1] Table 4

	Monetary				Prudential						Total
	RR	Credit	Liq	Total	LTV	DSTI	RW	Prov	Expo	Total	
1990–99	4.9	0.2	0.7	5.8	0.4	0.1	0.2	0.1	0.2	1.0	6.8
2000–09	4.6	0.1	0.4	5.2	0.8	0.5	0.6	0.5	0.2	2.6	7.8
2010–Jun 2012	6.0	0.1	0.3	6.4	2.1	0.9	0.7	0.3	0.1	4.1	10.5

[1] When we calculate the number of policy actions, we first divide the total number of policy actions taken by all economies in a decade by the sum of the number of coverage years for each economy in the decade, and then multiply the average number of actions per country per year by 10 to rescale it to the number of actions taken in a decade.

Sources: National sources; authors' calculations.

Policy actions by direction

Number of policy actions

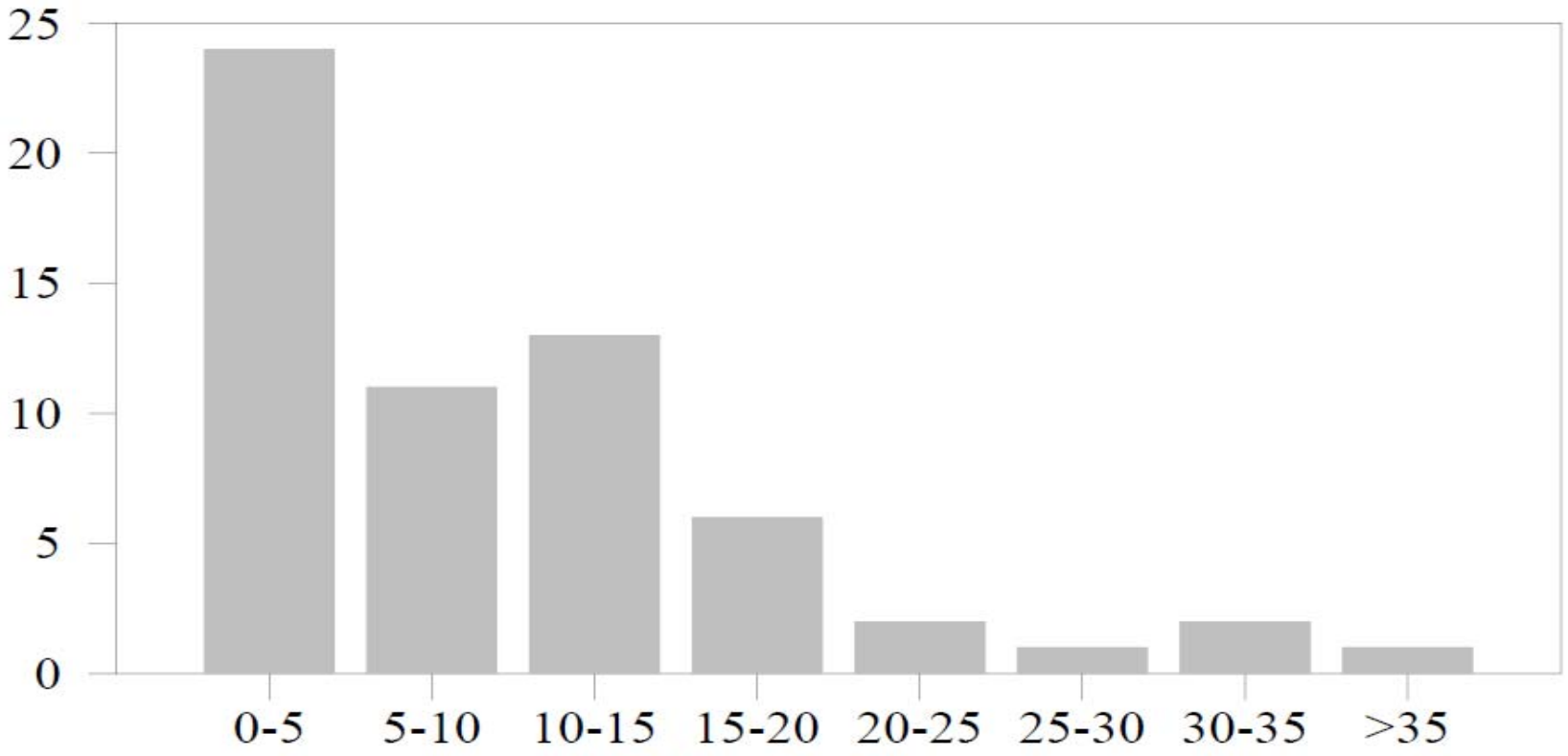
Table 5

	Asia-Pacific [13]	Central and eastern Europe [15]	Latin America [7]	Middle East and Africa [4]	North America [2]	Western Europe [19]	All economies [60]
RR	90/60	115/106	43/44	4/2	0/7	3/49	255/268
Credit	3/1	4/3	0/0	0/0	0/0	2/1	9/5
Liq	13/17	0/4	6/0	0/0	0/0	4/9	23/30
Monetary total	106/78	119/113	49/44	4/2	0/7	9/59	287/303
LTV	41/15	8/3	1/1	0/0	4/0	12/9	66/28
DSTI	16/4	11/1	1/0	1/0	2/0	4/5	35/10
RW	13/1	11/8	3/2	3/0	0/0	6/3	36/14
Prov	14/2	8/2	6/0	1/0	0/0	2/2	31/6
Expo	5/6	4/4	0/0	0/0	0/0	1/0	10/10
Prudential total	89/28	42/18	11/3	5/0	6/0	25/19	178/68

The first value in each cell represents the number of tightening measures, and the second value the number of loosening measures. The figures in square brackets indicate the number of economies in each region.

Sources: National sources; authors' calculations.

Cross-country distribution of policy actions



- Total number of credit and tax policy actions per country per decade.
- Large number of economies used policy measures only occasionally.
- Several economies were very active users, with 20 or more documented policy actions per decade.

Table 2: Correlations between policy measures

A. Policy changes

	Gen cred	LTV	DSTI	Expo lim	Risk wt	Prov	Tax
General credit	1						
LTV ratio	0.08	1					
DSTI ratio	0.07	0.37	1				
Exposure limits	−0.01	0.06	0.12	1			
Risk-weighting	0.03	0.03	−0.00	0.12	1		
Provisioning	0.04	0.06	0.02	0.09	−0.00	1	
Housing-related tax	0.01	0.11	0.03	0.00	0.00	0.00	1

B. Cumulative policy indicators

	Gen cred	LTV	DSTI	Expo lim	Risk wt	Prov	Tax
General credit	1						
LTV ratio	0.08	1					
DSTI ratio	0.15	0.58	1				
Exposure limits	−0.11	0.07	0.11	1			
Risk-weighting	0.01	0.08	0.08	−0.06	1		
Provisioning	0.08	0.23	0.29	0.04	0.13	1	
Housing-related tax	−0.01	0.00	0.15	−0.00	−0.00	0.06	1

Notes: The correlations are calculated for the 57 countries used in the empirical analysis. Panel A shows the correlations between the discrete policy change variables. The underlying monthly data are summed to obtain quarterly series. Panel B shows the correlations between the cumulative policy indicators, created by accumulating the policy change variables.

Kuttner and Shim (2015, VoxEU article)

Table 3. Distribution of policy actions related to LTV ratio rules

Number of policy actions

Tightening actions (66)						Loosening actions (28)							
Decrease in maximum LTV ratio				Introduce maximum LTV ratio	Prohibition of certain loan types	Increase in maximum LTV ratio						Abolish maximum LTV ratio	Lifting of loan prohibition
5%p	10%p	15%p	20%p			5%p	10%p	15%p	20%p	25%p	35%p		
5	16	4	4	27	10	4	7	5	3	2	1	3	3
Average size of change: 11.17%p						Average size of change: 14.09%p							

Source: Shim et al. (2013); authors' calculation.

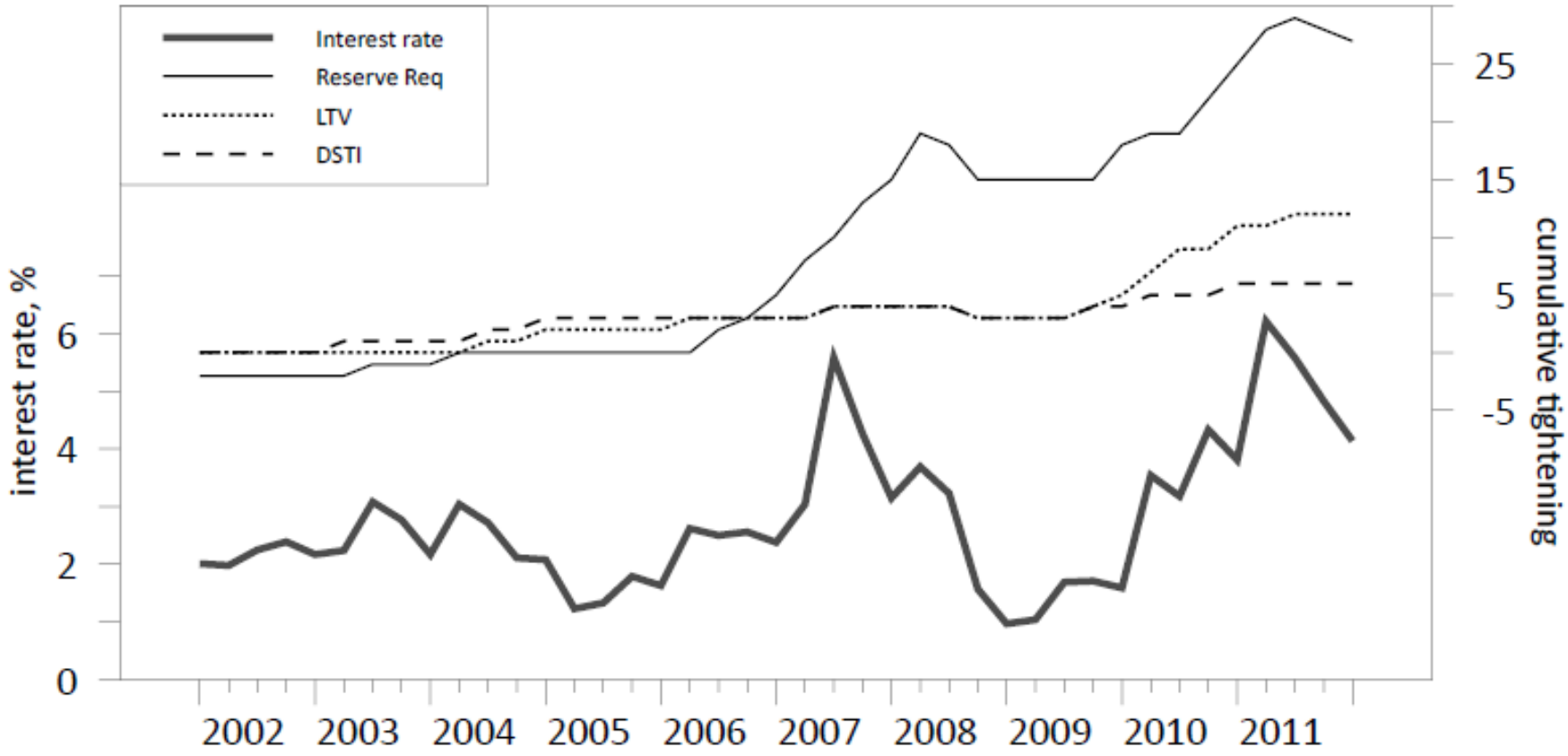
Kuttner and Shim (2015, VoxEU article)

Table 4. Distribution of policy actions related to DSTI ratio rules

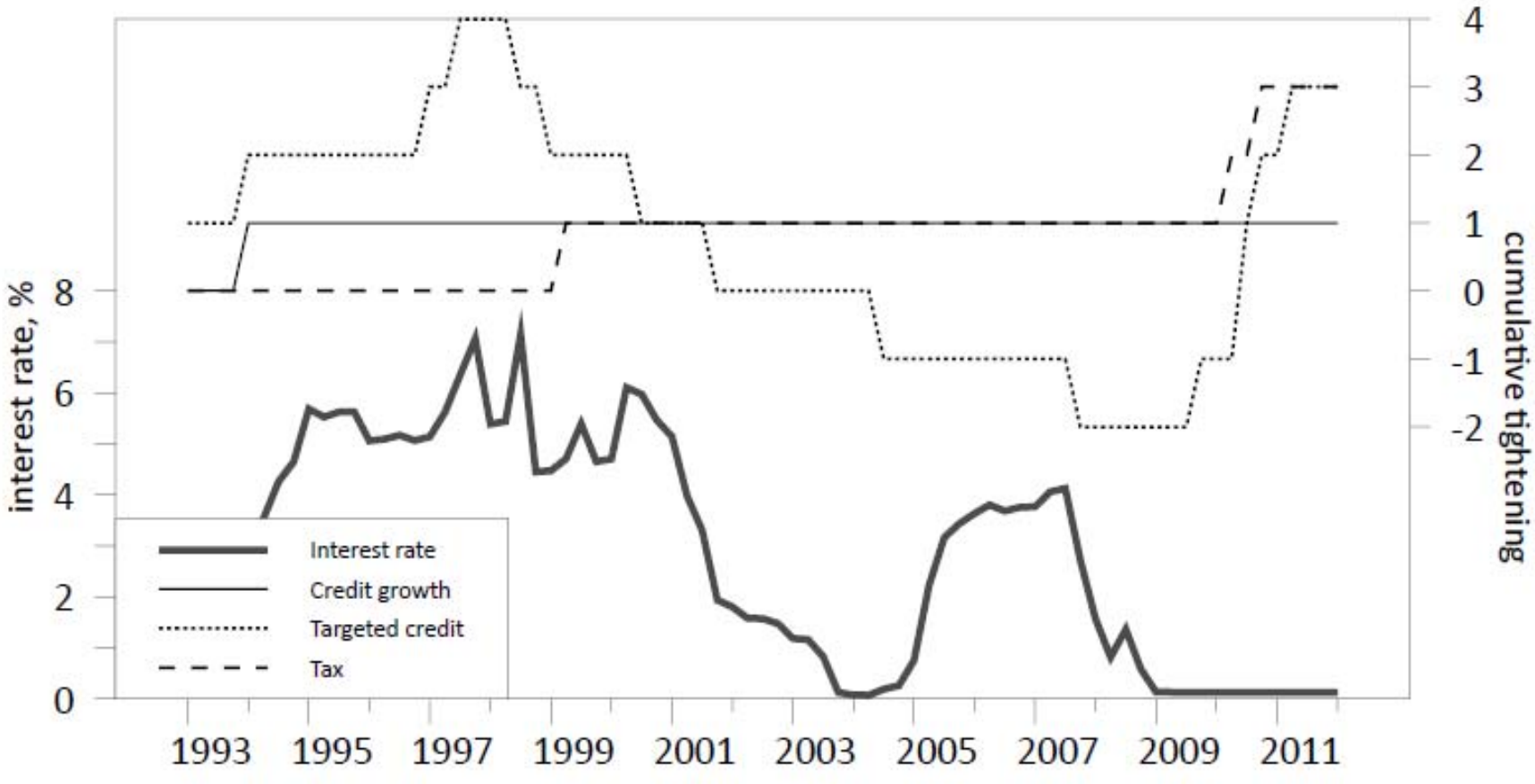
Distribution of policy actions related to DSTI ratio rules					
Number of policy actions					
Tightening actions (35)			Loosening actions (10)		
5%p decrease in maximum DSTI ratio	Introduce maximum DSTI ratio	Tightening of other lending criteria	10%p increase in max DSTI ratio	Abolish maximum DSTI ratio	Loosening of other lending criteria
1	22	12	2	2	6

Source: Shim et al. (2013); authors' calculation.

China: Monetary and prudential policies



Hong Kong SAR: Interest rate and non-interest rate policies



III. Effectiveness of macroprudential policy tools

Cross-country studies on the impact of macro-prudential policy

- Many cross-sectional studies, mostly after the 2008 financial crisis, investigate the impact of macroprudential policies on credit and asset prices, and find that certain types of measures, but not all types, are effective for certain variables, mostly during booms.
- Overview of the impact on various financial variables
  - Domestic credit: Borio and Shim (2007), Lim et al (2011), Tovar et al (2012)
  - Bank leverage and asset growth: Claessens et al (2014)
  - Housing credit and house prices: Kuttner and Shim (2016)

Impact on domestic credit

- Borio and Shim (2007): 12 types of macroprudential policy actions taken by 18 Asian and European economies before 2006 reduced the growth rate of bank credit to the private sector by 4~6%p in the following 2~3 years.
- Lim et al (2011): reserve requirements, dynamic provisions, maximum LTV ratios, maximum debt-service-to-income (DSTI) ratios and limits on foreign currency lending have measurable effects on the growth rate or cyclicality of private sector credit for 49 countries.
- Tovar et al (2012): reserve requirements have a moderate but transitory impact on the growth rate of private bank credit in six Latin American countries.

Impact on bank leverage and asset growth

- Claessens et al (2014) use a sample of around 2,800 banks in 48 countries over 2000-2010, and
  - Show that maximum LTV and DSTI ratios as well as limits on credit growth and foreign currency lending are effective in reducing bank leverage and asset growth during booms, and
  - Also show that few policies help stop declines in bank leverage and assets during downturns.

Impact on housing credit and prices

- Kuttner and Shim (2016) provide a systematic assessment of the efficacy of monetary, prudential and fiscal policies on housing credit and house prices for 57 economies.
- They use the Shim et al (2013) database and expand it to include policy actions in the 1980s and fiscal policy on housing markets.
- Three different empirical approaches as a check on the results' robustness
  - traditional panel regression
  - mean group estimation
  - panel event study

Impact on bank credit and housing credit

- Cerutti, Claessens and Laeven (2017) consider the impact of 12 macroprudential instruments on bank credit, household credit, and house price growth in 2000-13.
  - Found that LTV-DSTI limits, leverage limits, dynamic provision effective in reducing general bank credit growth in all countries, while
  - Limits on interbank exposure and taxes on financial institutions reduced EME house price growth.

Main findings of Kuttner and Shim (2016)

- Max DSTI ratio consistently affects housing credit growth.
  - A typical tightening action lowers the real credit growth rate by 4–6%p over the subsequent four quarters.
- Increases in housing-related taxes have significant negative effects on housing credit and house price growth.
  - A typical tightening of taxes lowers both the real credit and house price growth rates by 3–4%p.
- Loosening actions have no significant effect on housing credit or house price growth.
- Changes in short-term rates slow house price and housing credit growth, although the size of the effect is modest.
  - 1%p ↑ short-term rate => 0.6%p ↓ credit growth
    1%p ↓ price growth

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Marco-prudential Policies for Financial Stability in Bangladesh

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June 8-9, 2017, Kathmandu, Nepal

Abstract

This paper attempts to assess the efficacy of arrangements and application of various macro-prudential policies and tools in Bangladesh those are used to prevent financial instability. Institutional arrangements are key but central bank of Bangladesh plays a very significant role in maintaining macro-prudential policy arrangement; the macro-prudential policy frameworks developed by central bank mostly following the international best practices. It is found that timely and efficient implementation of macro-prudential policy and also its efficacy depend largely on the structure, size and interconnectedness of an economy. The paper explain the efficiency of different macro-prudential policies as a best answer to the question that to what extent the central bank or the market participants respond to the systemic risks that can emerge as a potential source of financial instability. Indeed, macro-prudential policy tools and their implementations are fundamentally shared responsibility and Bangladesh is trying to address the issues regarding financial stability with the macro-prudential toolkits by itself and/or different institutional arrangements or coordination approaches. It is evident that Bangladesh adopted several macro-prudential tools for addressing systemic risk and formed council and groups for crisis preparedness and mitigation in interconnected markets.

Key words: Macro-prudential policy, financial stability.

JEL Code: E58, F36.

[1]The views expressed in this paper are the author's own and do not necessarily reflect those of Bangladesh Bank.

Marco-prudential Policies for Financial Stability in Bangladesh

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Overview

The global financial crisis (GFC) of 2008 made instance of unregulated expansion of financial products and liquidity glut that led to the largest and most lingered downturn in the global economy after the Great Depression of 1930s. Policy-makers, regulators and think-tanks analyze existing loop-holes of regulatory measures, and fix new tools/ guidelines/policy measures to mitigate the fragilities or to improve the health of financial intermediaries. Indeed, regulatory authorities broadly failed to address those financial sector vulnerabilities and real sector fragilities before the crisis as they were very much concerned with the extent and short-term benefits of openness and financial integration. The traditional monetary and fiscal policy instruments were largely established as the dull tools to mitigate such type of crises. In fact, absence of macro-prudential policies is the most recognized causes of the GFC.

Before the GFC, banking regulation was mostly a static affair with capital requirements and leverage caps. The crisis demonstrates that those regulatory benchmarks are not enough. The 2010 Basel III accord tightens restrictions and introduces the new concept of counter-cyclical buffer for safeguarding financial system from excessive credit growth. Indeed, these indicators are also not enough to define the thresh-hold level of credit that actually depends on the size and sectoral structure of an economy. However, the smarter alternative is to introduce targeted rules to reduce instability across the financial system popularly known as macro-prudential policies which are gaining increasing priority.

