NATIONAL BANK OF RWANDA

BANKI NKURU Y'U RWANDA

A macro-Prudential Policy Framework for the National Bank of Rwanda

March, 2019

Reference Number: 2500 /2019 – 00100 [0]

Initiator: Financial Stability Monitoring Department

Approved by: NBR Management

Date of Approval: March, 2019

Approved by: RWANGOMBWA John, Governor

NBR IDENTITY STATEMENT

The National Bank of Rwanda strives to become a world class Central Bank that contributes to the economic growth and development by using robust monetary policy tools to maintain stable market prices. The bank embraces innovation, diversity and inclusiveness, economic integration and ensures financial stability in a free market economy.

VISION, MISSION AND VALUES

VISION OF THE BANK

The Vision of the Bank is to become a World-Class Central Bank

MISSION OF THE BANK

The mission of the Bank is to ensure price stability and a sound financial system

THE BANK'S CORE VALUES

INTEGRITY

We uphold high moral, ethical and professional standards for our people, systems and data

ACCOUNTABILITY

We are results-focused and transparent, and we reward according to performance

MUTUAL-RESPECT AND TEAMWORK

We keep ourselves in high spirit, committed to each other for success

EXCELLENCE

We passionately strive to deliver quality services in a timely and cost effective manner.

ACRONYMS

NBR:	National Bank of Rwanda
IMF:	International Monetary Fund BIS
FSB:	Financial Stability Board
BIS:	Bank for International Settlements
BCBS:	Basel Committee on Banking Supervision
IAIS:	International Association of Insurance Supervisors
CPMI:	Committee on Payments and Market Infrastructure
FSIs:	Financial soundness indicators
D-SIBs:	Domestic Systemically Important Banks
FSMD:	Financial Stability Monitoring Department
FSC:	Financial Stability Committee
FSCC:	Financial Sector Co-ordination Committee
CMA:	Capital Markets Authority
MOF:	Ministry of Finance
LTV:	Loan-to-value
DPR:	Dynamic provisioning requirements
LTI:	Loan-to-income
DSTI:	Debt-service-to-income

CONTENTS

I. INTRODUCTION

International experience with macroprudential policy is growing. A large number of countries have put in place dedicated institutional arrangements and steady progress is being made with the design and implementation of macroprudential tools. But as emphasized in a review of this experience by the International Monetary Fund (IMF), Financial Stability Board (FSB) and the Bank for International Settlements (BIS), this is not a policy area for a "one-size-fits-all" approach.[1] Institutional arrangements vary from country to country depending on specific national circumstances, in particular on how micro-prudential responsibilities are currently organized within the country. Importantly, macroprudential policies are also just one component of a broader financial stability framework for identifying, mitigating and managing a potential financial crisis.

However, there is a consensus that for a macroprudential policy framework to be effective a number of common elements should be in place. These include:

- a governance framework that incorporates a clear, unambiguous mandate for the use of macroprudential polices, together with well-defined objectives and adequate powers matched with strong accountability;
- explicit mechanisms for co-operation and information-sharing between regulatory authorities; and
- strong analytical capacity so that decision-makers are well briefed on the outlook for financial stability and provided with policy recommendations, based on a thorough analysis, on how to respond to threats and vulnerabilities.

Mandates matter a great deal. Making it clear where the responsibility and accountability for macroprudential policy resides helps reinforce the "ability" and "willingness" to act. This is important because the outlook for financial stability is closely tied to changes in systemic risk, which are both difficult to define and quantify. As a result,

[1] IMF-FSB-BIS, 2016, "Elements of Effective Macroprudential Policies: Lessons from International Experience."

the objective of financial stability is rarely defined as an operational target and an inaction bias can easily creep into the policy framework. Yet, actions need to be taken when risks are building up and not only when they have materialized.