This paper is structured as follows. Section 2 describes institutional arrangements for macro-prudential policies. Section 3 covers potential macro-prudential policy instruments those are mostly used in developed and emerging economies. Macro-prudential policy stances in Bangladesh is discussed in Section 4, Section 5 includes financial stability in comparison with selected Asian economies, challenges covered in Section 6 and Section 7 concludes.

Section 2: Institutional arrangements for macro-prudential policies in Bangladesh

Over the past few years, a good number of countries have made substantial reforms in their financial stability arrangements and identified several possible configurations. The

Bangladesh economy was not severely affected by the 2008-09 global financial crisis and economic downturn, owing to its limited and regulated external exposures, and pro-active government policies. However, Bangladesh prompted itself to reposition through a framework of macro-prudential measures aimed at addressing the negative impacts of lagged effects of the global economic slowdown originated from matured and advanced economics. To develop and implement macro-prudential policies and systemic oversight, Bangladesh Bank established a dedicated department named as Financial Stability Department (FSD) in 2012.Bangladesh Bank initiated publication of Financial Stability Report from 2010 on yearly basis and quarterly Financial Stability Assessment Report (QFSAR) from early 2015. The FSD is monitoring the possible accumulation of stresses in the financial system, using indicators such as real estate and other asset prices, household and corporate debt, credit growth, and so forth. The FSD is working to introduce some other macro-prudential tools such as countercyclical provisioning in addition to capital buffer and adjusting loan-to-value ratios.

In 2012, the government has created an interagency body, called Coordination Council (CC) headed by the Governor of Bangladesh Bank, especially for policy coordination among the financial sector regulators. The CC deals with issues relating to financial stability, financial sector development, inter-regulatory coordination, macro-prudential supervision of the economy, financial inclusion, and financial literacy, among others. The members of the council are Bangladesh Bank, Bangladesh Securities and Exchange Commission (BSEC), Insurance Development and Regulatory Authority (IDRA), Microcredit Regulatory Authority (MRA), Registrar of Joint Stock Companies (RJSC), Department of Cooperatives, Bangladesh Telecommunication Regulatory Commission (BTRC). The creation of CC is neither supersedes nor negates the individual status of regulators.

In the backdrop of the GFC many countries have been facilitating large-scale government support and bailout of failed banks and other financial conglomerates in order to maintain the financial stability. Though such bail-out programs may not bring the expected outcome due to the inherent shortcomings of the existing resolution mechanism, many regulators are involved in resolving problems of financial and non-financial institutions. In this regard, in Bangladesh a separate entity namely 'Financial Stability Group (FSG)' is going to be setup for dealing with the decision on bailout of failed banks and other financial institutions. The FSG would include financial sector regulators (e.g., MoF, BB, BSEC, MRA, IDRA, RJSC, Department of Cooperatives etc.) and relevant government agencies such as National Board of Revenue (NBR) and so on. The minister for finance would be the head of the group. The similar types

of bodies were already constituted in different countries across the world including USA, India and Singapore.

Section 3: Operational Consideration and best practices of Macro-prudential Policy Instruments

Best practices of macro-prudential policy instruments are mostly imperative for almost all countries regardless of their jurisdictions. The Financial Policy Committee (FPC) of the Bank of England (BOE) has set several types of macro-prudential policy instruments to mitigate different dimensions of systemic risks based on critical analysis of the past crisis that has been broadly categorized into three types such as i) balance sheets tools (the risks those affect directly balance sheets of financial institutions), ii) terms and conditions of transactional tools (that affect *LTV, LTI ratios, margins, collateral and so on*) and iii) market structures. Potential tools of macro-prudential policy measure under these three categories are given in the Table-1.

Table 1: Key features of macro-prudential policy instruments

Type	Instrument	Key Features
Balance Sheet tools	Counter cyclical capital buffers	▪ Direct effect on loss-absorbing capacity; ▪ Simplicity eases communication ▪ Basel III reciprocity mitigates leakages.
	Sectoral capital requirements (variable risk weights)	▪ Targeted approach to nipping problems in the bud; ▪ May provide sharper incentives than countercyclical capital buffer; ▪ Adjusting risk weights on flow of lending relative to its stock could restrain lending in booms or encourage lending in

Type	Instrument	Key Features
		downturns.
	Time-varying provisioning practices	▪ Ensures early provisioning against prospective credit losses.
	Time-varying liquidity buffers	▪ Direct effect on banks' liquid asset holdings and maturity mismatch, increasing resilience; ▪ May also help to moderate the credit cycle.
	Use of central counterparties	▪ Simplifies network interconnectedness and reduces the potential for contagion; ▪ Centralizes risk management; ▪ Provides greater transparency.
Terms and conditions of transactions	Maximum leverage ratios	▪ Less susceptible to arbitrage and mis-measuring risk than risk-based tools.
	Restrictions on distributions	▪ Limits risk of disruption to credit supply — useful in downturns.
	Loan to value and loan to income restrictions	▪ Directly limits risky lending, enhancing resilience to risks from real estate; ▪ May be less prone to foreign branches leakage.
	Margining requirements	▪ May reduce the risk of

Type	Instrument	Key Features
		margin calls precipitating liquidity hoarding and asset fire sales; ▪ Enhances resilience of funding markets.
Market structures	Design and use of trading venues	▪ May help prevent sharp falls in liquidity and reduce extreme price volatility.
	Disclosure requirements	▪ Reduces likelihood of information contagion ▪ Enhances market discipline.

Section 4: Macro-prudential policy stance in Bangladesh

A brief description of the macro-prudential policy measures in Bangladesh and their effects are analyzed below:

Capital flows

Bangladesh became a member of WTO since its inception in 1995, and maintains a policy of capital account controls to protect its economy from destabilizing surges of footloose international capital flows. Bangladesh permits unrestricted inflows and outflows of resident-owned direct or portfolio investments and earnings thereon, but restricts investment abroad by residents, as well as short-term fund inflows and outflows other than normal trade credit. It kept banks free of toxic assets and contagion from external markets during global crisis, safeguarding their solvency and liquidity.

Credit policy

Bangladesh Bank (BB) uses its monetary and credit policy tools in an integrated way, seeking to maintain an optimal trade-off between growth and inflation. Against the backdrop of the global economic downturn, BB continues to keep credit condition easy, placing emphasis on channeling liquidity into productive and supply augmenting investments, including mandatory agricultural and micro, small and medium enterprises (MSMEs) activities that are expected to lead to more broad-based and inclusive growth processes while discouraging

risk-prone unproductive consumer credit and similar demand-side lending to avoid building inflationary pressures and to mitigate financial risks on the economy.

Interest rate policy and spread

Banks in general are free to fix their deposit and lending rate but persuading to reduce both at single digit. However, the maximum rate of interest rate on pre-shipment export credit is 7 percent and on agriculture loan is 12-13 percent. Banks are advised to limit the difference between lending rate and weighted average rate of interest on deposit or intermediation spread within the lower single digit in different sectors other than high risk consumer credit (including credit card) and loans to small and medium enterprises (SMEs). A constant effort of dialogue, consultation has been initiated among banks, FIs and BB to encourage them to bring down spread for efficient allocation of financial resources in the prospective sectors.

Risk-based capital adequacy

To comply with international best practices and to make the bank capital more risk sensitive as well as more shock absorbent and resilient, BB entered into Basel III regime in January 2015. In Basel III, standardized approach for credit risk, market risk (rule-based) and basic indicator approach for operational risk are being followed. The capital adequacy ratio has been fixed for bank at 10 percent in addition to2.5 percent capital conservation buffer at the full implementation phase of the year 2019.

To reinforce a strong liquidity base through the robust supervisory standards, BB sets a minimum requirement of banks' liquidity from 2014 following Basel III standards. These standards have been developed to achieve two separate but complementary objectives. The first is the Liquidity Coverage Ratio (LCR) to promote short-term resilience of a bank's liquidity risk profile by ensuring that it has sufficient high-quality liquid resources to survive an acute stress scenario lasting for one month. The second is the Net Stable Funding Ratio (NSFR) to promote banks resilience over a longer time horizon by creating additional incentives for a bank to fund its activities with more stable sources of funding on an ongoing structural basis. In addition, BB plans to use additional metrics in order to capture specific risks in their jurisdictions.

Stress testing and resilience of the system

BB has been conducting stress-test on banks and Non-bank financial institutions (NBFIs) since 2010 to identify institutional and systemic vulnerabilities to probable stress events. Banks have been provided with core risk management guidelines for credit risk, asset and liability or balance sheet risk, foreign exchange risks, internal control and compliance risk, money laundering risk, and ICT security risk for banks and NBFIs. To develop a strong and

environmentally friendly banking system, BB introduced an overall credit rating assessing environment risks along with credit risk before disbursement of loan or credit facility and policy guidelines for green banking have been issued. A comprehensive risk management guidelines for banks, focusing on specific areas, has been issued in 2012 to focus on how risk management should be governed, and gives particular emphasis to capital management of banks. A detailed layout of integrated supervision approach has been developed and practiced to identify risks from both off-site and on-site supervision.

Bank performance analysis

Current supervision routines of Bangladesh Bank include supervisory CAMELS ratings of banks based on a set of performance indicators and qualitative assessment factors, early warning to banks with deteriorating trends in performance indicators, and intensive oversight on problem banks with CAMELS ratings below a specific minimum. An Enterprise Data Warehouse (EDW) has been established in the BB which is immensely supporting CAMELS evaluation system with recent data and auto generated ratings and performance reports of banks on periodic basis. Moreover, regulatory and supervisory capacity at BB is continuously being upgraded with the performance of individual institutions and the system as a whole.

Loan classification and provisioning

To strengthen credit discipline and align classification and provisioning regulation in line with global standards, BB revised its classification and provisioning policy in the late 2012 to recognize expected loan losses at an earlier stage and to introduce more quantitative factors in the evaluation system. Moreover, at the same period, it has revisited its loan rescheduling policy to discourage 'ever greening' of the loan portfolio that may pose potential threat to the system through credit crunch.

Separating banks' investment from capital market activities

The BB has strengthened the firewall between the banking sector and capital markets, prohibiting banks from financing stock trading beyond a certain prudential limit (25 percent of their equity capital), which helped in preventing further erosion of their capital base from erratic price changes during the stock market boom in 2010. BB, however, conducted peer-group comparison to identify similar risk exposures and trends in the banking sector. It conducted regular meetings with the senior management of highly exposed banks, sharing its analyses as well as views on inherent risk. These initiatives help banks to separate their capital market activities with creating subsidiaries as merchant banks and brokerage houses to subside potential risk of shocks from capital markets.

Prevention and mitigation of systemic risk

Although a wide range of instruments and tools under the macro-prudential framework have been developed and implemented, finding the trigger points and sending early warning signals to the stakeholders in an accurate and timely fashion is still the most difficult job. The techniques for measuring, monitoring, preventing and mitigating systemic risk are still limited and inadequate. However, BB , in 2013, has developed a *comprehensive contingency planning* and a *lender of the last resort (LOLR) frameworks*. A substantial number of documents have been finalized to implement on banks to restore stability in the system and some are under process of finalization.

Large loan exposures

The single party/counterparty or group exposure ceiling are stipulated as 35 percent of capital funds of concerned bank. In case of export financing the exposure ceiling shall not exceed 50 percent of the capital. However, the aggregate outstanding principal amount of funded exposures in both cases shall not exceed 15 percent of the capital at any point of time. The capital for the purpose of this ceiling will comprise of Tier 1 and Tier 2 capital as defined under Basel capital adequacy standards.

Capital market exposures

Exposures of a bank to capital market are subject to a regulatory limit of 25 percent of their equity as well as it sets to 50 percent for group since amendment of Banking Companies Act, 1991 in the second half of 2013. However, earlier only banks' solo as well as consolidation limit of capital market exposures were guided by the liabilities of concerned banks (10 percent of total liabilities) before amendment of stated Act in 2013.

Exposures to sensitive sectors

Banks' exposures to sensitive sectors, such as stocks and real estate are closely monitored. Banks are encouraged to place internal sectoral exposure limits on different business lines of banks as well to ensure that their aggregate exposures are well dispersed and non-concentrated. Moreover, portfolio investments of a bank to Financial institutions are restricted within 10 percent of their equities under current regime of Basel III adopted in early 2015.

Cross-holding of capital among banks and FIs

All of a bank's investment in its own common shares held directly or indirectly is deducted from common equity tier 1 (CET1) to avoid the double counting of a bank's own capital. It is applied irrespective of the location of the exposure in the banking book or the trading book. Moreover, banks look through holdings of index/mutual fund securities to deduct exposures

to own shares. Following the same approach, banks are instructed to deduct any investment in their own additional tier 1 or tier 2 instruments.

Investments in the capital of financial entities

Reciprocal cross-holdings in the capital of banking, financial and insurance entities that artificially inflate the capital position of banks are instructed to deduct in full. For this purpose, a holding is considered to be a reciprocal cross-holding if the investee entity has also invested in any type of bank's capital instrument which may not necessarily be the same instrument as the bank is holding.

Addressing systemic risk and interconnectedness

Systemically important banks should have loss absorbing capacity beyond the minimum standards and the work on this issue is ongoing for Domestic Systemically Important Banks (D-SIBs). BB has developed a methodology comprising both quantitative and qualitative indicators to assess the systemic importance of banks at domestic level following Basel recommendation and international best practices. Moreover, BBis working to introduce some other tools to mitigate the risks arising from firm-level exposures to address systemic risk and interconnectedness. These include capital incentives for banks to use central counterparties for over-the-counter derivatives, higher capital requirements for trading and derivative activities, as well as complex securitizations and off-balance sheet exposures (e.g. structured investment vehicles), higher capital requirements for inter-financial sector exposures, and the introduction of liquidity requirements that penalize excessive reliance on short term, interbank funding to support longer dated assets.

Countercyclical capital buffer

Countercyclical capital buffer and capital surcharges for systemically important banks have been developed by Bangladesh Bank. For reducing pro-cyclicality and promoting countercyclical buffers, BB initiated a number of measures to make banks more resilient to such pro-cyclical dynamics. These measures will help ensure that the banking sector serves as a shock absorber, instead of a transmitter of risk to the financial system and broader economy. These measures are expected to dampen any excess cyclicality of the minimum capital requirement, promote more forward-looking provisions, conserve capital to build buffers at individual banks and the banking sector that can be used in stress, and achieve the broader macro-prudential goal of protecting the banking sector from periods of excess credit growth. A model for instructing banks has been developed by BB for estimating the size of countercyclical capital buffer considering macroeconomic cycle for starting and releasing buffer but the tool is yet to be implemented. Moreover, framework for identification of

domestic systemically important banks (D-SIBs) has been finalized; however, regulation of imposing surcharge on banks recognized as D-SIBs is yet to be implemented.

Loan-to-value limits

Although BB usually pursues a sector-neutral credit policy, however, due to excessive credit growth in some consumer credit schemes and real estate sectors, financing policy was tightened in 2011 through an increase in the necessary minimum equity participation of the borrower, to 70 percent from 50 percent for consumer goods, and to 30 percent from 20 percent for real estate.

Net foreign exchange open position

Because of the rising and comparative high foreign exchange exposures of some financial institutions, the net open position of foreign exchange on an aggregate basis has been regulated since 1990s. Initially it was set on the requirements and performance of the individual institution. In recent past a common benchmark has been set for all banks to indiscriminate the banks' category. This regulation aims to help contain foreign exchange risk in the Bangladesh banking system. Under this rule, banks are required to maintain their net foreign exchange position of all currencies in aggregate not exceeding 20 percent of their total eligible capital set in amount but reviewed periodically. In particular, net foreign exchange positions of banks were well contained in the system to mitigate risk arising during the crisis in 2008 and subsequent periods and reflect the ability of financial institutions to manage foreign exchange risk and adjust their exposures to be appropriate for the changing global scenarios.

Advance to deposit ratio (ADR) of banks

To set the financial system on a strong footing with moderate credit growth in the economy and resilient liquidity management in banks for smooth settlement of payments, in consequence of the drying liquidity phenomena in the system that first experienced in 2010, BB initiated monitoring of banks advances to deposits ratios (ADRs) on monthly basis. The BB sets ADRs benchmark of 85 percent and 90 percent for conventional and Shari’ah banks respectively. These help banks in Bangladesh to come out of liquidity pressure in the system. Limiting growth of two individual components of ADR, maintaining the advances growth below the deposits growth, also help the banking system removing the problem quickly and help maintaining smooth liquidity position in current days.

Reserve requirement

Bangladesh Bank instructs banks to maintain Cash Reserve Ratio (CRR) of at least 6.5 percent, on bi-weekly basis and 6.0 percent on daily basis. It also requires banks to maintain

minimum Statutory Liquidity Ratio (SLR) of 13.0 percent (in percentage of total time and demand liabilities) on daily basis. Islamic Shari'ah banks are required to maintain SLR of 5.5 percent (effective from February 01, 2014).

High aggregate credit-to-GDP gap and associated policy stance

The credit-to-GDP gap, defined as the difference between the credit-to-GDP ratio and its long-run trend, serves as a signal about the build-up of excessive credit. It is a useful early warning indicator of financial crises. With high credit-to-GDP gap, a positive credit shock may result in significant macroeconomic costs, from the standpoint that credit booms often sow the seeds of subsequent downturns. The Basel Committee on Banking Supervision (BCBS) suggests for the use of this indicator as one starting point about discussions of determining countercyclical capital buffer (CCB) levels. Bangladesh Bank has developed the framework for implementing a CCB considering the long-term trend of credit-to-GDP gap.

Equity price bubble and associated policy stance

A stock market bubble is a type of economic bubble taking place when market participants drive stock prices above their value in relation to some system of stock valuation. Stock market bubbles may emanate from group thinking and herd like behavior of the market players. Such bubbles are relatively benign, yet they are damaging. In Bangladesh, banks are required to comply with a capital market exposure cap of 25 percent in relation to their paid-up capital and reserves.

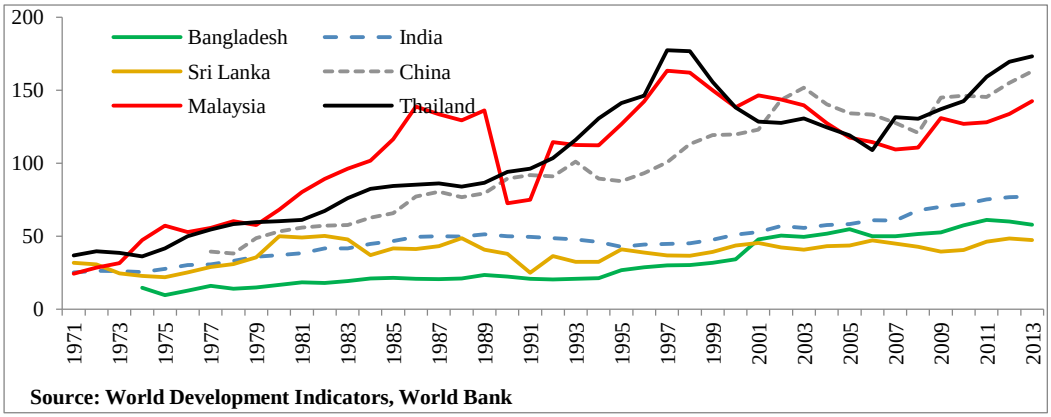
Section 5: Financial Stability Analysis in comparison with selected Asian economies

The comparative developments of the sector based macro-prudential approach in selected SAARC and emerging Asian economies are discussed in the following section.

Credit flows

Domestic credit provided by financial sector in SAARC region significantly increased with less volatility since early 1990s. In the region, domestic credit as percent of GDP is high in India that stayed below 80 percent followed by Sri-Lanka and Bangladesh. However, the ratio accounted over 150 percent in China, Malaysia and Thailand, the tiger economies in South-east Asia which shows more volatility (Chart-1).

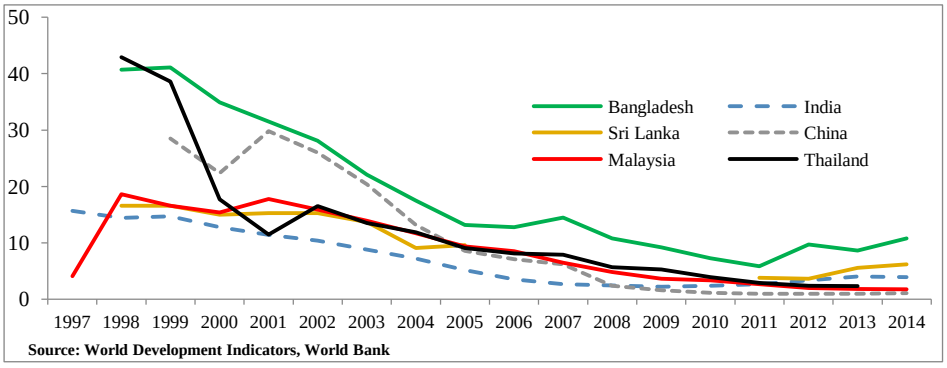
Chart-1: Domestic credit by financial sector (% of GDP)



Non-performing loan to gross loan ratios

The historical trend of the most important indicator intended to identify problems with asset quality in the loan portfolio is the ratio of gross non-performing loans (NPL) to gross loans declined sharply in SAARC region and in emerging Asian economies. Bangladesh posted the highest point accounted around 11 percent in 2014 where it is the lowest in China accounted only 1 percent during last couple of years. The indicator indicates that financial sector in the region comparatively less vulnerable.