The National Bank of Rwanda (NBR) is responsible for promoting and safeguarding the financial stability of Rwanda. It does so by seeking to promote strong financial institutions through its role as the prudential supervisor of banks, micro-finance institutions, insurance companies and pension funds; and by ensuring robust and efficient financial infrastructure including for payments. In exercising its prudential responsibilities, NBR has close regard to the work of global standard setting bodies such as the Basel Committee on Banking Supervision (BCBS); International Association of Insurance Supervisors (IAIS) and; the Committee on Payments and Market Infrastructure (CPMI).

In fulfilling its financial stability mandate, NBR seeks to identify and mitigate systemic risks. These are the macro-economic and financial risks which have the potential to threaten the financial system as a whole, with serious consequences for the Rwandan economy. To assist in this task, the NBR has established a macroprudential policy framework to monitor and assess the build-up of potential risks and vulnerabilities in Rwanda and, where appropriate, to address them through the timely use of prudential policy instruments. In this note, we explain the key components of this macroprudential policy framework.

II. PURPOSE

The overarching objective of NBR's macroprudential policy framework is to preserve financial stability through the early identification and mitigation of systemic risks. This is a challenging task since "systemic risks" are difficult to define and quantify in practice. They most obviously exist, for example, in the shape of a broad-based breakdown in the functioning of the financial system, potentially including a large number of financial institution failures. However, an effective policy framework must function pre-emptively, so that systemic risks are identified and mitigated before crystallizing in a way that damages the financial system and the real economy.

Accordingly, an effective macroprudential policy framework is predicated on the establishment of an early warning system. In conducting its financial stability analysis, the NBR seeks to identify the sources of systemic risk and also the macro-financial linkages through which risks are transmitted and amplified. These linkages include:

- *Cross sector linkages* between the balance sheets of the financial sector and those of the households and corporates. The experience from the 2009 global financial crisis indicated that high and unsustainable household and corporate debt debt levels can be a source of financial vulnerability and leads to pronged recession. Linkages also exist between banks and Government through investments by banks in government securities.
- *Cross-institution linkages* between bank and non-bank financial intermediaries. In Rwanda, these linkages are less complex than found in far larger financial systems where banks may be just one part of large financial conglomerates.
- *Cross-border linkages* between Rwanda and the rest of the world. Capital flows, including overseas development assistance, can be quite volatile and have systemic consequences.

These macro-economic and financial inter-linages give rise to systemic risks across two dimensions: time and cross sectional.

1. **The *time dimension* of systemic risk relates to the way in which aggregate risk changes through the course of an economic cycle**. In particular, there is perceived to be a procyclical bias, with financial institutions inclined to take on more risk in the upswing of an economic cycle only to become overly risk-averse in a downswing. This characteristic amplifies the boom and bust cycle in the supply of credit and liquidity and, by extension, in asset prices.

2. **The *cross-sectional or structural dimension* of systemic risk arises from common exposures and interconnectedness within the financial system**. These relationships work to magnify and rapidly transmit shocks between financial institutions. As a result, the failure of one institution, particularly a large

one, has the potential to threaten the system as a whole. In Rwanda financial institutions are connected through interbank transactions, intra-institutional placements; and; through the payment system infrastructure.

Monitoring and assessing the degree of systemic risk across both dimensions is a challenging task. As a starting point, the NBR focuses on a number of key indicators to help capture the source and monitor the buildup of risks. These indicators are a subset of the comprehensive financial soundness indicators (FSIs) compiled by the NBR as part of its broader financial stability surveillance function.

Systemic Risk Indicators: the time dimension

There is plenty of evidence that strong credit growth often precedes a financial crisis. But not all credit booms end this way. So, a key question for the NBR in times of strong credit growth is to assess whether this growth is healthy and supportive of stable economic expansion, or whether some of it might be judged "excessive" i.e. of such poor credit quality that it increases the probability of default by borrowers and hence the likelihood a financial crisis. International studies have shown that simple changes in private sector credit-to-GDP ratios and / or in the credit-to-GDP gap (the gap between the ratio and its estimated trend) can be leading indicators of financial stress in banks. And in the case of the credit-to-GDP gap, considerable efforts have been made by central banks in other countries to identify thresholds which might signal the need for a policy response.[2] NBR regularly compiles estimates of the credit-to-GDP ratios and the credit-to-GDP gap. However, the value attaching to this metric has been found to be heavily constrained in Rwanda due to the structural transformation of the economy and the associated financial deepening that is underway as part of the Government's National Development Plan.