Chart- 2 :Non-performing loan to gross loan ratios (in %)



Section 6:Problems and Challenges in implementing macro-prudential policiesin Bangladesh[2]:

Firstly, ***how macro-prudential policies interact with other public policies is still not well understood.*** Besides, in some cases, the demarcation between fiscal and macro-prudential policy is blurred. For example, a financial boom can be attributed to the underlying weakness of public finances. To the extent that macro-prudential policy restrains from the financial cycle, it can contribute to strengthening fiscal policy. Some fiscal tools too, such as housing-

[2] See Chowdhury (2016) for details.

related taxes, can work in similar fashion on the housing market as certain macro-prudential tools (e.g. loan-to-value or debt-to-income ratios when applied to housing finance).

Secondly*, ascertaining the effectiveness of macro-prudential policies is a big challenge when more than one tool is deployed.*

Thirdly*, the effectiveness of macro-prudential policies in taming the financial cycle and curbing excessive risk-taking is likely to be weak.* Which tools to use, how to calibrate them, and when to activate them will depend on how the authorities view the vulnerabilities involved, and how confident they are in their analysis?

Fourthly*, it is a challenge whether to apply rule-based or discretionary policy stances.* In principle, rule-based arrangements may be preferable to discretionary decision-making for reasons of transparency, communication and commitment. However, rules-based arrangements are feasible only in specific cases where the relevant vulnerability indicators are sufficiently well tested and reliable.

Finally*, defining regulatory perimeter is challenging.* In recent years, credit intermediation has shifted to non-bank financial intermediaries. Emerging market corporate borrowers are issuing international debt securities at increasingly long maturities. This helps mitigate rollover risk for the borrowers, but possibly creating greater duration risk for lenders.

Pertinently, ***tighter macro-prudential action may create the scope of regulatory arbitrage,*** which might be difficult to tackle, if financial sector regulatory framework is not robust, well-designed and sufficiently staffed.

Accuracy and reliability of data is crucial in implementing macro-prudential analysis. An effective macro-prudential framework requires accurate and long-period historical data. Though BB has in the recent past upgraded its gathering process, data collection through electronic template, still data quality remains a critical issue which needs to be solved on a priority basis.

Section 7: Concluding remarks

Macro-prudential policies primarily aim to complement regulatory oversight of individual firms and build resilience to dampen the volatility of the financial cycle and limit the potential for destabilizing imbalances within the financial system. Financial development, innovation and integration have created inter-linkages among banks, the financial sector and the real economy. During a period of general financial stress, interconnectedness among banks can amplify the impact of any shock to the financial sector. Even though the banks in

the system are well resilient, problems in one bank or sector can lead to system-wide distress in a domino fashion.

It is yet to develop a well-defined macro-prudential policy arrangement and institutional framework but there are arrangements suited to country-specific conditions. Smaller and relatively controlled economies in developing countries tend to have developed institutional arrangements in which the central bank plays a significant leading role while in larger and more open and more complex economies pivotal role tended to be played by a financial policy committee or any other name comprising central bank, commercial banks, insurance and securities' authority by taking the mandate of government where central bank also plays leading role.

One important development from global best practices has been made by formation of macro-prudential or systemic risk council/board/group in Bangladesh to coordinate the work of the various agencies responsible for financial stability as macro-prudential policy is a shared responsibility. In some cases, macro-prudential policy appeared as the responsibility of the central bank while the responsibility for micro-prudential policy is left on other agencies.

Separate macro-prudential agency could be formed with distributed implementation to individual regulators. Bangladesh already benefitted from the formation of inter-agency councils, like Coordination Council established to share information and to conduct a coordinated monitoring of financial conditions while fewer were described as also being responsible for crisis management. Several high-level internal and external committees have been focusing on financial stability issues. Bangladesh Bank has made changes related to financial stability in their internal divisional/departmental structures. Financial Stability Department structured with several specialized units for financial stability and macro-prudential policy implementation.

Although risk-management practices in the banking sector in Bangladesh have served their purposes fairly well in averting systemic crises, there is no room for complacency; the authorities should ensure data quality for effective implementation of macro-prudential framework. Moreover, before implementing some macro-prudential tools public consultation could be done to avoid inaction bias. Besides, overall risk management practices ~~must be~~ must be improved and developed gradually with increasing the depth, diversity, and sophistication of financial markets in Bangladesh.

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Macro-prudential Policies in Bhutan

Macro Prudential policies are to ensure stability and integrity in the financial system to address potential systemic risk. As per the IMF systemic risks is defined as the risk of disruption to financial services that is caused by an impairment of all or parts of financial systems and has potential to have serious negative consequences on the economy.

Financial soundness refers to the ability of the financial system to withstand shocks. A healthier financial system, as measured by capital adequacy, profitability etc. is likely to be resilient. The resilience of the commercial banks in respect of credit risk and liquidity risk were studied through stress testing by imparting extreme but plausible shocks, since these risks are the most relevant risk in financial sector for now. An important macro-prudential goal of stress testing is to assess whether the banking system is sufficiently capitalized to maintain the supply of credit in the face of adverse shocks. The Bhutanese financial system remains well capitalized relative to current regulatory requirements. The stress-test results suggest that the banking system is well capitalized to support the economy in a severe stress scenario, which would adversely affect Bhutan.

The financial system in Bhutan consists of Banks and Non-Banks. The total asset of the financial sector as of 30th September 2016 was Nu.125.96 billion, of which Banks accounts for 85.26 % of financial sector assets and the remaining 14.74 % are held by the non-banks. There are five banks namely Bank of Bhutan Ltd, Bhutan National Bank Ltd, Bhutan Development Bank Ltd, T-Bank Ltd and Druk PNB Ltd. The non-Banks include two insurance companies, one re-insurance and the pension fund.

The Royal Monetary Authority of Bhutan is responsible for the regulation and Supervision of all these institutions. The Financial Services Act 2011 covers licensing, corporate governance, disclosure requirements and general structural regulations governing banking, insurance, securities businesses and other financial services. The Prudential Regulation were amended in 2016 which covers the capital adequacy requirements, related party transactions, credit concentration, asset classification and provisioning, liquidity management, submission of accounts, borrower information, revaluation and appropriation of reserves, etc.

There are micro-prudential regulations in place to address the safety and soundness of individual financial institutions. However there are risks originating within the financial sector or macro-economic risks that could potentially destabilize the entire financial sector therefore to mitigate such risks to the financial system macro prudential rules and regulations were being introduced.

Marco prudential policies aim is firstly to strengthen the financial system's resilience to economic downturns and other adverse aggregate shocks. For example a policy instrument (like the counter-cyclical capital buffer) can mandate banks to increase capital in good times which can be drawn down during bad times. Availability of the buffer could provide a financial institution with the leeway to maintain the flow of credit even during downturns of the economic cycle. Second, macro-prudential policy instruments can help "lean against the wind" by pro-actively limiting the build-up of financial risks. The same instrument, i.e., the counter-cyclical capital buffer, requires banks to build up additional capital during good times which can modulate the hitherto excessive flow of credit.

In Bhutan we have introduced and implemented Marco Prudential regulations in 2014 covering seven macro prudential tools and instruments:

i. Minimum ceiling to Leverage Ratio

- This is intended to ensure that financial institutions maintain adequate levels of capital at all times, by providing a supplementary measure to existing risk weighted capital requirements.
- The minimum leverage ratio that all financial institutions have to maintain is 5%. Leverage ratio is calculated by Total Tier 1 capital(paid up capital, general reserves and retained earnings)/ Total Assets (on balance sheet and off balance sheet assets)

ii. Counter Cyclical Capital buffer

- This regulation intends to safeguard the financial sector from any adverse effects of credit cycle by way of building a buffer during upward phase of the cycle. This regulation shall ensure that financial institutions have adequate capital to maintain the credit flow in the economy even during the downward phase while maintaining its solvency and minimum capital adequacy requirements.

- In addition to the minimum capital adequacy ratios of 10 %, financial institutions are required to hold a capital conservation buffer of 2.5% of total risk-weighted assets (RWAs).

iii. Sectoral capital requirements

- This regulation intends to ensure that financial institutions have adequate capital to cover unexpected losses against their sector-specific exposures. The housing sector with a large share in the outstanding portfolio of credit may be experiencing high growth in credit flow in comparison with the economy as a whole.
- An additional risk weight of 50% on loans to sectors where the FI has an exposure greater than 20%.

iv. Time varying Capital provisioning and margin requirement

- This regulation is intended to prevent pro-cyclicality in loan loss provisioning arising due to low specific provisions in upward phase and high specific provisions in the downturn phase of the credit cycle. The regulation requires financial institutions to build a countercyclical provisioning buffer during an upswing that can be used to cover higher specific provisioning needs linked to loan delinquencies during the subsequent downturn.
- FIs may provide dynamic provisioning of at least 30% of the total provisions during a high profit period".

v. Loan to Value and Loan to income restriction

- LTV is to mitigate risk due to default by fall in value of the collateral and prevent speculation in the housing market
- Limits on Loan to Value ratio shall be as under:

  a. Loan given against fixed deposit shall have maximum LTV ratio of 90%.

  b. Loan to value ratio shall vary by the size of the loan as outlined below:

Loan Amount	Maximum LTV
Up to Nu. 50 million	70%
More than Nu. 50 million	60%

- LTI to assess the repayment capacity of borrowers

vi. Debt to Equity Ratio

- This regulation is intended to ensure that borrowers have adequate financial interest in the project. In addition, it aims to contain the credit risk by way of limiting lending exposure of the financial institution to the project.
- "FIs will not finance more than three-fourths of the cost of the project, and the borrower should be required to finance the remaining one-fourth of the project cost from primary sources

vii. Restriction on distribution of Profit

- To protect interest of small deposit holders the institution shall have capital adequacy ratio(CAR) of at least 12.5% (including the capital conservation buffer) for preceding two completed years, Core Capital ratio of 7.5% (including capital conservation buffer) for preceding two completed years and the net NPL ratio less than 5% for the year

In 2015 we implemented Macro Prudential Regulation on Disclosure Requirements with regards to Tier 1 and Tier 2 Capital, Risk Weighted Assets, Capital Adequacy Ratios, Loans by sectoral classification, Gross NPL by sector and category, Maturity pattern of Assets and Liabilities, Provisioning and interest in suspense against NPL by category and Equity and other investment.

That specifies forms and content of the information that financial institutions will disclose at regular intervals to ensure a higher degree of transparency

i. Quantitative & Qualitative Disclosure

- This regulation specifies the form and content of information that financial institutions shall disclose at regular intervals to ensure a higher degree of transparency. This would enable all stakeholders to take informed decisions with regard to their financial activities.

ii. Quarterly Disclosure

- Shall be disclosed every quarter on the financial institution's website, within 45 days of the end of a quarter.

Country Paper on Macro-prudential Policies - RBI - India

Abstract

This paper[1] gives an overview of the prevalent framework including the usage of tools of the macro-prudential policy in general and of India in particular. This papers brings forth the institutional arrangements for financial stability in India, both pre and post the crisis. Prior to the crisis, no agency was explicitly granted a mandate for financial stability though the Reserve Bank acted as the implicit systemic regulator. Post crisis, institutional arrangements have been strengthened with the setting up of an inter-agency Financial Stability and Development Council (FSDC) and a sub-committee of FSDC. Further, it attempts to present the lessons emanating from India's experience with operationalizing a macro prudential policy framework, especially with regard to some of the major emerging questions – signal extraction, use of rules versus discretion in policy making, coordination with other policy segments (primarily monetary policy), assessing the impact of the policy measures, etc. It then touches upon some of the challenges, viz. developing a framework for systemic risk assessment, assessing and plugging data gaps, and also focus on the challenges for extending the scope of macro prudential policy beyond the financial sector to the corporate sector, specifically for managing risks arising out of corporate leverage and capital flows.

In India, we have a relatively long history of experience with conduct of macro-prudential policy. The Reserve Bank has, over the years, attempted to address systemic risks in both its dimensions – the time dimension or pro cyclicality, and the cross sectional dimension – within a macro-prudential framework. The paper reviews India's experiences/experiments with macro prudential policy prior to the crisis, during the crisis and more recently, the experience of using countercyclical policy to address the challenges posed by a sharp increase in volatility of exchange rates together with a heightened external deficit. The use of macro-prudential policy in India has been extensive and multi-faceted – spanning the banking and non-banking financial sector; addressing asset price spirals and credit booms;

[1] Sourced from speeches of Mr. Anand Sinha and Dr. K.C. Chakrabarty, Deputy Governors, RBI and regulatory instructions issued by the Reserve Bank from time to time.

encompassing capital flows and systemic liquidity management; dealing with large and complex financial institutions; calibrating the development of the OTC derivative markets; and tackling interconnectedness in the banking and financial sector and between the financial and the real sector.

The experience of the Reserve Bank in implementation of the macro prudential policies so far has been enriching. Macro-prudential policy has its own limitations, especially in emerging markets. There are risks of macro-prudential policy being over-applied – they are not a panacea for all evils nor a sure shot recipe for financial stability. There are also risks of making macro-prudential policy too narrow in focus. It would be important for policy makers to clearly understand what macro-prudential policy can do and what it cannot do. For example, it would be unrealistic to expect macro-prudential policy to successfully affect aggregate demand in the economy or influence economic cycles. Again, macro-prudential policy cannot directly address asset price bubbles. It can, at most, enable the economy and the financial sector to weather the impact of a disorderly fall in asset prices. The experience in India so far suggests that macro-prudential policy is best suited to improving the resilience of financial institutions to shocks.

In emerging markets, the implementation of macro-prudential policy will need to additionally factor in the risk of stifling growth potential. A general trend of high credit growth may not, by itself, be a matter of systemic concern in an emerging market. A case in point is the calibration of the countercyclical capital buffer (CCYB). The BIS has suggested the use of credit-to-GDP as the primary metric. While the credit-to-GDP gap is being used for empirical analysis to facilitate CCB decision for banks in India, it is not the only reference point and is used in conjunction with other indicators as well.

1. An Overview of State of Macro-prudential Policies

Macro-prudential policy is defined primarily as the use of prudential tools to limit systemic risk. Systemic risk has been defined as "the disruption to the flow of financial services that is caused by an impairment of all or parts of the financial system; and has the potential to have serious negative consequences for the real economy" (BIS, et al., 2009). Systemic risk assessment involves two dimensions viz., vulnerabilities related to the build-up of risks over time (time dimension), and vulnerabilities from the distribution of risk within the financial system at any given point in time (cross-sectional or structural dimension). Macro prudential policies aim to contain distress to the entire financial system rather than distress to a single entity. Some of the features of the macro prudential policy include avoidance of macro-economic cost such as expensive bail-outs rather than necessarily protecting the depositors of an individual bank, working on the assumption that at least some of the risks faced by the banking system as a whole differ from those faced by an individual bank and examination of risks that arise from interaction of banks as a part of the financial system rather than on a bank by bank basis.

The macro prudential policy at the RBI has developed organically from micro-prudential regulation and supervision, and the same internal processes are used for decision making purposes. The objectives have been to increase the resilience of the financial system to aggregate shocks by building and releasing buffers that help maintain the ability of the financial system to function effectively, even under adverse conditions; to contain the build-up of systemic vulnerabilities over time by reducing procyclical feedback between asset prices and credit and containing unsustainable increases in leverage, debt stocks, and volatile funding; and to control structural vulnerabilities within the financial system that arise through inter-linkages, common exposures, and the critical role of individual intermediaries in key markets that can render individual institutions "too-big-to-fail".

One of India's early experiments with macro-prudential policy was aimed at countering the impact of fluctuations in interest rates on banks' marked to market profits. In the early 2000s, banks were enjoying profits from falling interest rates. To prepare banks to counter the impact of rising interest rates on treasury profits when the monetary cycle reversed, RBI asked banks to build-up an investment

fluctuation reserve (IFR) up to at least 5% of their investment portfolio by transferring the gains realised on sale of investments within a period of five years. The IFR was allowed to be drawn down when the interest rate cycle turned and treasury incomes started falling. The prescription was withdrawn once the capital charge for market risk was introduced. In the meanwhile, the IFR enabled banks to maintain stable capital adequacy and ensured that a cushion was built-up during "good times", which was then used to "buffer" the not-so-good times. RBI's early countercyclical policies have focused on banks due to the centrality and criticality of the banking system in the Indian economy. These policies have aimed at increasing the resilience of the banking system. The instruments used have been time varying risk weights and provisioning norms on standard assets for certain specific sectors wherein excessive credit growth, in conjunction with sharp rise in asset prices, has caused apprehension of potential build-up of systemic risk and asset bubbles. In the process, the policies have "leaned" against the wind and have had the desired effect of moderating the credit boom in the specified sectors both through signalling effect and affecting the cost of credit. Evidence, though limited, suggests that the leaning against the wind has been more effective in dampening the lending exuberance in the boom phase than in the downturn in ensuring a stable credit supply. Several measures have also been taken to reduce the inter-connectedness among banks on the one hand and between banks and NBFCs on the other, and limits have been placed on common exposures to address the cross-sectional dimension of systemic risk.

The Reserve Bank has adopted a sectoral approach to regulation when it enhanced the risk weights and provisioning requirements on select sectors in Dec, 2004. The Reserve Bank has put in place regulatory prescription limiting a bank's investment in the capital instruments of another bank/financial institution to 10% of its capital funds and 5% of the investee bank's equity; regulatory caps on capital market exposure, and LTV for real estate and gold business. The Reserve Bank has also implemented the Countercyclical Capital Conservation Buffer to enable the banks to build up buffer during good times which can be used to maintain flow of credit to the real sector in difficult times. Therefore, it could be argued that the Reserve Bank has played a very proactive role in macro-prudential regulation and

supervision of the Indian economy which has ushered in high level growth apart from bringing in financial stability and overall confidence in the system.

2. Institutional Arrangements for Macro-prudential Policies

Given that (a) the financial system in India is bank dominated, (b) the RBI regulates both banks and other types of financial institutions performing bank like functions and (c) the RBI being the central bank of the country is also the lender of last resort, macro-prudential policies are mainly set within the RBI. However, there could be some issues warranting intervention of other regulators pertaining to capital markets (SEBI), pension sector (PFRDA) and the insurance sector (IRDAI). Therefore, an institutional framework for co-ordination among the different regulatory agencies has been put in place in 2010 in the form of Financial Stability and Development Council (FSDC) - Chaired by the Finance Minister and its Sub-Committee (FSDC-SC) – Chaired by the Governor, Reserve Bank of India vide a government notification dated December 30, 2010 in the Gazette of India. The Council and the Sub-Committee is assisted by four technical groups. These technical groups are also inter-regulatory bodies.

The Financial Stability and Development Council (FSDC) is an apex level forum for maintaining financial stability, enhancing inter-regulatory co-ordination and promoting financial sector development. The FSDC is chaired by the Union Finance Minister and its members include the heads of all financial sector regulators and key representatives from the Ministry of Finance. The FSDC is assisted by a Sub-Committee (FSDC-SC), which is chaired by the Governor of the RBI. The Technical Groups set up by the sub-Committee provide focussed attention to specific areas viz., inter-regulatory issues; financial inclusion and literacy; monitoring, early warning exercise and supervision of financial conglomerates. Together these institutional structures provide a formal platform for information sharing on macro-prudential risks across financial system. These fora also serve as converging point for flagging systemic risk factors for possible mitigating actions. The above framework also provides for co-ordination among regulators and the Government. An Inter-Regulatory Forum (IRF) for monitoring of Financial Conglomerates (FCs) was set up in 2013 by the Sub-Committee. The IRF is entrusted with formulating the criteria for identifying FCs. 12 FCs have been

identified of which five are bank-led groups. The IRF oversight mechanism involves a combination of off-site data reporting by the FCs and face-to-face interaction between regulators and key personnel of FCs. Further, a Memorandum of Understanding (MoU) was signed by the financial sector regulators RBI, SEBI, IRDAI & PFRDA in March 2013 to forge greater cooperation in the field of consolidated supervision and monitoring of financial groups identified as FCs.

However, there is at present no single authority or body that is explicitly tasked with macro prudential policy for the financial system as a whole. The FSDC is a forum for enhancing inter-agency coordination for financial stability, but it does not have legal underpinnings and has a broader mandate that includes financial sector development and inclusion. Setting regulatory policy is done by individual regulatory authorities. The Reserve Bank has a legal mandate to secure monetary stability, but since 2004 it has voluntarily included financial stability as an additional objective in view of its contribution to the conduct of monetary policy and to price stability.

3. Operational Consideration of Macro-prudential Policies and their Implementation

In India, we have a relatively long history of experience with conduct of macro prudential policy. The Reserve Bank has, over the years, attempted to address systemic risks in both its dimensions – the time dimension or procyclicality, and the cross sectional dimension – within a macro prudential framework. Policies to counter procyclical trends through pre-emptive countercyclical provisioning and differentiated risk weights for certain sensitive sectors were adopted in 2004, during the expansionary phase of the economy. The experience with the policies to address interconnectedness in the financial system is relatively longer. India has put in place a framework for closer monitoring and supervision of large and potentially systemically important financial institutions/groups – termed FCs – in 2004, well ahead of the post crisis global initiatives. Evidence of India's experience with macro prudential measures also spans certain concerns specific to emerging markets, notably its approach to capital account management.

a) Countercyclical Measures

The Reserve Bank experimented with the imposition of countercyclical measures in the early 2000 when it asked the banks to build-up an investment fluctuation reserve (IFR) up to at least 5% of their investment portfolio by transferring the gains realised on sale of investments within a period of five years so as to enable these banks to counter the impact of rising interest rates on treasury profits when the monetary cycle reversed. The IFR was allowed to be drawn down when the interest rate cycle turned and treasury incomes started falling. The prescription was withdrawn once the capital charge for market risk was introduced. In the meanwhile, the IFR enabled banks to maintain stable capital adequacy and ensured that a cushion was built-up during "good times", which was then used to "buffer" the not-so-good times.

The countercyclical policies of the Reserve Bank have primarily focused on banks as India has a bank dominated financial market. These policies have aimed at increasing the resilience of the banking system. The Reserve Bank has mainly used instruments like time varying risk weights and provisioning norms on standard assets for certain specific sectors wherein excessive credit growth, in conjunction with sharp rise in asset prices, has caused apprehension of potential build-up of systemic risk and asset bubbles. They were used against a macroeconomic backdrop which provided evidence of disproportionately higher growth to sectors such as housing, commercial real estate (CRE), retail and equity. When the correction set in, in the second half of 2008, some of these measures were relaxed, but tightening measures were re-introduced as growth began to recover. In the process, the policies have "leaned" against the wind and have had the desired effect of moderating the credit boom in the specified sectors both through signalling effect and affecting the cost of credit. Evidence, though limited, suggests that the leaning against the wind has been more effective in dampening the lending exuberance in the boom phase than in the downturn in ensuring a stable credit supply. Several measures have also been taken to reduce the inter-connectedness among banks on the one hand and between banks and NBFCs on the other, and limits have been placed on common exposures to address the cross-sectional dimension of systemic risk.

The Reserve Bank enhanced the risk weights and provisioning requirements on select sectors in Dec 2004. The tightening of prudential norms made the credit to targeted sectors costlier thereby moderating the flow of credit to these sectors. There is evidence that moderation in credit flow to these sectors was also in part due to banks becoming cautious in lending to these sectors on the signalling effect of RBI's perception of build-up of sectoral risks. For instance, these measures helped moderate the flow of credit to the commercial real estate sector (CRE).

The Reserve Bank once again increased the standard asset provisioning requirements for CRE. Also, a system wide provision coverage ratio of 70% of gross non-performing advances was prescribed with a view to building-up a buffer (surplus of provisions over specific provisions) so that the same could be used by banks for making specific provisions for non-performing assets during periods of downturns. Several other measures, viz. introduction of a cap on LTV ratios and higher risk weights for large housing loans and higher standard asset provisioning for "teaser" housing loans, were introduced in 2010, but the focus of these measures was largely micro-prudential. The Reserve Bank also implemented capital conservation buffer and countercyclical buffer as part of implementation of Basel III accord.

b) Policies for Cross dimensional risks

The Bank has taken several measures to address systemic risks arising out of interconnectedness amongst banks, between banks and non-banking financial entities and from common exposures. These measures which have, over time, been built into the prudential framework for the financial sector, *inter alia*, include:

- prudential limits on aggregate interbank liabilities as a proportion of net worth;
- restriction of access to the un-collateralised funding market to banks and primary dealers with prudential caps on lending and borrowing;
- limiting a bank's investment in the capital instruments of another bank/financial institution to 10% of its capital funds and 5% of the investee bank's equity;
- limits on banks' exposure to NBFCs;

- With effect from June 30, 2017, all unrated claims on corporates, AFCs, and NBFC-IFCs having aggregate exposure from banking system of more than INR 200 crore would attract a risk weight of 150%.
- stringent prudential regulations for NBFCs;
- capping banks' investments in liquid schemes of debt-oriented mutual funds as a proportion of net worth;
- restriction on banks' exposure to capital markets to 40% of net worth, on solo and group basis;
- close monitoring of banks' exposures to sensitive sectors;
- limits on overseas borrowings by banks, other than for lending for exports (banks' open foreign exchange position are also subject to prudential caps in relation to capital funds);

- requirements for banks to hold a minimum of 23% of their net demand and time liabilities in the form of liquid domestic sovereign securities (this stipulation has worked both as a solvency as well as a liquidity buffer); and
  - not allowing profits on sale of assets under securitisation to be recognised immediately but over the life of the pass through certificates, thereby curtailing the "originate and distribute" model.

c) Monitoring Financial Conglomerates (FCs)

The Bank have subjected the FCs in India to more intensive supervisory oversight since 2004. FCs are entities with significant presence in more than one financial sector segment – banking, insurance, mutual fund, non-banking finance and pension. The supervisory process focusses on management of group-wide risks, intra-group transactions and corporate governance. It relies on offsite surveillance, regular interface with the management of the FC and periodic reviews by a college of supervisors. With the setting-up of the FSDC, an Inter-Regulatory Forum for Monitoring the FCs (IRF-FC) has been set-up. There are prudential regulations for group capital adequacy, exposure limits and intra-group transactions for the bank-led FCs. However, a differentiated prudential framework for FCs was not considered necessary as the financial system in India was (and continues to be) considerably less complex than in most developed markets and most complex,

structured, products are either not allowed or are regulated. RBI has identified two banks viz., SBI and ICICI as domestic systemically important banks (D-SIBs).

d) Framework for Managing Capital Account

Management of the capital flows is one of the dilemmas faced by the central banks in general and central banks of the emerging markets in particular due to their absorptive capacity. More so, when the world has become highly interconnected. Therefore, like all other central banks, the Reserve Bank has also put in place capital flow measures to regulate/limit capital flows. India's approach to capital account management, both pre and post crisis, as also the measures taken ore recently in the wake of exchange rate volatility, reflects the broad underpinnings of systemic risk management. The efforts are aimed at moving beyond addressing only the exchange rate and putting in place a framework which provides sufficient space and instruments for modulating policy to the different characteristics of capital flows, viz. procyclicality and implications for banks, corporates and the sovereign. The salient elements of this framework include:

- an explicitly stated active capital account management framework, based on encouraging non-debt creating and long term capital inflows and discouraging debt flows;
- developing the policy space to use multiple instruments – quantitative limits, price-based and administrative measures, particularly for foreign currency borrowing by corporates;
- short-term debt permitted only for trade transactions;
- avoiding the "original sin" of excessive foreign currency borrowings by domestic entities, particularly the sovereign;
- prudential regulations to prevent excessive dollarisation of balance sheets of financial sector intermediaries, particularly banks;
- cautious approach to liability dollarization by domestic entities; and
- significant liberalisation of permissible avenues for outward investments for domestic entities.

Capital account measures taken by the Reserve Bank in the wake of the announcement of an imminent start to tapering of asset purchase by the Federal

Reserve were, however, largely a response to the exchange rate volatility from end May 2013 onwards. These included direct administrative measures aimed at reducing capital outflows and incentivising capital inflows as also measures for tightening liquidity in the domestic markets through the interest rate and the quantity channels. When the adverse spill over of these policies in the domestic markets, particularly debt market, became evident, RBI announced an array of regulatory dispensations to protect the banks' bottom lines – measures which were largely macro-prudential in their orientation.

The countercyclical approach adopted by India was cited as one of the prime factors that kept the Indian financial system in good stead even when the global economy was in turmoil. However, the Indian approach was less objective and was more based on judgment than on sound fundamentals such as determination of the economic cycles, assessment and measurement of the build-up of systemic risk and also the effect of the stance of other public policies like monetary policy, fiscal policy etc., on the risk taking behaviour of the financial sector. Since the development of a framework is in infancy, RBI's methodology has not been based on extensive statistical analysis or modelling or on determination of build-up of asset bubbles. It is largely judgmental based on trends in aggregate credit and sectoral credit growth in the macro-economic settings. For this reason, it has not been rule bound which will require either some model or at least some measurement of systemic risk and its sensitivity to the prudential parameters. Some evidence from the Annual Financial Inspection / Risk Based Supervision (RBS) of banks carried out by RBI, together with market intelligence on possible loosening of underwriting standards due to aggressive lending, was also factored in.

4. Financial Stability Analysis

As part of macro-prudential surveillance, the Reserve Bank monitors developments in various areas like macro, market, regulation among others to look for any sign of vulnerability which may have consequential negative influence on the financial stability and study their potential impact. For early detection of vulnerabilities building-up in the system which may threaten the stability of Indian financial system, the Reserve Bank uses two broad sets of tools, namely, indicators and stress tests:

Indicators: RBI has been using a variety of stability maps and indicators to assess trends in risk dimensions of various aspects of the macro financial system – the banking sector, the macro economy, financial markets, the corporate sector, etc. Stability indicators and maps represent coincident indicators of systemic stress in the financial system. They are constructed by aggregating information from different segments of the overall financial system and encapsulating the information in a single statistic which measures the current state of instability in the financial system. Each of these indicators is based on contemporaneous developments in different risk factors. A systemic liquidity indicator has also been developed to gauge the degree of stress in domestic liquidity conditions and to establish time frames for potential extreme events. Banking stability measures, a cross-sectional econometric framework, capture the distress dependencies among financial firms using stock price data and attempt to estimate the contribution of individual firms to systemic risk. A banking stability index is calculated, which captures the expected number of banks to become distressed given that at least one bank has become distressed. Separate toxicity and vulnerability indices capture distress between specific institutions while the cascade effect attempts to measure the distress in the system associated with the distress of a specific institutions. This method is also being used for estimation of expected shortfall of assets of banking system in response to a large negative shock.

During recent time, monitoring the performance of the corporate sector has become crucial as this may impact the growth of the domestic economy as well as the health of the financial system. The tail risk analysis on the corporate sector is performed using 'debt-at-risk' concept which estimates the debt of companies which may be weak in terms of debt servicing capacity (interest coverage ratio < 1) and / or leveraged (debt to equity ratio > 2). While doing these analyses, special emphasis is given to important episodes/ events taking place in the global as well as domestic arena, like, Brexit referendum, US election, withdrawal of legal tender status of specified bank notes in India. On the other hand, composite indicators, namely, corporate stability indicator and banking stability indicator, provide a view on the overall risks in the sector and also their relative movement overtime and across the major dimensions of the sector.

The Reserve Bank conducts stress test for both time as well as cross section dimensions of systemic risk:

a) Time dimension: Time dimension aspect of assessment of systemic risk analysis is primarily undertaken through single factor sensitivity analysis and scenario analysis. Single factor sensitivity analysis is conducted at system as well as bank level for a group of 60 scheduled commercial banks (SCBs) which comprise 99 per cent of total banking sector assets. This analysis covers credit risk, credit concentration risk, sectoral credit risk, interest rate risk, foreign exchange risk, equity price risk and liquidity risk.

b) Cross-section dimension-contagion risk: The cross-sectional dimension / the contagion risk of financial institutions is assessed through 'Network Analysis' which facilitates an analysis of the complex relationships between various components of the financial sector as well as amongst the individual entities. It has facilitated identification of banks or other entities which are most important in terms of interconnectedness and whose failure could pose systemic risks. It has also enabled better understanding of potential shock transmission processes during times of liquidity or solvency stress. The analysis has also been deepened to look into specific kinds of interconnections in the short and longer term; balance sheet and off balance sheet, etc. which facilitates a more granular understanding of relationships between financial sector participants.

c) Macro-Stress Tests: The macro-stress tests facilitates assessment of the vulnerabilities of the financial system against macroeconomic shocks. Current macro-stress tests cover the assessment of credit risk and the same is conducted for SCBs at system level, bank-group level and sectoral level.

Outcome of these stress tests are published in the Financial Stability Reports (FSRs) on half yearly basis and are also incorporated in an internal "Systemic Risk Monitor (SRM)" document which is prepared between two FSRs. Department of Banking Supervision (DBS) of the Reserve Bank is consulted prior to finalization of the FSR. Further, the FSR is submitted to the Central Board of RBI for their perusal and comments. Action, if any, suggested by the Board is considered for implementation by the concerned department. The published outcomes are also

deliberated upon in the meetings of Board for Financial Supervision (BFS), a board level committee.

5. Problems and Challenges Faced in Formulating and Implementing Macro-prudential Policies

Framing of an appropriate macro prudential policy is dependent on the outcome of the assessment of the vulnerabilities of the system as a whole during the course of macro prudential surveillance of the system. Macro prudential surveillance involves addressing the vulnerabilities using mainly three lines of defence viz., by removing the threats to financial stability by identifying them in advance and mitigating them, maintaining a sound system by enhancing presence of sufficient buffers and a robust infrastructure and seeking to curb risks in such a way that the financial system is disrupted as little as possible.

RBI's experience with macro prudential oversight has been largely based on policy judgement. It is now clear that an effective and formal framework for macro prudential oversight requires both analytical sophistication and good judgement. Policy makers need to be able to assess the nature and extent of risk and be able to make informed judgement on when macro prudential polices should be activated and which tools should be used. RBI has been making efforts to develop an analytical framework for the assessment of systemic risks in recent years. Some of the challenges are as under:

a) The challenges in framing macro prudential policy involves the need to develop more sophisticated stress testing techniques that can take into account the second and third round effects of macro-economic shock. This would require constructing scenarios for outlook on GDP, interest rate, etc., but also development of advanced modelling techniques and analytical framework.
b) Post crisis, especially in an environment of low interest rates and abundant global liquidity, corporate leverage has gone-up substantially even while the banking system leverage has been curtailed due to the regulatory reforms.
c) The importance of policy coordination is critical for the success of macro prudential policy. There are challenges associated with ensuring some degree of coordination between monetary and macro prudential policies, while ensuring the independence and credibility of monetary policy. These

challenges could be further accentuated in emerging markets like India where monetary policy often needs to factor in considerations of growth and development along with financial stability.

d) Another challenge involves integration of banking supervision with that of macro prudential surveillance. While the banking supervision ensures soundness of the individual entities, the macro-prudential surveillance is concerned with the system wide risks. Though both of them look different, they do overlap.

e) Today's globalised world has made macro prudential surveillance more challenging as the most of the economies are undertaking surveillance on a standalone basis rather than factoring the spill over effects of their actions. This assumes the need to have more co-ordinated and coherent globalised framework.

f) World economic order has become uncertain. Therefore, there is a need for making allowance for this volatile uncertainties. Calibrating macro prudential tools is challenging in the face of uncertainty over the transmission of macro prudential tools. To do this effectively, there is a dire need to have an accurate statistical data. A major hindrance for stress testing is the availability of appropriate data, which is more restrictive because, it supposed to be capturing both direct and indirect sources of systemic risk amplification and how such amplification mechanisms change their structure, as well as the speed of risk propagation under shocks. This problem of unavailability of appropriated data is even bigger in the case of developing country like India. It is also needless to say that putting in place a data collection and compilation system of international standard involve huge financial and skilled human resources. However, the data also comes with some major limitations[2], like;

- High degree of noise which may overestimate or underestimate risks, often without any relation to financial entities' fundamentals.
- It is available mainly for listed entities - depth and breadth of the market may not be enough to make market data informative (especially in developing countries).

[2] IMF-LSE Study

- Market prices, in theory, embed forward looking information on market expectations that can change in a day. However, market data primarily reflects the outcome of behaviour by market participants, not the information that influence them when they took their decisions. Therefore, any signal may come too late for policymakers to react.

g) Since, systemic risk amplification mechanisms are diverse, complex, and can change their structure and magnitude at different points in time, it is necessity to capture these characteristics so that models incorporate changes and provide a valuable assessment of risk during a crisis. This raises many challenges for while capturing systemic risk;

- Models must be designed to provide information conditional on a current crisis even though crises, in general, are infrequent and thus contribute little to the statistical relationships drawn from historical data.
- Financial systems have experienced significant structural changes over the past few years which make past relationships less reliable benchmark for estimating or calibrating models.
- This impact of systemic shocks are not linear in general which makes model error is substantial.
- It is not only about the possibility of one agent's model is wrong and can lead to unfavourable outcomes for the agent, but more crucially, to the resulting risk of financial instabilities at the system level arising from the use of such wrong financial models.

h) **Other Challenges:**

- Achieving strong governance, a key to success of implementation of the macro prudential policy, is difficult to achieve.
- Biases in favour of inaction over action are compounded by financial lobbying, political interference and public opposition.
- Communication challenges arise even as some elements (e.g., periodic reports, etc.) can be borrowed from monetary policy frameworks.
- Macro prudential policies are prone to being be circumvented, both at the national level (boundary problem) and through cross-border arbitrage (leakage problem).

- Optimal level of regulatory discretion versus quantitative calibration (stress tests and other models).

6. Best Practices in Implementing Macro-prudential Policies

An effective and efficient implementation of macro –prudential policies depends on the availability of a robust framework. Some of the best practices for framework include the three models delineating the institutional framework for implementation of macro-prudential supervision.

- ✓ In the case of **Model 1**, the main macro prudential mandate is assigned to the *central bank*, with its Board or Governor making macro prudential decisions. This model is the prevalent choice where the central bank already concentrates the relevant regulatory and supervisory powers. Systemic risk assessment can bring together macro and micro-prudential expertise and fully exploit complementarities between top-down and bottom-up risk analyzes, e.g., in the approach to stress tests (Argentina, Russia, Switzerland, Brazil and Hong Kong).
- ✓ In case of **Model 2,** the main macro-prudential mandate is assigned to a *dedicated committee within the central bank*. This setup creates dedicated objectives and decision-making structures for monetary and macro prudential policy, and can help counter the potential risks for dual mandates of the central bank (Malaysia, Saudi Arabia, UK, South Africa).
- ✓ In case of **Model 3**, the main macro-prudential mandate is assigned to an interagency *committee outside the central bank*, in order to coordinate policy action and facilitate information sharing and discussion of system-wide risk, with the central bank participating on the committee (as in France, Germany, Mexico, India and the U.S.).

A comparative position of usage of the macro-prudential tools have been compiled and placed as under:

Major Macro-prudential Tools - Comparative Position[3]

Tools	AEs	EMDEs
Countercyclical capital buffer	European Union; Hong Kong SAR; Iceland; Norway	Czech Republic, **India**
Dynamic provisioning requirement	Spain	Uruguay; Peru; Bolivia; Colombia; Mexico; Chile
Sectoral capital requirements	Australia; Hong Kong SAR; Ireland; Israel; Korea; Norway; Spain; Switzerland	Argentina; Brazil; Bulgaria; Croatia; Estonia; **India**; Malaysia; Nigeria; Peru; Poland; Russia; Serbia; Thailand; Turkey; Uruguay
Loan-to-value Ratio (LTV)	Canada; Estonia; Finland; Hong Kong SAR; Ireland; Israel; Korea; Latvia; Lithuania; Netherlands; New Zealand; Norway; Singapore; Sweden	Brazil; Bulgaria; Chile; China; Colombia; Hungary; **India**; Indonesia; Lebanon; Malaysia; Poland; Romania; Thailand; Turkey
Debt-service-to income ratio (DTI) or loan- to income ratio (LTI)	Canada; Estonia; Hong Kong SAR; Ireland; Korea; Lithuania; Netherland; Norway; Singapore; UK	China; Colombia; Hungary; Malaysia; Poland; Romania; Thailand

[3] IMF-LSE Study

Macro-prudential Policy in Nepal: Status and Challenges

1. Background

Maintaining price and financial sector stability is the primary domain of central banks worldwide. While price stability is being a sole agenda since long, the role of maintaining financial stability was heightened recently in the aftermath of global financial crisis (GFC) of 2008. Financial stability was generally understood with the prudential regulation and supervision of individual institutions on the foundation in New Keynesian models such that price stability helps keeping economic output around its natural level (IMF, 2015). Nevertheless, the understanding on the financial stability mandate and strategies has been redefined post GFC.

The lessons of GFC havepushedmany central banks to develop a comprehensive framework of policy that focuses on containing systemic risks for addressing the stability of the whole financial system through formulation of macroprudential policy. The primary objective of macroprudential policy is limiting financial system risk such that financial systems function smoothly without seriously affecting the real economy. As defined by IMF (2011), it focuses on three premises: first, controlling on the build-up of financial imbalances; second, set the mechanisms that contain the speed and sharpness of any financial turmoil and its impact to economy and third, identify and address the factors of financial instability such as exposures, risk concentrations, interconnectedness as well as interdependencies. Thus, the mandates for macroprudential policies are being heightened substantially in the growing range of financial jurisdictions (CGFS, 2012).

In line with the global developments, Nepal Rastra Bank (NRB) has also introduced number of macroprudential policies. It is believed that NRB has been successful for developing a resilient financial system due to the fact that Nepal has not suffered from a serious financial distress from the GFC and asset price bubbles. The financial system was able to withstand firmly due to the effective policy mix of both monetary and macroprudential policies. In contrast to this, the efficiency and effectiveness of those policies may be limiteddue to the various issues and challenges emerge in Nepalese financial system

In this milieu, this paper aims to discuss on the macroprudential policy tools available, the tools enforced by the NRB and compares them with the international best practices. The next chapter discusses the status of macroprudential policy in Nepal, chapter three portrays the institutional mechanisms set and chapter four the operational considerations. Chapter five analyzes the financial stability indicators, chapter six the international best practices and experiences of macroprudential policy makings and implementation. At the end, the paper elucidates the issues and challenges related to macroprudential policy in Nepalese context.