Hence, NBR undertakes a more *granular assessment of credit* in seeking to better understand the outlook for financial stability in Rwanda. Whenever credit is growing strongly, for example, the NBR undertakes a forensic analysis of disaggregated loan data to identify which sectors and industries are borrowing – how much, why and at what price. The qualitative information drawn from the NBR's *Bank Lending Survey* is also be used to

---

[2] Much of this work has taken place under the auspices of the BCBS. Refer, for example, to BCBS 2011 "Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems" Revised Version

analyze changes to lending standards and credit conditions. Regular meetings between NBR and financial institutions to assess their views on credit conditions are also helpful. Ultimately, the NBR seeks to fully understand the reasons behind any expansion in credit; and conversely, the explanations for any slowing or contraction.

***Leverage* in non-financial sector balance sheets amplifies the dangers of excessive credit growth**. For that reason, the analysis of household and corporate sector balance sheets plays a key role in NBR's financial stability framework. The aim of this sectoral analysis is to track the indebtedness of the household and corporates and assess their debt-servicing capacity. NBR conducts annual surveys on large corporate borrowers in Rwanda to better understand trends and developments in corporate sector balance sheets.

Developments in *real estate markets* are monitored closely by the NBR. There is ample evidence that a sharp run-up in the price of property—commercial and residential—especially when combined with a rapid expansion in credit – can easily turn into a price correction with damaging consequences for financial stability. To monitor dynamics in the real estate market, the NBR monitors developments of lending to commercial real estate. The Bank also developed the real estate price index—producuced twice a year to monitor developments in real estate prices.

***Liquidity risks* also warrant close attention from a financial stability perspective.** Strong credit growth can be associated with increased reliance on short-term and volatile sources of funding, including inter-bank borrowings – sources which can rapidly evaporate on signs of stress. This in turn can trigger an abrupt deleveraging or fire-sales of assets with system-wide consequences. Similarly, a build-up of maturity and foreign currency mismatches has the potential to crystalize as a vulnerability in adverse scenarios. To this end, the NBR regularly assesses the liquidity position of banks; the level of maturity transformation and; the sources and nature of funds.

Systemic Risk Indicators: The Structural Dimension

Excessive exposure concentrations make large parts of the financial system vulnerable to common shocks. Direct concentration risks arise from large exposures to specific sectors (e.g. real estate). They are direct in the sense that a shock to a particular sector would affect all banks that have common exposures. Indirect concentration risks arise when a shock weakens banks through their interconnectedness with other parts of the financial system, rather than any fragilities on their own balance sheets.

A number of analytical tools are used by NBR to map interconnectedness and concentration risks within Rwanda's financial system. These include:

- ***Network Analysis:*** NBR harnesses the information available from banks' large exposure returns to identify net inter-bank exposures and to map the potential losses should one or more of them fail. This analysis is extended to common exposures on both the funding and lending sides of banks' balance sheets.
- ***Analysis of Systemically Important Banks (SIBs):*** These are large banks, costly to substitute and; relatively highly connected to other financial institutions that their distress or failure would cause significant dislocation in the financial system and adverse economic consequences. The NBR has drawn on the framework developed by the BCBS to identify its systemically important banks (D-SIBs).[3] Through a customized Basel D-SIBs framework, the NBR identifies systemically important banks every year, closely monitors performance of these banks and; prioritizes them in on-site inspection planning.

Stress-testing

Systemic risk indicators generally provide information about the level of risk that is, at best, a current snapshot of the system. In order to provide a more-forward looking assessment, the NBR undertakes regular scenario analysis and stress testing. This provides an indication of the banking sector's resilience, in terms of solvency and liquidity, in response to plausible and adverse outcomes. By varying the default rates and loss-on-default rates, for example, NBR may be able to highlight the credit risk associated with concentrated lending to particular sectors of the economy.