2. State of Macro-prudential Policies in Nepal

In the history of banking regulation, Basel committee on banking supervision (BCBS) plays a key role globally. It has been developing number of measures such as the Basel Core Principles for Effective Supervision, Capital Accord, 1988; New Framework 2004; Basel-II and New Framework 2012; Basel-III, among others,for the banking regulations worldwide. Among these, macroprudential components are the additional pillars under the new frameworks. The BASEL-III has focused on strengthening liquidity coverage, introduction of capital buffer (counter cyclical and capital conservation buffers)and higher capital requirements for systemically important domestic as well as foreign banks.

PrecedingBasel III, the G20 summit initiated "Washington declaration of the summit on financial markets and the world economy" on November 2008 in the aftermath of GFC. The focus of the summit was to overhaul the reforms to strengthen the financial markets and regulatory regimes so as to avoid future crises (Kanbur, 2008). The key insight was the emphasis on the need of macroprudential policies. The summit provided a consensus on the common agenda for coming out from the crisis

The increased importance of macroprudential policy is felt after 2009in Nepal. Despite the low impact of GFC (due to the low global financial integration and closed capital accounts), the country witnessed real estate bubble in 2008/09. NRB issued a set of prudential measures aimed at containing credit and liquidity risks in the licensed Banks and Financial Institutions (BFIs) between 2009 and 2011. For instance, NRB imposed a moratorium on bank license in July 2009, and it was partially lifted in April 2010 only for the class D microfinance banks. Similarly, Single obligor limit and real estate loan exposure limits was enforced, loan-to value ratio was lowered and credit to deposit ratio was introduced. Likewise, the paid-up capital needed for the BFIs was increased. The policy steps taken by NRB were largely applauded by national and international authorities, as the bank was successful in averting the bubble and post-GFC turmoil in the financial system.

NRB has adopted number of measures time and again motivated by either domestic context or as per the regulatory advice of the BASEL. The primary macroprudential measures of NRB are presented in Table 1.

Table 1: Status of Macroprudential Policies in Nepal Rastra Bank

SN	MPP	Status	Remarks
1.	Loan to Value Ratio	Yes	
2.	Limits on Lending-Single Obligor Limit	Yes	
3.	Debt to Income Ratio	No	
4.	Limits on FC lending	Yes	
5.	Limits on Maturity Mismatch	Yes	CCD Ratio
6.	FC Mismatches	Yes	
7.	Liquidity Tools	Yes	CRR, SLR
8.	Stress Testing	Yes	

9.	Early Warning System	No	
10.	Risk Based System	Yes	
11.	Capital standard	Yes	CAR, CCB1
12.	Countercyclical element	Yes	CCB2
13.	Dynamic provision element	No	
14.	Control over dividend	Yes	
15.	Minimum equity capital requirement	Yes	
16.	Restriction on interconnectedness	No	
17.	Restriction on credit to risk takers	Yes	
18.	Clear macro prudential policy objective approved	No	
19.	Deposit Insurance	Yes	
20.	Identification of SIFIs	No	

Generally, systemic risk in the financial system has two dimensions: cross sectional and time dimensions (IMF, 2011). In the cross sectional dimension, the analysis is on how risk is distributed in the financial system at a given point of time. Such risk generally arises from the interconnectedness and contagion between financial institutions. On the other hand, time-series dimension involves how the aggregate risk evolves over time indicating the pro-cyclical behavior of the financial system. In case of NRB, measures for time dimensions are observed but cross-sectional dimensions is absent. For example, identifying systemically important financial institutions (SIFIs) and containing shadow banking.

NRB has fully enforced BASEL III simplified standardized approach since July 2016 to all the commercial banks, which will gradually be implemented till 2019. Likewise, in 2015 July, NRB increased the minimum paid-up capital requirement for BFIs by at least four fold to be completed in 2017 July.Besides the regulatory framework, stress testing, prompt corrective actions (PCA), consolidated supervision and risk based supervisory mechanism are some of the key tools put in place by NRB.

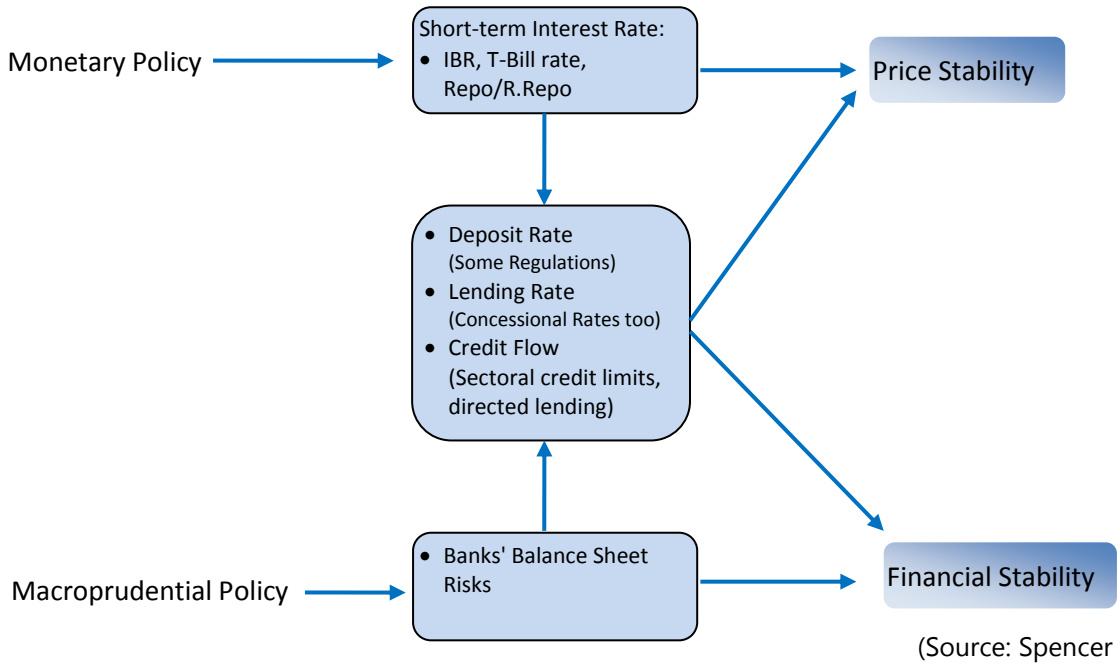
The strengthening of legal capacity is a key area of reform to enforce the macroprudential policy. Thus, recent amendment in the NRB Act 2002 (Second Amendment 2016) has mandated NRB on maintaining financial stability, enhanced the existing supervisory power to banking resolution and also provisioned measures for strengthening governance in the financial system. Likewise, the issuance of the newBank and Financial Institutions Act (BAFIA) -2017 has further cleared the mandate of the NRB on banking resolution, introduced additional measures for the board of directors and CEOs of the BFIs to ensure the corporate governance, among others. These all measures are expected to ensure the financial stability.

Besides these all, the merger and acquisitions process is expedited further with many smaller and problem banks being either merged and/or acquired by stronger ones. As a part of strengthening financial infrastructure, a separate "Payment Systems Department" has been formed and establishmentfor "state of the art" payment and settlement infrastructure are under way. Furthermore, credit rating, credit information and debt recovery processes are being streamlined and strengthened further. In addition, a comprehensive "Financial Sector Development Strategy (FSDS) 2017-2021" was formulated recently. The vision of FSDS is "An

Effective, efficient, inclusive and stable financial sector contributing to broader economic growth" (MoF, 2017). The due implementation of such strategy would help in policy coordination with various financial regulators, thereby increasing the effectiveness of macroprudential policy.

NRB is also cautious in the possible policy coordination to address the policy overlaps and neutralizations. Thus, interactions of monetary and macroprudential policy are also viewed equally important for ensuring both price stability and financial stability objectives. The consideration for the possible interactions and coordination between the macroprudential and monetary policy is also cautiously being taken care of. The framework of coordination and interactions is presented in Figure 1.

Figure 1 : Monetary Policy and Macroprudential Policy Interactions



(Source: Spencer (2012)

Hence, even if monetary policy and macroprudential policy has different tools in place, these both affect both central bank objectives: price and financial sector stability.

3. Institutional Arrangements for Macroprudential Policies in Nepal

Designing the effective institutional arrangements for macroprudential policy needs to address the composition of a macroprudential authority, mandates, powers and mechanismsfor ensuring accountability and communication as well as mechanisms for ensuring domestic and international policy coordination.

The NRB Act 2002 provides operational independence to the NRB for banking regulation, supervision as well as well ensuring financial stability. Likewise, Bank and Financial Institutions Act (BAFIA)- 2017 lays down the framework for BFIs' incorporation, operation and resolution mechanisms. Based on the NRB Act and the BAFIA,NRB issues circulars and guidelines in the due course.

Thus, the onus of formulating and implementing macroprudential policy is on NRB. But the NRB does not have aseparate macroprudential department or unit for policy formulation and implementation. The ultimate authority for formulating monetary as well as macroprudential policy is the NRB board. The policy is implemented through BFIs regulation and supervision departments. These departments enforce and ensure the compliance of the policies.

NRB with consultation to Government has formed three committees for ensuring financial stability in the country. Those are discussed in the sections below.

a) Financial Stability Sub Committee (FSSC)

Formed in 2012 September,FSSC is a separate unit of BFIs Regulation Department led by Director Level. The unit is composed with representatives of all supervision departments, Research department and Foreign Exchange Management department. The major roles and responsibilities of the FSSC are:

- Prepare financial soundness indicators (FSI),
- Prepare Financial Stability Report (FSR) on semi-annually basis and forward it to the Financial Stability Oversight Committee for the approval,
- Collect the data and information from the relevant agencies including the NRBdepartments,
- Perform as a secretariat of the high level committee.

There is a Financial Stability Unit (FSU) in the BFIs Regulation department of NRB to work as the secretariat of the financial stability sub-committee.

b) Financial Stability Oversight Committee (FinSOC)

Formed together with the FSSC, a higher-level FinSOC is primarily responsible for the implementation of the policy related issues and publication of Financial Stability Report (FSR). The FinSOC is headed by senior Deputy Governor of the NRB and another Deputy Governor and Executive Directors of BFIs Regulation Department, all four Supervision Departments, Research Department and Foreign Exchange Management Department.

Director of BFIs Regulation Department is member-secretary. Likewise, Registrar of Department of Cooperatives, Chief Executives of Insurance Board, Security Board of Nepal and Citizen Investment Trust as well as Administrator of Employee Provident Fund also attendthe FinSOC as the invitee members. The committee can also invite two additional experts as members of the FinSOC.

The major roles and responsibilities of the FinSOC are as follows:

- Approve and publish FSR prepared by the NRB,
- Discuss on the financial indicators, policy related suggestions and semi-annual FSR,
- Submit the FSR to the Governor and take necessary steps in the implementation of the FSR,
- Direct the FSSCon thefinancial issues and provide necessary policy related directions to it,

The meeting of the FinSOC is being conducted at least once in every quarter.

c) Financial Sector Co-Ordination Committee (FSCC)

Financial Sector Coordination Committee (FSCC) is the highest national level committee chaired by Finance Ministeraimed for directing on macro-prudential policies and ensuring financial stability. The committee was formed for coordinating among the various regulators and facilitation by government in any issue to be resolved to prevent from financial crises. The committee comprises as follows:

Finance Minister	Chairperson
Vice Chairman of National Planning Commission	Member
Governor of the NRB	Member
Finance Secretary	Member
Revenue Secretary	Member
Chairman, Security Board of Nepal	Member
Chairman, Insurance Board	Member
Deputy Governor of the NRB	Member
Joint Secretary Financial Sector Management Division of Ministry of Finance	Member Secretary

Even if there are no legally defined roles and responsibilities, FSCC resolvesissues which cannot be solved by an individual regulator separately. The meeting is to be held on case by case basis.

4. Operational Consideration of Macroprudential Policies and their Implementation

Operational considerations of macroprudential policiescan be divided into three sub topics for the analytical purpose: i) analyzing and monitoring systemic risk; ii) identifying and establishing macroprudential policy tools; and iii) operationalizing the use of tools (IMF, 2016). Thus, we also analyze Nepal's operational consideration with these three broad categories.

i) Analyzing and monitoring systemic risks

The close monitoring and analysis of systemic risks is the major concern in macroprudential policies setting as it sets the stance of policy, enforcement and relaxation, among others. The NRB is applying a framework for monitoring systematic risk and assess whether there is build-up of excessive risk taking behaviors in the Nepalese financial sector. The framework consists of many tasks including: (a) monetary survey compilation; (b) Balance of Payments statistics compilation; (c) price indices (CPI, WPI, SWRI) preparation; (d) liquidity monitoring and forecasting; e) close watch into the short-term and long-term interest rates; (f) monitoring of sector-wise and product-wise credit flow; and (g) onsite and offsite supervision of BFIs.

The framework helps to assess the build-up of risksand closely monitor number of areas such as: (a) the contagion effect of growth on total credit or asset prices to overall economy; (b) sectoral vulnerabilities arising from growth of excessive credit to certain sector, for example, from growing credit to real estate, households sector, corporate sector; (c) vulnerabilities from changes in theremittance flow; (d) vulnerabilities from growing trade deficit; (e) vulnerabilities from excessive government savings, among others.

A number of early warning indicators are observed to assess vulnerabilities well before the emergence of stresses. As per the recommendations of BIS including CGFS (2016), NRB has also identified credit-GDP gap and growth in the mortgage debt as the most important early warning indicators. In addition, number of alternate indicators as a complements for identifying early warning signals are monitored. These include: Increase

in asset prices, market liquidity conditions, macroprudential stress testing, political changes, market interest rates, corporate earnings, supervisory information, changes in credit sectors and loan underwriting standards.

ii) Identifying and establishing macroprudential policy tools

The NRB has identified a range of both broad-based and sectoral tools. These include capital-based, asset-side/loan restrictions and liquidity-related macroprudential policy tools.

a) Capital-related policy tools

Under this tool, the NRB has implemented BASEL III in the commercial banks. It includes minimum common equity capital ratio, capital conservation and countercyclical buffers, leverage ratio and liquidity coverage ratio.

Commercial banks are required tomaintain minimum common equity tier 1 capital ratio of 4.5 percent from mid-July 2016. In order to enhance the risk absorption capacity of banks by strengthening the capital base, a provision has been made to maintain capital conservation buffer (CCB1) equal to 2.5 percent of total risk weighted assets. Instruments under common equity tier 1 capital will be used for such calculation. BFIs failing to maintain such buffer will be allowed to distribute profit only after allocating the necessary amount into the CCB1. Similarly, to minimize the adverse impact of pro-cyclicality in credit flow, a provision has been made to maintain an additional counter cyclical capital buffer (CCB2) up to 2.5 percentage points of total risk weighted assets. This is linked with the credit-GDP ratio status of individual institution.

In the shortfall of capital related indicators, Prompt Corrective Action (PCA) is being taken to the particular institution with number of measures. In addition to commercial banks, the NRB has a plan to implement BASEL II in national level Development Banks and Finance Companies too. Some indicators are being monitored in parallel for this purpose.

b) Assetsidetools targeted for limiting the credit flow

The NRB has been implementing various policies with the aim of encouraging flow of financial resources to the desired sectors since longer before. These measures are meant tofacilitatefinancial stability and attaining higher economic growth by channeling credit to the productive sector so as to maintain price stability. As a

macroprudential policy, additional number of measures adopted for limiting the credit to the risky sectors.

Under these provisions, a 25 percent cap of total outstanding loan is in place for the real estate sector. Also, a provision allowing the BFIs to extend loan including non-fund based facilities to a single borrower, firm, company or group of related borrowers is limited up to 25 percent of the core capital with some exceptions, such as, 50 percent for hydropower sector.

To control the margin lending, BFIs are allowed to extend loan against the collateral of shares only up to 50 percent of the average closing price for the last 180 days or the prevailing market value, whichever is less. And they can extend loan only up to theamount of their core capital. Likewise, BFIs are not allowed to lend more than 20 percent of their core capital against the share collateral of an individual listed company.

The maximum loan-to-value (LTV) ratio for real estate loan is limited to 50 percent but for the residential housing, a bit relaxation to 60 percent. To control the multiple banking and interconnectedness, loan amount above Rs. 1 billion is mandatory to be converted into theconsortium.

Likewise, banks are required to lend into the specified sectors such as deprived and productive sectors. Refinancing facility is also available for the specified productive sector loans. The objective of such lending is to re-orienting banking assets into relatively higher-productive sectors of the economy.

Nepalese financial system witnessed a kind of financial friction scenario during the first half of 2016/17. Particularly, BFIs were unable to provide additional loan due to the 80 percent regulatory cap of credit to capital &deposit (CCD) ratio. This was because higher rate of loan growth (about 30 percent) compared to the deposit growth (20 percent).One of the reasons for such failure, later identified, wasextending loan aggressively in the risky and relatively unproductive sectors such as hire purchase, overdraft and real estate.

To ease the problem, NRB introduced numbers of measures. For instance, the LTV ratio of 50 percent was enforced for the auto loanin February, 2017. Likewise, the limit for the personal overdraft loan was reduced to Rs. 7.5 million from Rs. 10 million.

c) Liquidity-related tools

The NRB has cash reserve ratio (CRR), a basic monetary policy tool to maintain the minimum liquidity in the system. CRR for commercial banks for now is 6 percent.

Likewise, BFIs needed to maintain statutory liquidity ratio (SLR), which is set 12 percent for commercial banks,9 percent for development banks and 8 percent for finance companies.

As aforementioned, there is a provision for BFIs to maintain a credit to capital-deposit (CCD) ratio at 80 percent. Likewise, commercial banks are required to maintain the leverage ratio of 4 percent on a quarterly basis beginning mid-July 2016. There is a limit of 50 percent of total deposit that commercial banks can accept as institutional deposits. Likewise, the borrowing limit for BFIs is limited to one-fourth of their total deposits. Development banks and finance companies cancollect financial resources up to 20 times and 15 times of their core capitalrespectively.

As a monetary policy tool, a customized interest rate corridor (IRC) has been introduced in 2016 July to manage the liquidity, check the interest rate volatility and also provide the signal of monetary stance to the market. In the IRC, both floor and ceiling rates of the corridor are determined by the interbank rate of the commercial banks. Liquidity monitoring framework based on the BASEL III is implemented at the commercial banks.

iii) Implementation of macroprudential tools

Implementation of macroprudential tools involves translating the assessment of systemic risks to policy actions. Besides monetary policy, macroprudentialpolicies are also incorporated in the fiscal policy and other related policies in the issues whichare not under the jurisdiction of NRB. Other regulators also issue directives with consultation to the NRB and government.

For the implementation of its objectives,NRB issues directives and set of guidelines such as Risk Management Guidelines, ICAAP Guidelines and Stress Testing Guidelinesetc., targeted for BFIs. The Bank also has manuals for the supervision and monitoring of BFIs' activities.These policies not only guide individual institution to manage their risks themselves, but also for monitoring and supervising them effectively and consistently. Other regulators such as Insurance Board and Securities Board also issue necessary directives and guidelines for insurance companies and stock market institutions.

In addition to these measures, assessments of potential leakage of macroprudential tools and evaluating ex-post impact of macroprudential interventions are conducted by various NRB departments, especially Research Department and BFIs Regulation Department. Based on these observations, policy revisits such as re-considering the limits, selection and calibration of policy tools are also being done as necessary.

Similarly, NRB has signed the memorandum of understanding (MoU) with India, China, Pakistan& Bangladeshto share supervisory information among the regional financial system regulators

5. Financial Stability Situation in Nepal

NRB, being the central bank of Nepal, has been playing a vital role in achieving the goal of financial stability. The recent second amendment of the NRB Act has explicitly set financial stability as one of the three objectives of the NRB.For the last few years, NRB has also announced 'financial stability' as one of the major objectives of monetary policy. Furthermore, NRB's Strategic Plan, 2012-2016 has identified financial stability as a second pillar out of seven pillars.

NRB has started publishing a separate Financial Stability Report (FSR) since July, 2012. Monetary and macroprudential policies both are being enforced for maintaining financial stability. There is policycoordination with various agencies such as Credit Information, Deposit Insurance, Debt Recovery and Credit Rating.

5.1 Structure of Nepalese Formal Financial System

Nepalese Financial system consists of Banks and Financial Institutions (BFIs) licensed by the NRB, Insurance Companies, contractual saving institutions, Saving and Credit Cooperatives (SACCOs) and Financial IntermediaryNon-Governmental Organizations. The numbers of these institutions are given below.

Table 2: Structure of the Financial System

Banks and Financial Institutions	Mid-July 2014	Mid-July 2015	Mid-July 2016
Commercial Banks	30	30	28
Development Banks	84	76	67
Finance Companies	53	47	42
Microfinance Finance Development Banks (MFDBs)	37	38	42
Sub-Total	**204**	**191**	**179**
NRB Licensed Cooperatives (with limited banking activities)	15	15	15
NRB Licensed FINGOs (with limited banking activities)	29	27	25

Insurance Companies	25	26	26
Contractual Saving Institutions			
Employees Provident Fund (EPF)	1	1	1
Citizen Investment Trust (CIT)	1	1	1
Postal Saving Bank	1	1	1
Total	**276**	**262**	**248**

Among different types of financial institutions, BFIs are predominant in number with 179 BFIs licensed by the NRB, followed by 26 Insurance companies, both life and non-life. In addition to the institutions listed above, a large numbers of cooperatives, more than 33,000,are into operation in urban as well as rural parts of the country. Since their activities are not regulated, monitored and supervised closely, activities of these cooperatives can be regarded as the shadow banking activities

5.2 Composition of the Financial System Institutions

The total share of major financial institutions in the total financial assets shows that commercial banks dominate the financial system (61 percent) followed by cooperatives (11 percent). Contractual saving institutions (including insurance companies) constitute about 13 percent share (Table 3).