---

[3] BCBS, *A Framework for Dealing with Domestic Systemically Important Banks; October 2012.*

III. SCOPE

Macroprudential policy aims to contain systemic risks–those risks within the financial system that have the potential to jeapordise the real economy. For the most part, these risks reside within the banking sector which is the predominant provider of credit to the Rwandan economy. And for that reason NBR's macroprudential policy framework is primarily designed to identify and mitigate risks to banks. Of course, this macroprudential emphasis on banks, in no way detracts from the NBR's responsibilities for safeguarding the stability of the financial system more generally. NBR continues to promote the soundness of non-bank financial intermediaries, including insurance companies and pension funds, through the implementation of a robust micro-prudential policy framework.

NBR recognizes the importance of paying close attention to cross-border capital flows from a financial stability perspective. Capital flows deliver substantial benefits to Rwanda but abrupt flows in or out of the country do have potential to destabilise the financial system. Strong banking supervision plays a vital role in ensuring that banks have the credit and liquidity management systems to cope with any sharp adjustments in the availability and price of foreign currency funding.

In formulating macroprudential policy, the NBR has careful regard to the stance of monetary policy. This is because macroprudential and monetary policies interact closely through their joint influence on financial market conditions. Whenever possible, the NBR seeks to ensure that macroprudential policies and monetary policy are mutually supportive, providing this harmonization does not prejudice NBR's commitment to price stability. Over the longer term, macroprudential and monetary policies are entirely complementary, in the sense that financial stability and price stability both make essential contributions to Rwanda's economic growth prospects.

IV. OPERATIONALIZING THE MACROPRUDENTIAL POLICY FRAMEWORK

Macroprudential policy objectives:

To be effective, a macroprudential policy framework must address systemic risks across both dimensions through the timely application of appropriate policy instruments. While the ultimate objective of is to promote financial stability, NBR has operationalized the framework by identifying a number of key intermediate objectives. These objectives may vary over time but, at present, they are defined as the prevention and mitigation of systemic risks associated:

- **Mitigate and prevent excessive credit growth.** Excessive or unhealthy credit growth, which ultimately presents as a higher rate of defaults, particularly by highly leveraged borrowers, has been identified as a key driver of financial crises in many countries.
- **Mitigate and prevent excessive maturity mismatch and market illiquidity.** Reliance on short-term and unstable funding may lead to fire sales, market illiquidity, and contagion.
- **Limit direct and indirect exposure concentration.** Exposure concentrations make a financial system vulnerable to common shocks, either directly through balance sheet effects or indirectly through asset fire sales and contagion; and
- **Excessive risk taking by systemically important banks (D-SIBs)** whose size and importance makes them difficult to resolve in a financial crisis.
- **Strengthen the resilience of financial infrastructures.**

For each of these key objectives, the NBR has identified indicators to help monitor the associated risks and also the macro-prudential policy instruments available for prevention and mitigation purposes. The instruments are itemized in **Appendix 1**.

A matrix of NBR's macroprudential framework with both indicators and instruments aligned with the four key objectives is provided in **Appendix II.** Most of the instruments are currently available to the NBR, while a few are being considered for future use.

The implementation of macro-prudential policy by NBR follows a four-step cycle, namely:

a) Identification and evaluation of systemic risks;

b) Selection and calibration of the macro-prudential instrument;

c) Implementation of the macro-prudential instrument; and

d) Evaluation of the macro-prudential instrument.

The identification and evaluation of systemic risks is carried out by the Financial Stability Monitoring Department (FSMD) of NBR through the analysis and monitoring of developments in macro-prudential indicators and other financial data as part of the early warning system. In addition, stress testing and scenario analysis compliments the assessment by testing the resiliency of the financial sector to different adverse and plausible macroeconomic and financial shocks. The evaluation report of systemic risks is presented to Financial Stability Committee (FSC), during its quarterly meetings and documented in the Annual Financial Stability Reports.