Table 3: Composition of Assets of Nepalese Financial System

Financial Institutions	Mid-July 2012	Mid-July 2013	Mid-July 2014	Mid-July 2015	Mid-July 2016
Commercial Banks	59.91	60.81	60.07	60.92	60.83
Development Banks	9.13	9.78	10.46	10.32	9.77
Finance Companies	6.24	4.93	4.52	3.71	2.88
Microfinance Development Banks	1.70	1.75	2.02	2.43	2.81
Cooperatives (Capital Fund and Savings)	9.49	9.38	9.57	9.12	10.74
Contractual Saving Institutions					
Employees Provident Fund	7.16	7.11	6.99	6.73	6.26
Citizen Investment Trust (Capital and Net Fund Balance)	2.17	2.09	2.24	2.32	2.31
Insurance Companies	4.20	4.14	4.14	4.44	4.41
Total	100	100	100	100	100

In total financial assets, BFIs hold almost 76 percent of assets. Other than BFIs only cooperatives share crosses 10 percent of total financial assets, while other institutions have

minimal share. Thus, given the share of BFIs in Nepalese financial market, financial stability has become synonymous to stability of the BFIs.

5.3 Major Financial Stability Indicators

The analysis of major financial stability indicators is presented in Table 4. It shows that stability indicators are satisfactory.

Table 4: Status of Macroprudential Policies in Nepal Rastra Bank

	Class "A"		Class "B"		Class "C"		Overall	
	Mid-July 2015	Mid-July 2016	Mid-July 2015	Mid-July 2016	Mid-July 2015	Mid-July 2016	Mid-July 2015	Mid-July 2016
Credit and deposit related indicators								
Total deposit/GDP	68.8	78.47	11.1	12.39	3.3	2.86	83.4	93.72
Total credit/GDP	51.9	61.39	9.1	10.36	3.0	2.51	64.0	74.79
Total credit/ Total deposit	75.4	78.91	81.6	83.62	89.6	87.72	76.8	79.80
Assets quality related indicators								
NPL/ Total loan	2.6	1.82	3.5	1.48	14.5	14.42	3.3	2.19
Real estate exposure/Total loan	5.8	6	6.8	7.41	13.4	12.76	6.2	6.43
Liquidity related indicators								
Cash and bank balance/Total deposit	15.7	14.39	16.9	16.94	22.9	28.48	16.1	15.15
Liquid assets/Total assets	14.11	12.56	26.54	24.45	23.04	24.63	16.19	14.62
Total liquid assets/Total deposit	26.45	26.17	31.34	32.75	41.52	44.80	27.64	27.6
Capital adequacy related indicators								
Core capital/RWA (percent)	10.2	10.62	15.2	14.41	20.6	21.28	11.3	11.52
Totalcapital/RWA (percent)	11.9	12.12	16.1	15.31	21.5	22.22	12.9	12.91

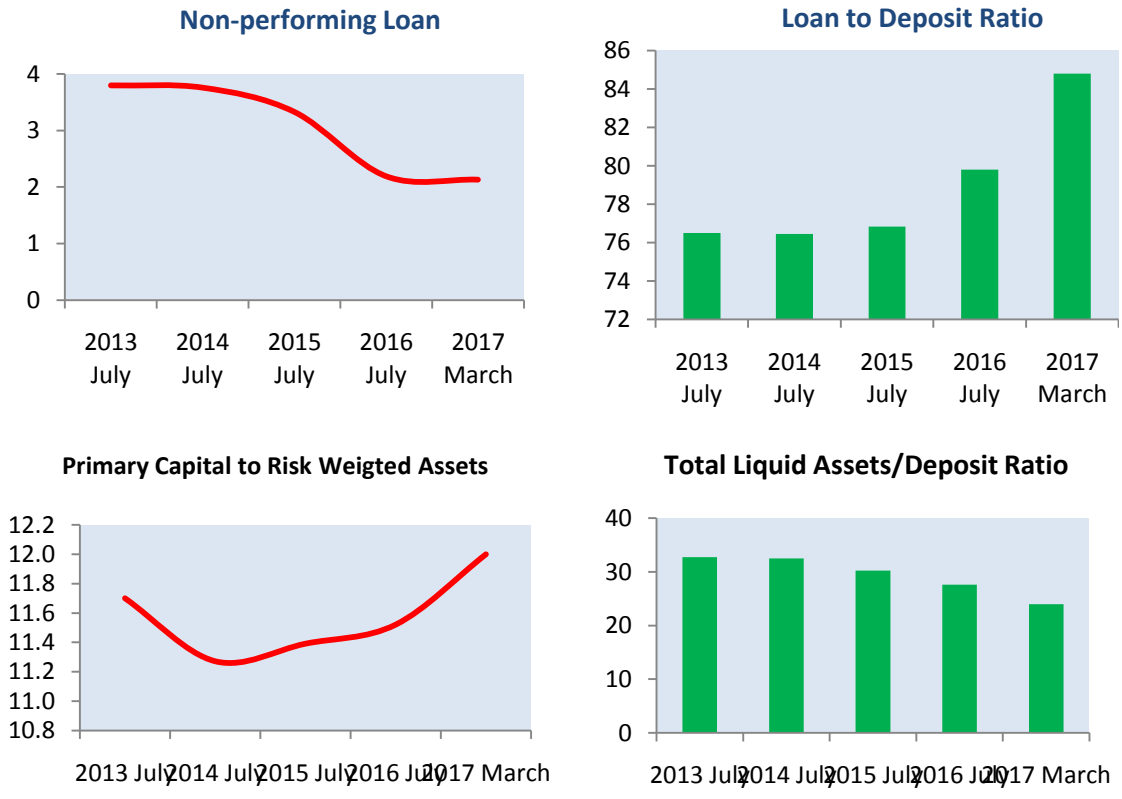
The deposit to GDP stands at 93.7 percent while loan to GDP ratio is 74.8 percent in mid-July 2016.It shows that Nepal's financial deepening indicators are increasing rapidly. Nonperforming loan of BFIs is 2.2 percent in mid-July 2016, well below the threshold level of 5 percent. This shows that asset quality is satisfactory and small adjustments in assets classification will not cause that much stress in the banking system. Total liquid assets to total deposit ratio is 27.6 percent, indicating enough liquidity to pay the short-term

obligations. Similarly, credit to capital&deposit (CCD)ratio is 75.6 percent which is below prescribed limit of 80 percent in mid-July 2016. But, such ratio has been increased in the current fiscal year which is discussed at the end of this section.

In terms of capital, Nepalese banks are above prescribed limit. Commercial banks are mandated to keep 11 percent of capital fund of their risk weighted assets as per Basel-III framework. The banks maintained at 12.12 percent in mid-July 2016. Similarly,B class development banks and C class finance companies are also able to maintain capital ratio significantly higher than the Basel-II framework requirement in mid-July 2016. These capital ratios show that BFIs are able to resist financial shocks albeit modest.

The most recent trend of major financial stability indicators are plotted with trend lines and bar diagrams in Figure 2.

Figure 2: Trends of Recent Financial Stability Indicators



Despite the economy facing unprecedented situations in 2015/16 with various external shocks such as earthquake, southern border blockade and supply disruptions, financial sector remained stable. Non-performing loan further decreased, capital increased and the profit of banking system remained higher.In addition to implementing BASEL III, the NRB has

initiated legal reform, capital increase of BFIs, rightsizing through merger and acquisitions in order to enhance the stability and consolidate the financial sector.However, support from the fiscal authority (Government), other regulators and other market participants are also equally important in order to maintain financial stability in the long run.

6. International Experiences and Best Practices

Even if the longer-term impact of macroprudential policies is yet to observe, the common policy tools, problems and challenges are being experienced globally. The common observations are highlighted hereunder.

Key Aspects of Macroprudential Policymaking

General

- Prime objective: limit build-up of system-wide (*systemic*) financial risk,
- Public policies to detect and address systemic risk with close interactions to macroprudential policy,
- Address risks arising, and amplified by, the financial system, thus leaving other sources of systemic risk to be dealt with by other public policies,
- Not to substitute for sound (micro) prudential and macroeconomic policies,
- Take into account existing local conditions.

Diagnosis

- Comprehensive monitoring of systemic risks such that it covers all potential sources of risk,
- Draw on all useful sources of information and apply a range of approaches: quantitative indicators and models, supervisory data and assessments, and other qualitative information, including market intelligence,
- Take into account on the effects of domestic macroprudential policy on global financial stability and vice-versa,

Instrument choice and use

- Encompass all important providers of credit, liquidity, and maturity transformation as well as systemically important institutions and financial market infrastructures,
- Bring under the direct control of the macroprudential authority those instruments that can be used to specifically and effectively target systemic risks,
- Allow to recommend changes in the activation or calibration of policy tools outside its direct control even if it relies on the domain of other authorities.

Institutional design

- Identify macroprudential authority with a clear mandate and objectives, adequate powers and strong accountability,

- Encompass power for collecting necessary information, establishing the perimeter of reporting and regulation, and activation as well as calibration of instruments under its direct control,
- Prominent role in macroprudential policymaking be given to central bank.
- A body or other formal mechanism is in place to ensure consistency, ensure effective coordination and cooperation.

Source: IMF (2011)

For the success of macroprudential policies, strong cooperation and information sharing among the domestic authorities needed (BIS, 2011). More specifically, the clarity on roles and responsibilities is a key success factors within various regulatory institutions.Fotr this purpose, there are various models for the information sharing mechanisms in the world. For instance, there can be a legal obligations enforced for providing information (as have in Germany and Turkey) or a memorandum of understanding (MoU) can be signed with the purpose of information sharing between supervisors and regulators as practiced in Australia, Ireland and Switzerland.Likewise, as in India, standing subcommittees and ad-hoc working groups can also be formed. A separate macroprudential body with overlapping memberships at the boards is also in practice as in France and Poland.

The most prominent issue is the inclusion of financial stability agenda in the other regulatory agencies. If happens so, they can have better cooperation and coordination in formulating and implementing macroprudential policies. This is practiced in Australia and the UK (IMF-FSB-BIS, 2016). Another important issue is on the mandate for macroprudential policy. In economies with greater financial integration and external capital flows, setting up policy frameworks even domestically becomes complex (Carstens, 2013) and granting mandate has substantial impact for taking timely action.There are two cases in existence, the mandate for the central bank or outside the central bank. The three popular models are presented in Table 5 within these two categories.

Table 5: Institutional Framework Models for Macroprudential Policies

	Central Bank Model		Separate Committee Model
	Model 1	Model 2	Model 3
Example of Selected Countries	Argentina, Belgium, Brazil, Cyprus, Hong Kong, Italy, Indonesia, Netherlands, Portugal, Russia, Singapore, Switzerland	Algeria, Malaysia Morocco, Saudi Arabia, Thailand, The UK	Austria, Chile, France, Germany, India, Korea, Turkey, USA

Source: IMF-FSB-BIS (2016)

In the **Model 1**, the primary mandate of macroprudential policy goes to the top authority of the central bank either to the Board or Governor. Since the regulation and supervision power of BFIs lies within the NRB, **Nepal** also lies in Model 1. In the **Model 2**, the macroprudential policy mandate is assigned to a separate committee but within the central bank structure. Alike the monetary policy committee, a separate committee is formed for macroprudential policy making. If the mandate is given to the central bank, it has advantages of dedicated objective, addresses the dual mandates of central bank coordinately, better risk and trade-off analysis and maintains the central bank discipline (IMF 2013). In the **Model 3**, the mandate for macroprudential policy is assigned to the authority outside the central bank. Generally, such model has higher influence of political and/or government entities such as Ministry of Finance. It is argued that model 3 is effective in getting political legitimacy of macroprudential policy in case there is a need of fiscal authority to contain financial cycles and risks.

On the effectiveness of macroprudential policy tools, there is still a debate on which instrument is preferred over which. However, we can have certain idea on the basis of usage and popularity of it. With the study of literatures, the following points are noted:

- Macroprudential tools related to capitals are found more resilient and able to smother credit growth during financial downturns, but has limited effects in the upturns,
- Policies based on borrowers such as LTV ratio and single obligor limit are supportive for the borrower resiliency and these can also contain pro-cyclicality of asset prices and credit flow,
- Liquidity related policies such as cash-reserve ratios may help contain credit growth but not by every other liquidity tools such as SLF,
- Macroprudential policies do have leakages: cross-border spillovers in a developed and open financial system, shadow banking, policy coordination, among others.

7. Issues and Challenges for Nepal

Macroprudential policy is viewed as a complimentto monetary policy for financial stability objectives. On the other hand, policymakers should be realistic on the ability of macroprudential policies to contain evolving risks to the financial system (Borio,2014). In Nepal's case, both policies are set by same authority and thus, coordination within these two policies is effective to some extent. Nevertheless these policies have various issues and challenges into various aspects as discussed below.

7.1 Issues of Macroprudential Policies

a) **Economic Growth vsEconomic Stability:** There is no clear demarcation line of macroprudential authorities in Nepal that whether they support economic growth or solely focus on maintaining financial stability, thereby economic stability. Since these two goals are conflicting, compromised policies may not be able either to support growth or maintaining stability.

b) **Choosing broad or specific mandate:** Macroprudential policy itself is broad as it is aimed at maintaining financial stability in the whole system. But it needs to have specific policy tools to identify analysis and prevent the crisis. Sometimes, the broad focus may deviate the specific focus and vice versa. Sometimes, short-term focus of the policy may not be able to have resilient financial system in the long-term.

c) **Timing of implementation and roll back:** The timing of introducing policy is crucial to limit the accumulation of vulnerabilities. In Nepal, there are arguments that the NRB was too late to enforce some policies. Once such policies are adopted they are rarely rolled back even at the normal situation.Such continuation of countercyclical policies may dampen prospect for growth further if not phased-out on time.

d) **Higher cost considerations:** Some prudential policy tools,especially capital-basedtools and liquidity-basedtools do have costs considerations to the financial institutions.Similarly, policies introduced without the in-depth analysis and effectiveness might be costly to the economy in the long-run.

e) **Applicability:** Most of the macroprudential policies are introduced by observing and experiencing financially and economically developed economies. Those policies may not reflect the realities of the economy with poor financial infrastructure and miserable access to financethat may limit the role of macroprudential policies.

   Generally, there are three limitations of macroprudential policies. If risks emerge outside the sectors of central bank jurisdiction, NRB cannot influence them. Likewise, strong capacity for supervision and regulation of the financial system is needed to identify emerging risks. If capacity is weak, the policy enforcement would be either too late or misleading. Further, policies such as countercyclical capital buffer may not be efficient to check the credit growth in upturn and release in the downturn.

f) **Institutionalmechanism:**Formulation and implementation of microprudential policies calls for strong institutional mechanisms and active cooperation between them. In countries like Nepal, building institutional mechanisms takes time and ensuring cooperation between them becomes politically sensitive.But macroprudential policies cancompel one institution interfere with the primary objective of some other agencies.

g) **Data related issues:** Insufficiency in the availability of data and its reliabilityaffects the analytical capacity. For instance, crucial data such as quarterly GDP, Real Estate Price Index, and unemployment rate are essential but are not available. Similarly, due to higher time lag,generating data of banking system takes time that makes policy enforcement too late.

h) **Separate macroprudential policy toolkit:** A separate macroprudential policy directives as well as a toolkit is not available in Nepal. Policies are scattered into various circulars and directives on case by case basis.

7.2 Challenges of Macroprudential Policies

a) **Balancing monetary and macroprudential Policy:** The more focus on financial stability may create a situation where central bank has to compromise the primary monetary policy objective of price stability. Likewise, oblivious monetary policy may promote the excessive risk-taking and leverage of BFIs. Adjustments in monetary policy may be needed to curb-down risks to financial stability but it may not be supportive to economic growth, thereby creating strong opposition from thegovernment.

b) **Challenges to central bank independence:** Macroprudential policy by its interdisciplinary nature is beyond the central banks' jurisdiction. The question may raises such that at what depth the central bank has to go to avoid systemic risk.In the name of it, fiscal authorities may interfere in the functioning of the central bank.

c) **Analytical, supervisory and regulatory capacity:**The effectiveness of macroprudential policy depends upon the capacities of central bank researchers, supervisors and regulators to monitor the situation and deriving results from such scrutiny. Enhancing capacity to identify the risk and application of policy tools is key challenge for us.

d) **Early warning signals:** Identification of early warning signal is very weak due to the problem of data availability. For instance, we do not have real estate price index, inflation and interest rate expectation surveys, among others.

e) **Poor financial sector development:**Nepal's financial institutions and markets are relatively poor in the region. Unhealthycompetition, poor corporate governance, malpractices, profit-focus rather than quality financial services, are some of the major problems. Financial infrastructure such as credit rating agencies, payment systems gateways are still at nascent stage.

f) **Shadow banking:**Activities of shadow banking is understood substantial in maintaining financial stability. The operation of more than 33 thousand cooperatives of which about 13 thousand are saving and credit (SAACOs), is out of effectivesupervision and monitoring. It is observed that some SAACOs have significant balance sheet size similar to BFIs. Since such shadow banking institutions do have strong interconnectedness into the financial system, application of macro prudential tools only to formal banking activities may limit on thefinancial stability objective.

g) **Poor financial inclusion:**Nepal's access to finance indicators is relatively weak. Likewise, the level of financial literacy is also poor. BFIs are found to be heavily concentrated into the urban centers. Even if financial inclusion is must for financial stability, this has posed additional challenges in the conduct of macroprudential policy. Introduction of innovative financial products, increasing access to credit and insurance as well as ensuring financial well-being are necessary for theeffectiveness of macroprudential policies.

h) **Policy conflicts:**Macroprudential policiesmay have conflicts with microprudential policies. For instance, deposit/credit insurance may encourage banks to take more risks meanwhile higher capital requirements may encourage banks to look after higher profits to satisfy the investors, thus prompting risky investments.

7.3 The Way Forward

Inidentifying the importance of macro prudential policy for financial stability, NRB has been lately introduced macroprudential policies. However, no separate unit of entity has been created to look after in the formulation and implementation of those policies. Thus, for policyeffectiveness, a separate unit under the BFIs Regulation Department is needed. Similarly, macroprudential policies are now fragmented into various directives and policies. A separate directive of macroprudential policy is needed to coordinate policy actions. Lastly, a macroprudential policy toolkit would help identify the policy tools available, facilitates the communication and supports the analysis.

COUNTRY PAPER OF PAKISTAN

SAARCFINACE SEMINAR ON MACRO-PRUDENTIAL POLICIES IN SAARC COUNTRIES

Participants from State Bank of Pakistan

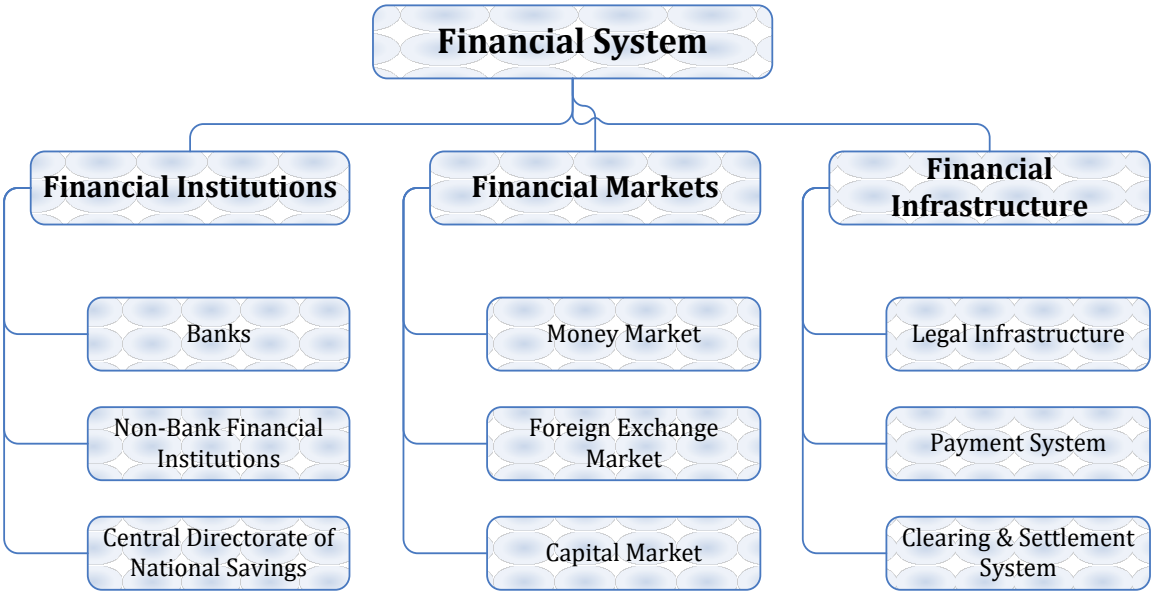
- Mr. Azhar Ali - *Deputy Director, Financial Stability Department*
- Ms. Fazeela Nizam - *Assistant Director, Banking Policy & Regulations Department*

This country paper is prepared for country presentation at the SAARCFinance Seminar on Macro-Prudential Policies in SAARC Countries organized by the Nepal Rastra Bank at Kathmandu during June 8-9, 2017.

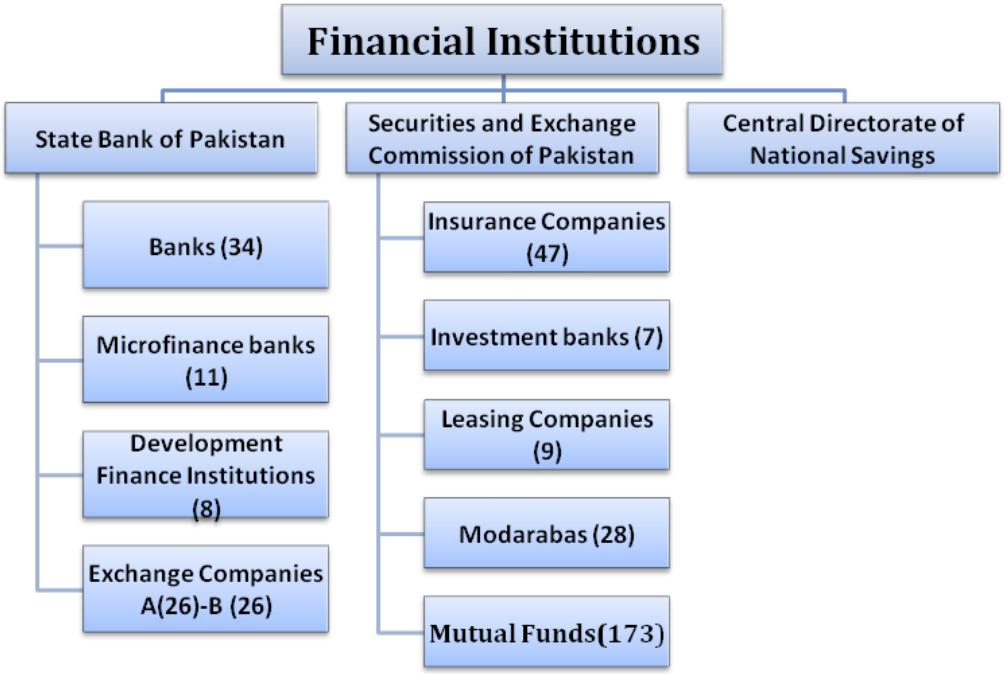
INTRODUCTION

The State Bank of Pakistan (SBP) is incorporated under the State Bank of Pakistan Act, 1956, which gives the Bank the authority to function as the central bank of the country. The SBP Act mandates the Bank to regulate the monetary and credit system of Pakistan and to foster its growth in the best national interest with a view to securing monetary stability and fuller utilization of the country's productive resources.

FINANCIAL NET OF PAKISTAN



FINANCIAL INSTITUTIONS



I. MACROPRUDENTIAL POLICY (MPP) FRAMEWORK

State Bank of Pakistan has taken /and is taking a number of steps to strengthen MPP Framework. SBP established a separate department namely Financial Stability Department (FSD) with an objective to ensure financial stability. SBP has constituted a management-level Financial Stability Executive Committee to monitor developments in financial sector, deliberate on issues having systemic implications and suggest coordination response to address financial stability issues. The committee is chaired by the Governor and includes Deputy Governor, Chief Economic Advisor and 3 Executive Directors along with Head FSD as its members. FSD is also acting as secretariat for FSEC, FSB-RCG Asia and coordination on issues related to Financial Stability.

The State Bank of Pakistan (SBP) and the Securities and Exchange Commission of Pakistan (SECP) have recently signed a letter of Understanding (LOU) to establish a Council of Regulators to mitigate systemic risk. The Council provides a forum for deliberating issues related to systemic risk, particularly those having cross market and stability implications. It suggests possible arrangements for crisis preparedness and come up with a coordinated response. The formation of the Council is aligned with international practices. Since the global financial crisis, maintaining financial stability has emerged as a key objective for central banks, financial regulatory authorities and respective governments. To keep pace with global developments and enhance focus on promoting and ensuring financial stability, both SBP and SECP have joined hands for strengthening financial system stability and managing systemic risk.. Further, a Joint Task Force (JTF) by SBP and SECP has also been formed to supervise financial conglomerates with special focus on monitoring contagion risk to banks emanating from intra group activities including from non-banking sector.

From the transparency and accountability perspective, FSD publishes a number of periodic publications such as:

a. Annual Financial Stability Report
b. Quarterly Performance Review of the Banking System; and
c. Quarterly Compendium on statistics of the Banking System.

In addition, it performs various internal analysis for performing Macro Surveillance Analysis and supervisory purposes including;

a. Half yearly review of the large exposures.
b. Quarterly Stress Testing of the Banking System covering both sensitivity analysis and Macro Stress Testing of the Credit Risk.
c. Quarterly report on asset quality
d. Monthly Financial Stability Brief
e. Fortnightly analysis of the stock exposures.

II. FINANCIAL SECTOR LEGISLATION

II.1 Powers to obtain information:

SBP has ample powers to supervise institutions falling under its jurisdiction under various laws. SBP regulates banks, Microfinance Banks, Development Finance Institutions and Exchange Companies. The laws are drawn from SBP Act 1956, Banking Companies Ordinance 1962, Microfinance Institutions Ordinance, Credit Bureau Act, Payments System & Electronic and Fund Transfers Act, Deposit Protection Act and Foreign Exchange Regulations Act. The provisions of these laws provide mix of hard, semi-hard and soft powers to SBP.

The Companies Ordinance, 1984 vests ample powers in the SECP to regulate and supervise the Non-bank Financial Institutions (NBFIs), as well as the Non-financial firms. These powers are usually complimented by the enforcement provisions in case Financial Institution fails to comply with the requirements prescribed under the law. Some of the powers are listed below:

Under BCO, 1962, SBP has powers to call information from the banks/DFIs under various sections of the BCO, 1962;

a. Obtain information from the chairman, managing director or chief executive officer about the extent and value of his holding of shares.
b. Collect and furnish credit information.
c. Half-yearly returns and power to call for other returns and information.
d. Submission of Annual returns.
e. Access of Inspecting Officer to all books, accounts and other information/documents during the course of inspection of banking company.
f. Submission of various returns.
g. Prescribe furnishing of returns, reports and information for the Microfinance Banks.
h. Direct any financial institution or Service Provider or any other Authorized Party to furnish information within such time as the State Bank may specify.
i. Call for any information from a credit bureau regarding its business and affairs.

SBP has also signed MoU with SECP for information exchange, which usually involve exchange of information received by the institutions in their routine business, subject to confidentiality provisions of the relevant laws and MoU. In addition, SECP also shares with SBP related party information for the purpose of monitoring of the financial conglomerate. FSD generally rely on the public information for assessing the risks to non-banking sector, though we seek input from the SECP while finalizing our analysis for the purpose of Financial Stability Review. Insight into overall risk on the non-banks directly from the concerned regulator can enhance the risk assessment. Joint forum like Council of Regulators may serve such purpose.

II.2. Powers to designate institutions as DSIBs or GSIFIs:

Though there is no specific mention of the designation of the Systemic institutions in the law, the law does allow SBP to set bank/category of banks specific requirements like capital requirement and seeking data for enhanced supervision. Further, SBP keeping in view size and importance of bank deploys more supervisory resources for such banks.

Financial Stability Department has completed work on devising assessment mechanism for identifying Domestic Systematically Important Banks (D-SIBs) and is presently working on designation and enhanced supervision of D-SIBs in coordination with supervisory departments.

The MPP framework also talks about power to bring within scope of its policies all institutions that generate risks related to the procyclicality and that may therefore be collectively systemic including non-bank financial intermediaries.

II.3. Powers to influence the activation and calibration of regulatory constraints:

SBP has the powers to make prudential regulations and provide guidance to the banks. Further, law empowers it to take measure for resolving the problem institutions and provide some tools for dealing with stressed liquidity situation. Some of such powers are listed below:

i. Power to "regulate the monetary and credit system of Pakistan and to foster its growth in the best national interest with a view to securing monetary stability and fuller utilization of the country's productive resources". Further latest amendments have covered following additional dimensions:
    a. Power to provide financial facility at the time of liquid crises to the regulated entities against adequate collateral;
    b. Power to issue instructions and regulations for the regulated entities. This section also allows recovery of penalty from the regulated entities.

ii. Powers to deal with individual banks including problem institutions. Further, it implicitly addresses systemic risk to ensure banking stability.
    a. Power to apply to the Federal Government for moratorium up to the period of six months during which the banking company shall not make any payment to any of its depositors and creditors except as allowed by SBP. Further, SBP may prepare scheme of reconstruction or amalgamation of the banking company during the period of moratorium.
    b. Power to cancel license
    c. Power to inspect any company under its jurisdiction and issue binding directions to banks generally or to any bank in particular.
    d. Power to remove Board of Directors /key executives, supersede Board of directors and power to direct banks for prosecution of director/management of the bank.

e. Power to SBP to take host of actions including prohibition of particular or class of actions, Call meeting of bank's board of directors relating to inspection, appoint one or more SBP officers to observe conduct of bank affairs, require changes in bank management as a consequence of findings of inspection and carry out any capital reduction and cancel any portion of shares of the banking company.

iii. SBP is also empowered to issue such rules, guidelines, circulars, bye-laws, standards or directions as it may consider appropriate. It makes SBP responsible for containing systemic risk and promoting monetary stability and sound financial structure. The Payment System & Electronic & Funds Transfer Act empowers SBP to designate and revoke designation of the Designated Payment System and take action against Operator of Designated Payment System that has turned Insolvent.

II.4. Powers to initiate changes in the regulatory perimeter to capture financial institutions whose activities may give rise to financial stability risks.

BCO, 1962 have some sections which prohibit conduct of banking business with clear authorization/licensing by a firm/company. Section 27A prohibits advertising for deposits and collection by companies not authorized as a banking company. Similarly, section 43A gives additional powers to SBP to seek information from companies, firms or individuals doing banking business in contravention of section 27(1) and 27A of the BCO, 1962. However, any change in the regulatory perimeter to capture additional institutions is not available and require changes in the law and approval of the parliament.

III. SBP's SUPERVISORY MECHANISM FOR MPP

A sound and stable financial system has a direct bearing on economic growth and development of a country. SBP, being the regulator of the banking and financial system, has always endeavored to ensure a sound and robust financial sector capable of efficiently catering to the needs of the public and regulated institutions. To achieve this coveted objective, SBP has to strike a right balance between its important goals i.e. to strive and support the development of a market based financial system and to have an adequate and enabling regulatory framework.

a) Prudential Measures and other instructions

Banking Policy & Regulations Department (BPRD) of SBP has been assigned the task for endeavoring to achieve the regulatory objective through incorporating required improvements in the existing regulatory environment; besides responding to the need for adaptation of the international best practices for our banking industry. The department ensures a close liaison with the Banking Surveillance, Off-site Supervision & Enforcement, Banking Inspection (On-site), SME & Microfinance Departments and all other departments of SBP to ensure that policies formulated by it are being implemented in letter and spirit.

b) **On-Site Inspection**

On-site inspection is considered as key supervisory tool as it provides updated information on the standing of an institution. The regular on-site inspection of Banks/Micro Finance Banks (MFBs) is conducted on the basis of CAMELS Framework (Capital, Asset Quality, Management, Earnings, Liquidity and System & Controls). The focus of inspection is generally on risk assessment, compliance with laws, regulations & supervisory directives, compliance with policies & procedures, adequacy of internal control, governance framework and practices.

c) **Off-Site Surveillance**

Off-site supervision of the financial institutions comes under regulatory purview of the SBP. It ensures effective enforcement of regulatory and supervisory policies, monitors risk profiles, evaluates operating performance of individual banks/DFIs and takes necessary enforcement actions against institutions for their non-compliance (with laws of the land and regulations put in place by the SBP) as identified by, the onsite inspection teams during their onsite examination, and/or by the supervisors based on submitted returns, interaction with financial institutions and market information. The CAELS is an off-site supervisory framework used for assigning banks, on quarterly basis, a composite rating on a scale of 1 (best) to 5 (worst) comprising of Capital (C), Asset Quality (A), Earning (E), Liquidity (L) and sensitivity to other Risk (S).

d) **Financial Stability**

To strengthen the in-house capacity, SBP has established a full-fledged Financial Stability Department (FSD) and has also established a Financial Stability Executive Committee (FSEC). FSD is responsible for all matters relating to financial stability including preparation of several MIS reports/write ups pertaining to Banking sector including Quarterly Performance Report (QPR) for Central Board, Financial Stability Review (FSR) for external stakeholders, Large Exposures Statement, Macro Stress Testing and Crisis Management Center in case of any financial emergency. FSD will liaison with National level Financial Stability Council and cross border supervisors on matters related to financial stability and will bring to the table comprehensive picture of the impact of macro-economic developments on financial stability.

IV. OPERATIONAL CONSIDERATION OF MPPs & THEIR IMPLEMENTATION

Financial stability ensures a robust and sound financial system that can withstand shocks without disrupting financial intermediation and general financial services. Following divisions of FSD are involved to serve the purpose:

a) Financial Stability Assessment Division

The division is responsible for data compilation and preparation of write-ups concerning financial sector. The key outputs of this division include (i) Quarterly Performance of the

Banking System; Financial Stability Review; Asset Quality Report; and Studies on key issues of financial and banking sector. Other divisional activities include data provision to relevant departments and external stake holders (including IMF), RCOA coordination, and miscellaneous write-ups.

b) Macro-Prudential Surveillance Division

Macro-prudential Surveillance Division is entrusted with the responsibility to institutionalize macro stress testing/ scenario analysis framework at SBP and to provide regular updates on global and local economic and financial sector developments

c) Crisis Management Division

The main objective of the division is to supervise designing of the Crisis Management Framework, establishing recovery plans based on recovery triggers and stress scenarios, and developing resolution strategies. The division will also facilitate development of safety nets and will ensure that all systematically important banks (SIBs) have effective crisis management frameworks in place.

d) Systemic Risk Monitoring Division

The division is largely responsible for monitoring financial conglomerates, designing a framework for identification of D-SIBs, monitoring large borrowers' exposure, developing and implementing models for estimating triggers and magnitude of systemic risk build up, and conducting research to assess applicability and conduct impact studies on international developments in the area of systemic risk exposures.

e) Financial Stability Coordination Secretariat

The Secretariat will act as a focal point for coordination with multilateral agencies, national level stakeholders, cross-border supervisors on financial stability issues including Financial Stability Board (FSB) and FSB Regional Consultative Group for Asia. It will also act as a secretariat for National Financial Stability Council.

V. FINANCIAL STABILITY ANALYSIS

For assessing systemic risk, on time and cross-sectional dimensions, entity level data for all types of financial institutions is required. SBP collects data on institutions regulated by it but asks SECP to provide data on institutions regulated by them (which is generally neither timely nor of high frequency). SBP has capacity to analyze and monitor key financial and macroeconomic risks which are important for financial stability. Moreover, SBP regularly provides training opportunities to its officers. The Domestic Markets and Monetary Management Department (DMMD) of SBP monitors the Foreign Exchange Exposure Limit (FEEL) on daily basis through NOP reported by banks in FX-CRS system.

SBP broadly utilizes wide range of Early Warning Indicators (EWI) and Financial Soundness Indicators (FSI) to assess the state of stability and prospects of systemic risk to the banking sector, in particular, and financial system, in general. Also, SBP through various means evaluates the build-up of vulnerabilities which might endanger stability of the financial system. Few of the publically disclosed items include publishing annual Financial Stability Report (FSR) and Quarterly Performance Review of the Banking System, which analyze in detail potential areas of financial fragility and publishing of Quarterly Compendium on statistics of the Banking System including FSI

FSD is working on developing Financial Sector Supervisory Dashboard in coordination with other supervisory departments, Statistics and Data Warehouse Department and Information Systems Department. FSD performs various internal analysis for performing Macro Surveillance Analysis and supervisory purposes including:

a. Stress testing – sensitivity and scenario analysis is done for banks on quarterly basis including Macro Stress Testing of the Credit Risk. The scope of stress Testing has been enhanced to include Microfinance Banks and Islamic Banks. Need remains for further strengthening the scenario development and assessment in the area of Macro Stress Testing.
b. Quarterly report on asset quality
c. Monthly Financial Stability Brief for senior management
d. Fortnightly analysis of the stock exposures.
e. In-house analysis on key issues threatening the banking system are frequently carried out. Some of these analysis are performed on the instructions of SBP Board.
f. Studies on potential risks to the key sectors (e.g. textile, sugar, energy, mortgage, SMEs etc.) in which banking sector has more exposure are conducted.
g. Analysis of large exposure has been initiated and first half yearly review has recently been completed. Framework of large exposure is being revised with the aim to align SBP's existing monitoring and regulatory framework on par with best international practices.

Micro prudential regulations, applicable on individual regulated financial institutions, also have broader scope. SBP regularly conducts inspection of regulated institutions. Further, SBP is moving towards Risk Based Supervision. Thematic inspections, focusing on key risk areas, are also carried out for regulated entities for its use in policy formulation. A large dataset is presently being received in the soft form including large exposures, related party exposures, rescheduled/restructured loans, etc. Bringing these datasets into analytical version involves lot of time including its refining and consolidation. A joint team of officials from BSG and BPRD are working for identification of data integration requirements.

VI. IDENTIFICATION AND ESTABLISHMENT OF MACROPRUDENTIAL TOOLS

1. Broad Based Capital Tools

a) Capital Adequacy

As part of implementation of Basel-III accord, capital standards include (i) Minimum Capital Requirement (**MCR**) of Rs.10 billion for banks (excluding foreign banks) and (ii) Capital Adequacy Ratio (**CAR**) of 10.25% (including CCB of 0.25%). The level of CAR would increase to 10.65% by end-2016, reaching finally to 12.5% by end-2019.

Foreign banks (whose Head Office capital is at least USD 300 million and CAR is 8%) operating in branch mode are required to maintain assigned capital (net of losses) of Rs. 3 billion (5 branches or less), Rs. 6 billion (6 - 50 branches) and Rs. 10 billion (more than 50 branches).

b) Counter Cyclical Capital Buffer (CCCB)

CCCB aims at providing a measure of protection to the banking sector against the build-up of system-wide risk associated with periods of excessive aggregate credit growth. It seeks to achieve this by ensuring that banks, and the banking sector in aggregate, accumulate additional capital during any observed "credit boom", which can be used later ("released") to absorb any losses or meet any increased capital requirements when system-wide risk crystallizes, probabilities of default increase, and the financial system enters a phase of stress and contraction.

"SBP conducted a study (2012) to assess the need of CCCB in Pakistan. On the basis of examination of Pakistan banking industry specific indicators particularly the fact that flow of credit in the economy historically has remained quite low and cross country comparison, it was concluded that "Pakistan may not qualify as a potential case for implementation of CCCB at this stage".

The current requirement of CAR at 10.25% is 2% higher than the BCBS requirement. In terms of CAR instructions, a part of the cushion may be utilized for meeting CCCB. For the purpose,separate instructions will be issued on operational aspects for the implementation of the CCCB.

Application of CCCB involves forecasting the performance of economy at the medium term, which is not being done at the moment in the banking side.

c. Capital Conservation Buffer (CCB)

The CCB further strengthens the capital position of the bank which in turn enhances its loss absorption capacity. The requirement of CAR at 10.25% includes 0.25% of CCB. By end-2019, CCB will gradually increase to 2.5%.

d. General Provision requirements

To strengthen the resilience of banks/DFIs by requiring them to make provisions for possible loan losses. These are on top of the usual specific provisions to be made against non-performing assets. Various provisioning requirements for expected losses presently in place are given below:

i. **Corporate Finance:**
   a. No requirements are currently in place, though, SBP inspection teams ask for additional classifications based on subjective criteria.
   b. Classified loans which are rescheduled/ restructured are required to holds specific provisions till they meet the requirements as specified in the prudential regulations. It would be useful to put some sort of general provisions charge on performing loans, which have been restructured / rescheduled.
   c. There is a need for look into possibility of gradually limiting the FSV benefit from 5 years to 3 years or below

ii. **Housing Finance (HF) 9:**Subject to infection ratio in HF:
   a. Infection ratio below 5%: General reserves o f 0.5% of active HF portfolio
   b. Infection ratio between 5% and 10%: 1% of active HF portfolio
   c. Infection ratio at or above 10%: 1.5% of active HF portfolio

iii. **Consumer Finance: CF R-4**: Subject to the infection level of consumer finance (CF) portfolio, banks/DFIs are required to maintain general provision of 1.0% to 2.5% of *secured* performing consumer portfolio and between 4.0% to 7.0% of unsecured performing consumer portfolio.

iv. **SME: SE R-7**: General reserves of 1% of secured Small Enterprise (SE) portfolio and 2% of unsecured SE portfolio

v. **Microfinance Banks: MFB R-8-B:** General provision equivalent to 1.0% of net outstanding advances (net of specific provision). However, general provision shall not be required in cases where loans have been secured against gold or other cash collateral with appropriate margin may be added.