V. DECISION TAKING

The NBR's mandate for macroprudential policy derives from the *Law Governing the National Bank of Rwanda.* [4] The law directs the central bank to ensure a "sound financial system" and assigns operational responsibility for this mission to the FSC. The FSC is charged:

- To regularly review and ensure the soundness and stability of the financial system;
- To promote the stability of the Rwandan financial system by analysing on a permanent basis the system and its environment; and

[4] Law No. 48/2017 of 23/09/2017 Law Governing National Bank of Rwanda.

- To identify and publish risks associated with financial systems in order to consider and take suitable actions to prevent, reduce and mitigate risks.

The FSC meets at least quarterly to review the financial stability outlook in Rwanda and to consider the use of policy measures to prevent and mitigate systemic risks.

An effective macroprudential policy framework is also built on a collegiate and collaborative relationship with other relevant stakeholders. In Rwanda, this relationship has been formalized by the establishment of the National Financial Sector Co-ordination Committee (FSCC) which is chaired by the Minister of Finance and includes the NBR Governor and the CEO of the Rwandan Capital Markets Authority (CMA). This provides an opportunity for the NBR to formally brief the MOF and the CMA on the outlook for financial stability and, where appropriate, to seek their assistance in supporting the NBR's macroprudential policy objectives. The FSCC is structured to meet on normal times and crisis times. In either case, the committee meets with the following objectives: To assess and measure risks facing the financial sector; devise policy interventions to mitigate risks facing the financial sector; adopt coordinated measures to secure the public interest in maintaining financial stability in the case of financial systemic risk.

VI. TRANSPARENCY AND ACCOUNTABILITY

The NBR attaches great importance to transparency and accountability for macroprudential policy actions. It publishes an annual Financial Stability Report (FSR) and a bi-annual Monetary Policy and Financial Stability Statement. A Press Release is also available following each meeting of the FSC. The aim is to convey financial stability assessments clearly, link them logically to any policy action and to manage public expectations about what can be achieved by those policies.

APPENDIX I: MACROPRUDENTIAL POLICY INSTRUMENTS

NBR has determined that the following macroprudential policy instruments have potential to assist in the prevention and mitigation of systemic risks in Rwanda. **It should be noted that some of these instruments are already used by NBR, while others, although not used, remain appropriate tools to be considered in future.**

Key Objective: Excessive Credit Growth and Borrowing

Instruments currently used by NBR:

1. **Capital adequacy requirements** determine the amounts of capital to be held by a bank on a risk-weighted basis i.e. the required amount varies according to the types of assets held both on and off-balance sheet. By varying minimum capital requirements, or the underlying risk-weights, the NBR can influence the amount and the direction of bank lending.
2. **Leverage ratios** supplement capital adequacy requirements by requiring banks to hold a minimum amount of capital with all assets weighted equally, rather than risk-adjusted.
3. **Loan-to-value ratios (LTV) that** caps the size of a secured loan relative to the appraisal (or transaction) value of a property. This tool is commonly applied to mortgage markets.

Instruments to be considered in future:

1. **Counter-cyclical capital buffers,** designed to counter changes in system risk through the course of an economic cycle. Capital buffers are built up during periods of strong credit growth to be released later when credit growth stalls and risks materialize. The aim is to smooth out the supply of credit and avoid sharp contractions in a downturn.
2. **Dynamic provisioning requirements (DPR)** that varies the loan loss reserves of banks by requiring them to accumulate reserves in the good times which are available for use in the bad times. This is intended to smooth-out the provisioning costs of banks and, by extension, their willingness to supply credit.
3. **Caps on credit growth** allow the NBR to limit the aggregate amount of lending or target lending to particular sectors.
4. **Loan-to-income ratios (LTI)** cap the size of a loan relative to a fixed multiple of income.

5. **Debt-service-to-income (DSTI)** restrict the size of debt service payments to a fixed share of household incomes.