2. Sectoral Capital and Asset-side Tools

a. Sectoral requirements:

In the spirit of MPP, the sectoral limits also play a credit restraining role. Regulators can require higher risk weights for exposure to certain sectors.

(i) Exposure in *real estate* capped at 10% of advances and investments (excluding treasury investments).
(ii) There are also limits on overall exposure to Consumer Finance
(iii)Additionally, there are PRs for different sectors/borrower limiting exposure in Agriculture, SME, Consumer Finance, Housing Finance and Micro-finance.

This tool is used sparingly based on the level of vulnerability developing in a particular sector. Present limit for real sector and consumer finance seems reasonable. Further, SBP has sufficient

powers to change the direction of credit or require higher capital charges for exposures against particular sector(s), when needed.

b. Sectoral Capital Requirements

This measure is aimed at achieving the twin objectives of limiting the sectoral concentration and contagion across sectors. Thus it helps minimizing systemic risk. SBP under the existing framework can introduce capital requirements for specific banks, specific class of banks and for the banking sector. SBP in the recent times have set higher CAR requirements for the banks that were falling short of the Minimum Capital Requirements (MCR). Similarly, SBP has set higher capital requirement for Microfinance banks with minimum CAR at 15%.

From sectoral perspective, two approaches can be setting higher capital requirement for a specific sector or setting higher risk weights to the loans provided to specific sector. In both cases banks will be required to maintain higher capital for that specific sector.

Another way is limiting exposure to certain specific sectors. One such limit is the exposure to real estate which has been limited to maximum of 10% of Advances and Investments (excluding treasury investments & financings under Government Housing schemes and initiatives.). Similarly, exposure to consumer finance has been linked to the level of NPLs ratio; higher NPLs ratio in CF means lower exposure limit for CF. Given the prevailing regulatory powers, SBP can use the tools like those stated above when needed. This will require continuous monitoring of the sectors' financial/economic performance in order to determine additional capital requirements for the sector(s).

3. **Limits on Exposures including Large Exposures (LE):** Limit the excessive risk taking by banks.

a. Corporate:

i. Following Exposure Limits (in terms of bank/DFI's equity) are placed:

a. Single obligor – 20%
b. Group obligor – 25%
c. Related party – single 7.5%; group 15%.
d. Large exposures – 50% of total gross advances and investments

b. Small & Medium Enterprises: Following exposure limits apply to SMEs:

- Clean exposure – Rs.5 million
- Per party exposure limit – Rs.25 million from a single bank/DFI or combined from all banks/DFIs
- Per party exposure limit – Rs.200 million from a single bank/DFI or all banks/DFIs

c. **Consumer Finance (CF):** Following limits have been introduced under PRs for CF**:**

i. Exposure is subject to infection ratio in CF:
   a. Infection ratio below 3%: 10 times of the bank/DFI equity
   b. Infection ratio below 5%: 6 times of the bank/DFI equity
   c. Infection ratio below 10%: 4 times of the bank/DFI equity
   d. Infection ratio at 10% and above : 2 times of the bank/DFI equity

ii. Clean exposure capped at Rs.2 million from a bank/DFI and Rs.5 million from all banks/DFIs.

d. **Micro Finance Banks (MFBs):** Following limits have been introduced under PRs for MFBs**:**

- Maximum loan caps (in absolute PKR term) on exposure of varied nature (housing, micro enterprises and general loans)
- Maximum Exposure of a Borrower from MFBs / MFIs / Other Financial Institutions such as PKR F 150,000/- for general loans, Rs. 500,000/- for housing loans, and Rs. 500,000/- for microenterprise loans

Exposure against contingent liabilities (CLs)

The contingent liabilities, if invoked/materialized, may pose a significant risk to the health of a financial institution. Therefore, to contain such unfunded exposures, limits can be set on these liabilities. Under PRs for Corporate/commercial R-2 exposure limit against CL is set at 10 times of bank/DFI's equity. Further, exposure in derivates is limited to 5 times of banks/DFI's equity within the limit of CL.

4. Liquidity-related Tools

a. Net Stable Funding Ratio (NSFR)

The NSFR limits the short term liquidity and maturity mismatches and ensures that banks hold stable funding. In essence, the ratio will require banks to calculate long term assets as a proportion of long term or stable funding, including deposits, whole-sale funding and equity. BPRD issued instructions for implementation of NFSR in June, 2016. Banks are required to maintain NSFR of at least 100% Effective from December 31, 2017 onwards. NSFR reporting on parallel run basis will commence from March 31, 2017 on quarterly basis.

b. Liquidity Coverage Ratio (LCR)

A micro-prudential measure in essence, LCR will require banks to hold enough liquid assets to cope up with sudden liquidity shock. *The LCR would thus require banks to hold liquidity over and above the minimum regulatory requirements*. BPRD issued instructions for implementation of LCR in June, 2016. Banks are required to implement LCR in a phased manner starting from March 31, 2017 (80%), which will increase to 90 % in December, 2017 and full implementation by December 31 2018 (100%).

c. Liquidity Charge

The liquidity charges could complement the LCR. This is a type of Pigovian tax[1] reflecting bank/DFI's contributions to systemic liquidity risk. Not implemented. However, imposition of NSFR and LCR, coupled with sufficient limits on exposures, this tool may not be required.

d. Ceiling on overall credit of Bank/DFI

This ceiling is for excessive credit growth as well as for prudent liquidity management. Advances-to-Deposit Ratio of maximum 70% was introduced in 2008 when advances to deposit ratio was above 70%. This ceiling is an additional measure to keep credit growth in check.

In addition, Forex Exposure Limits (FEEL) of Rs3.5 billion has been set for Authorized Dealers. (DMMD Circular 07/2013)

VII. Interaction with other Policies

a. Monetary Policy:

Theoretically, the two policies can be either complementary or conflicting or independent, depending on the state of business and financial cycles. Whereas monetary policy tends to *business cycles*, MPP caters to the *financial cycles* and *systemic risk*. Therefore, the policy response depends on where, in terms of cyclical excesses, the economy stands.

As such, in case of financial *shocks* leading to financial stability concerns, MPP should have precedence. In case of a productivity shock, the appropriate policy mix will depend on both the *strength* and the expected persistence of economic shock, and the riskiness of balance sheets, including capital buffers and leverage.

b. Fiscal Policy:

Tax policy can encourage leverage, e.g., when interest payments are tax deductable, or affect asset prices. Further, when real estate taxes are capitalized into house prices, it will be relevant for financial stability. Therefore, fiscal policy can interact with the MPP. In the aggregate, the fiscal policy does matter for the MPP as the former can either counter or be a source of pro-cyclicality.

VIII. International Consistency of MPP

In financially integrated economies, MPP is subject to a range of potential cross-border effects including positive externalities (implementing MPP contains systemic risk in another country), leakages, and spillovers. Existing international arrangements includes IMF's FSAP, FSB's peer review, and central banks' meetings at BIS.

The financial structure, use of financial instruments, and quantum of international linkages make Pakistan's financial sector different from those of several advances countries. Therefore, we

[1] A Pigovian tax is a tax levied on any market activity that generates negative externalities.

assess that magnitude of spillover is limited and will remain limited even after MPP is implemented in Pakistan.

IX. Problems and Challenges faced in formulating and Implementing Macro-Prudential Policies:

- Credit risk remains a key challenge as the non-performing loans (NPLs) continued to grow in the wake of subdued economic growth especially during the past few years. However, growth of NPLs has slowed down in the recent times (14.7 percent in March, 2013 from 16.2 percent in December, 2011)
- Sectoral concentration of 17 percent in textile sector with an infection ratio of 29 percent remains a source of concern
- Increasing concentration in the energy sector
- Emergence of large financial groups /conglomerates and need for consolidated supervision
- Increased share of government securities coupled with low rate of growth in net advances has exposed banks to concentration risk
- Banks' burgeoning exposure to the government debt exposes them to the re-pricing risk

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An overview of the state of macro prudential policies in Sri Lanka

In the modern economy the effective central banking is entangled with monetary policy, micro-prudential policy and macro prudential policy to achieve its objective of financial system stability. In Sri Lanka, financial stability became a prime policy focus with amendments brought into the Monetary Law Act in 2002 making financial system stability one of the core objectives of the Central Bank of Sri Lanka. Therefore, implementation of macro prudential policies are crucial in achieving the said objectivities. The key objective of macro prudential policy is to identify and mitigate systemic risk in the financial sector.

Sri Lanka's financial sector is mainly regulated by the Central Bank of Sri Lanka, Securities and Exchange Commission and Insurance Board of Sri Lanka. The Central Bank of Sri Lanka regulates and registers licensed commercial banks, licensed specialized banks, registered finance companies, specialized leasing companies and micro finance companies. As the regulator of the financial sector, the Central Bank of Sri Lanka conducts macro prudential surveillance to identify systemic risks to the financial sector and access its resilience for unfavourable shocks.

Macro prudential tools are employed in analyzing macro economy, financial market development and the risk exposure of banking and other financial institutions. Among those tools comprehensive set of aggregate financial soundness indicators are used to assess key financial institutions. In addition, the Central Bank of Sri Lanka conducts regular periodical stress tests on banking sector and each individual bank to assess their capacity to cope with shocks.

In this paper few macro prudential policies implemented in Sri Lanka are highlighted along with other macro prudential concerns. According to the Financial System Stability Review 2015 publish by the Central Bank of Sri Lanka, Sri Lanka experienced unfavorable developments in the financial market due to number of reasons. These include increasing banking sector credits for consumption purposes, excessive government borrowing from domestic sources, widening trade deficit, gradual withdrawal of foreign investments in government securities, tightening external financing conditions, and increasing volatility in foreign exchange. However the Central Bank of Sri Lanka has taken number of macro prudential measures to mitigate such risks with an aim of stabilizing the financial system.

Institutional arrangement for macro prudential policies

The Central Bank of Sri Lanka has implemented a number of macro prudential policies to address adverse situations in the market such as requiring licensed banks to increase capital on a staggered basis, imposing provisions on selected categories of loans and advances to mitigate credit risk, imposing limits on banks' exposure to stock market activities and requiring banks to adhere to appropriate risk management standards to mitigate risk.

In 2002, the Central Bank of Sri Lanka has established the Financial System Stability Committee (FSSC) with the objectives of assessing the risks and vulnerabilities that may lead to financial system instabilities or imbalances and to recommend measures and policies to mitigate them to the Governor or the Monetary Board. In addition to monitor the financial system and to submit periodic reports to the Governor and the Monetary Board recommending policies necessary to promote financial system stability. Further to prepare the financial system stability review.

The excess liquidity in the domestic interbank rupee market was increased to record level in 2015 and declined significantly at the end of March 2016. This was due to mainly purchase of treasury bills. Excess liquidity was absorbed temporary by short term and long term repo auctions and on a permanently by way of outright sales of treasury bills. Further to absorb the excess liquidity the Central Bank of Sri Lanka increased the Statutory reserve Ratio to all rupee deposits liabilities of commercial banks.

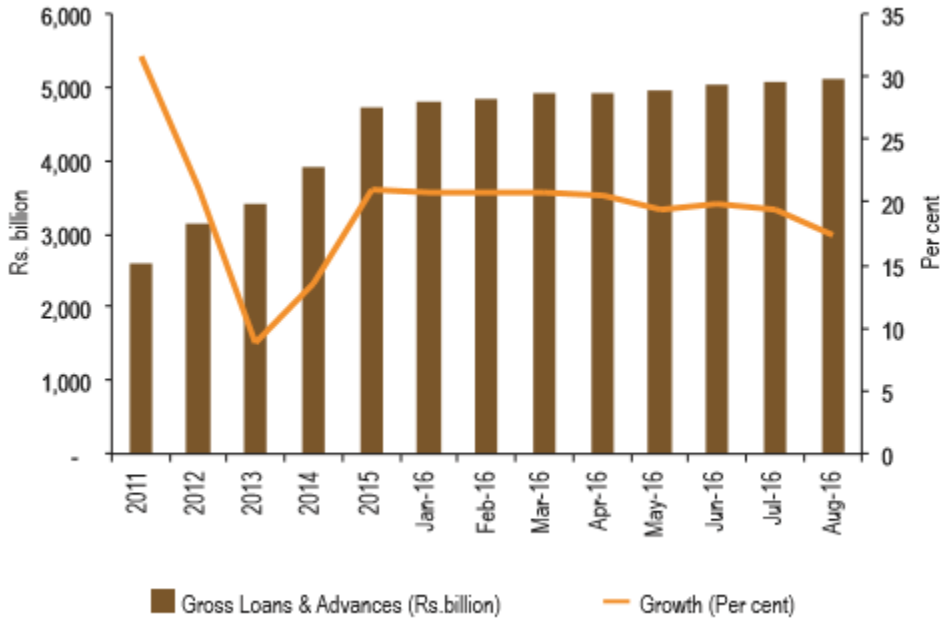
In 2015, trade deficit widened and foreign inflows decelerated. To address such a situation the Central Bank of Sri Lanka adopted the flexible exchange rate, enforced loan-to-value ratio and become Sri Lankan exports to be more competitive and curtail non-essential imports. This creates a favorable impact on the trade balance.

In the recent past there had been a rapid growth of credit exposures of both banks and financial sector to motor vehicle loans with the redemption of taxes by the government in 2015. The Central Bank of Sri Lanka enforced appropriate macro-prudential measures to preempt this trend being developed to a systemic risk in the financial sector.

Low interest rates in the market and the excess liquidity in the domestic wholesale market along with cheap short term foreign financing have helped the licensed banks and the non bank financial institutions to record rapid growth in their loans and advances portfolios. With the

imposition of loan-to-value ratio in respect of loans and advances granted by licensed banks and non bank financial institutions for the purpose of purchase or utilization of motor vehicles, the high concentration on consumption related general purpose personal loans such as credit cards, pawning advances and leasing and hire purchase also addressed.

Figure 1: Loans and advances of the banking sector



Source: Central Bank of Sri Lanka

The Central Bank of Sri Lanka having observed the surge of motor vehicle financing by licensed banks and non-bank financial institutions sectors in the recent years imposed a maximum loan to value ratio of 70 percent in respect of loans and advances granted for the purpose of purchase or utilization of motor vehicles by licensed banks and non-bank financial institutions with effect from December 1, 2015.

Operational consideration of macro prudential policies and their implementation

The prime objective of macro prudential policy is to limit the systemic risk arising from financial system. The need for implementing macro prudential policies is discussed in relation to two instances. In 2010 and early 2011 there was a trend in increasing liquidity in domestic money market. This was resulted due to global easing of monetary conditions to recover from economic and financial crisis. The excess liquidity conditions may result to an excessive credit growth. Therefore it is required to tighten the monetary policy to avoid adverse effects caused by high excess liquidity. However, if only few banks hold excess liquidity in such a situation the tightening monetary policy will affect the entire banking system. To overcome such a situation a policy decision has to be taken by the Central Bank of Sri Lanka to impose higher reserve requirement for the banks those who hold excess liquidity as a macro prudential policy measure.

The second example can be elaborated as high growth of credit extended to the private sector lend by commercial banks. In such a situation it is prudential to tighten monetary policy. However, after a market analysis if it is created by few banks then it is not prudential to tighten the monetary policy as a whole as it will affect the overall credit growth. Therefore it is prudential to address the credit creation only on the banks concerned. Further, Sri Lanka experienced a rapid increase in credit granted in pawning of gold jewelry. Although it is rated as low risk in pawning by commercial banks the prices of gold varied according to the gold price in the international market. Therefore, it is needed to streamline the pawning activities done by commercial banks using appropriate macro prudential policies.

Financial stability analysis

Global economic developments provide opportunities and challenges for Sri Lanka's financial stability. The decline in commodity prices particularly oil prices reduce the rate of inflation. Further this decline is predicted to have a positive impact on the current account and investment in Sri Lanka.

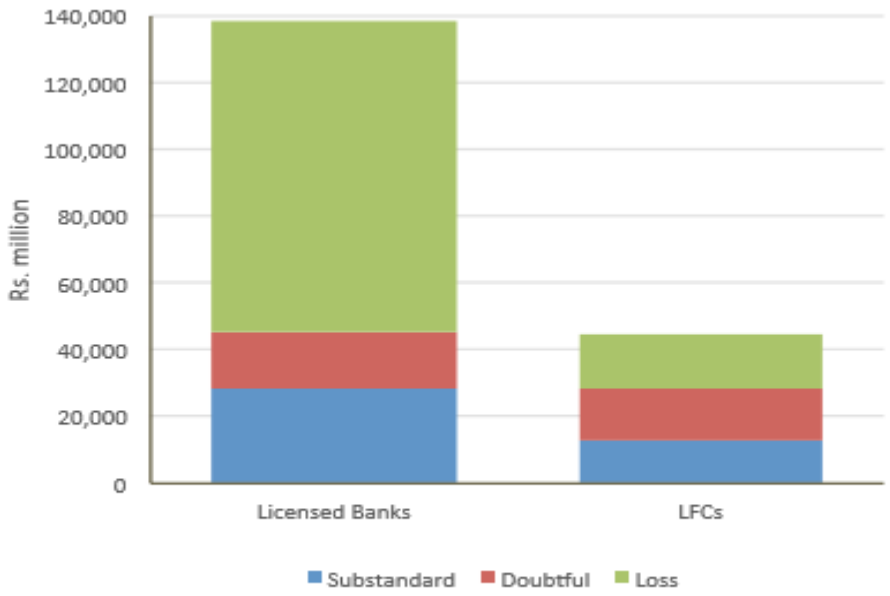
In the regulated financial institutions, banks and other non-bank financial institutions impaired assets management is part and parcel of normal business of such financial institutions. However, if the size of the accumulated stock of such impaired assets of the financial system reaches systemic proportion or if one or more financial institutions become insolvent and non-viable so

that a large number of depositors and creditors in the financial system is affected. Further, it would create social unrest and could develop to a systemic threat to the stability. Therefore, it is required to ensure formal arrangements for resolving financial sector distress and the principal prerequisites for the continued stability of the financial system.

Asset quality is an important indicator in declining insolvency of individual financial institutions as well as the financial system of a country as a whole. The delay in solving the issue of impaired assets of systemically important financial institutions or several financial institutions that would signifies a systemic proportion would eventually lead to systemic concerns requiring costly bailout by government. As the same time this will create an adverse impact on the investor confidence and smooth operations of economic activities.

However, there is no global standard definition for impaired or non-performing assets at the practical level. Variations in the terms of assets clarification systems, the scope and content. Sri Lankan financial system also experiencing a considerable amount of impaired assets.

Figure 2: Sri Lankan financial system non-performing loans to licensed specialized banks and non-banks financial institutions



Source: Central Bank of Sri Lanka

There are several insolvent and non-viable registered financial companies present due to impaired assets and funding mismatches. Asset Management Company has been established to handle the impaired assets in the Sri Lankan financial system. To execute functions of the Asset Management Committee special legal powers requires for acquisition, management, financing and disposition of assets and liabilities, the appointment of special administrators. These concerns were addressed by amending the Banking act, No.30 of 1988 and the Finance Business Act, No.42 of 2011.

It is observed that there has been a need to improve the access of low-income households and small businesses to basic financial needs as it is been denied or distanced by the formal financial sector. In Sri Lanka there is a need for an entity to fulfill the gaps in obtaining financial needs. Therefore establishing micro finance businesses are required to lending, maintaining savings deposits, underwriting insurances, fund transfer facilities etc. In Sri Lanka private sector deposits are becoming the most popular alternative source of funding as micro financing institutions are not matured enough to issue securities in the formal capital market or obtain loans from the other financial institutions. In order to mitigate potential systemic concerns in the micro finance sector, in Sri Lanka micro finance institutions are regulated within a prudential regulatory framework. A regulatory framework on micro finance institutions will consist consumer protection, efficient functioning markets and preserving stability of the financial system.

Problems and challenges faced in formulating and implementing macro prudential policies

The Central Bank of Sri Lanka has established a separate department in 2007 for the purpose of improving its macro prudential surveillance framework, conduct research on areas relating to the development and strengthening of the stability of the financial system. However, this department is still at the initial stage. Therefore, it is required to enhance the technical capacity and human resources to formulate and implement macro prudential policies effectively.

For the purpose of assessing systemic risks in the financial sector it is required to have an independent method of collecting data. However, in the Monetary Law Act, the governing law of the Central Bank of Sri Lanka does not provide a mandate for Macro Prudential Surveillance Department to collect data independently. The Macro prudential Surveillance Department has to rely on other departments and external sources to collect data. Therefore, it is required to

develop a database of key variables which could impact the financial system stability to implement macro prudential policies.

Best practices in implementing macro prudential policies

It is necessary to understand both domestic and international developments and monitor financial sector credit, liquidity and interest rate risks with a view to the potential risk to the financial stability.

It is required to submit periodical financial sector risk assessment reports to Monetary Policy Committee indicating the trends and developments in the financial sector.

Further, there should be an early warning indicator model to assess the credit worthiness and movements in the financial sector.

It is needed to conduct research on emerging trends of the financial system and its potential risk. The Central Bank of Sri Lanka has conducted four specific researches focused on identification of restrictions, asset securitization, resolution of non-viable financial institutions including dealing with impaired assets and diversification of lending assets in the non-financial sector. It is required to widen the scope of the research topics.