Key Objective: Liquidity and Funding Risks

Instruments currently used by NBR:

1. **Liquidity ratios** impose a requirement on banks to hold at least a specified minimum proportion of their deposits in the form of liquid assets. The more liquid a bank, the greater its capacity to deal with shocks. Following the global financial crisis, two specific instruments have been developed by the BCBS to strengthen system liquidity. These are:

- *Net stable funding ratio* (NSFR) which seeks to ensure that banks hold stable liabilities to fund illiquid assets (such as loans) by limiting one-year maturity and liquidity mismatches; and
- *Liquidity coverage ratio* (LCR) which seeks to increase the stock of liquid assets available to cover sudden outflows.

NBR adopted both LCR and NSFR standards since January 2018.

2. **A cap on loan-to-deposit ratios** limits the recourse of banks to more volatile non-deposit sources of funding.
3. **Open foreign currency positions** contain banks' exposures to exchange rate risks by imposing limits on their net open foreign currency (FX) positions i.e. the mismatch between FX asset and liability positions (including off-balance sheet exposures) in aggregate and by individual currency.

Instruments to be considered in future:

1. **Maturity mismatch limits** can be used to limit the maturity mismatch between assets and liabilities at various points along the maturity profile, rather than just at the one-year mark favored by the NSFR.

Key Objective: Direct and Indirect Exposure Concentrations

Instruments currently used by NBR:

1. **Large exposure limits** can be applied on a sectoral basis to reduce banks' exposures to a particular sector and / or asset class. They may target both direct exposures and excessive (indirect) interconnectedness among financial institutions, helping to reduce contagion risk.

2. **Capital based instruments** can be used to address contagion risks arising from banks' common exposures and interconnectedness. These capital measures can take the form of sectoral capital requirements or a general capital surcharge to enhance banks' resilience to potential shocks.

Instruments to be considered in future:

1. **Large exposure funding limits** restrict the proportion of a bank's funding that can come from a single source. This source may be a single depositor, a single class of depositors or a single market.

Key Objective: Excessive Risk Taking by Domestically Systemically Important Banks (D-SIBs)

In 2019, the NBR adopted a framework for identifying and supervising D-SIBs. the NBR shall apply the methodology to identify and communicate DSIBs to the banking industry. The assessment shall be based on annually audited financial statements of banks, usually available in April. Identified DSIBs shall comply with the specific requirements provided in the framework.

APPENDIX II: MACROPRUDENTIAL POLICY: KEY OBJECTIVES, INDICATORS AND INSTRUMENTS

Key Objectives	Indicators	Instruments	
		Available for use	*Potential*
Excessive Credit Growth and Leverage			
Aggregate	Credit growth. Credit-to-GDP gap. Growth in credit-to-GDP.	• Capital adequacy requirements • Leverage ratio	• Counter-cyclical capital buffer • Dynamic provisioning • Aggregate lending limits
Households	Growth in household credit. Debt-to-income. Debt service-to-income (new loans). Lending standards..	• Risk weights	• Lending limits • Limits on **Loan to Income** (LTI) on new loans • Limits on Debt Service to Income (DSTI) on new loans
Non-financial corporates	Growth in corporate credit (total). Growth in corporate credit (sector). Debt service ratio. Lending standards.	• Risk weights	• Lending limits
Real Estate	Growth in real estate lending. House price growth. House price-to-income. House price-to-rent. Commercial property price growth.	• Risk weights • Limits on Loan to Value (LTV) on new mortgages	• Limits on LTI (new mortgages) • Limits on DSTI (new mortgages)
Liquidity and Funding Risks	Loan-to-deposit ratio. Share of non-deposit funding. Liquid asset ratio. Share of FX funding.	• Liquidity Coverage Ratio • Net Stable Funding Ratio • Loan to Deposit (LTD) requirements	• Maturity mismatch limits • Funding concentration limits

		• Open FX position limits	
Direct and Indirect Exposure Concentrations	Exposure of banking sector to different sectors.	• Large exposure limits • Interbank placement limits • Capital requirements	• Funding concentration limits
D-SIBs	Size. Interconnectedness. Substitutability. Complexity.	• D-SIB capital surcharge	• Intensified supervision • Limits on interbank exposures • Limits on Large Exposures