

**MACROPRUDENTIAL POLICY
FOR THE BANKING SECTOR**

STRATEGIC FRAMEWORK

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Contributing departments:

- Financial Stability and Macroprudential Policy
- Analysis and Research
- Resolution Unit
- Systemic Supervision and Prudential Regulation
- Secretariat of Macroprudential Supervision and ESRB

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List of abbreviations

CCB	countercyclical capital buffer
CET1	Common Equity Tier 1
CRD IV	Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms
CRR	Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012
DGS	deposit guarantee scheme
DSTI	debt service to income
EBA	European Banking Authority
EC	European Commission
ECB	European Central Bank
ESCB	European System of Central Banks
ESRB	European Systemic Risk Board
EWS	early warning system
GDP	gross domestic product
GLTDF	gross loans to deposits flows
HHI	Herfindahl-Hirschman Index
IFRS	International Financial Reporting Standards
LCR	liquidity coverage ratio
LGD	loss given default
LTD	loan to deposit
LTI	loan to income
LTV	loan to value
NFC	non financial corporation
NSFR	net stable funding ratio
OJ EU	Official Journal of the European Union
OJ RS	Official Journal of the Republic of Slovenia
O-SII	other systemically important institution
PD	probability of default
SIFI	systemically important financial institution
SRB	systemic risk buffer
SSM	Single Supervisory Mechanism
ZBan (ZBan-2)	Banking Act
ZMbNFS	Macroprudential Supervision of the Financial System Act

1. Introduction

Recent financial crisis has shown that previously defined and pursued economic policies do not suffice for maintaining financial stability. It proved necessary to formulate a new, macroprudential policy that would fill the gap.

Macroprudential policy is a policy used to identify, monitor and assess systemic risks to financial stability with a view to protecting the stability of the financial system as a whole, which also includes enhancing the resilience of the financial system and preventing and reducing the accumulation of systemic risks to ensure that the financial sector makes a sustainable contribution to economic growth.¹

However, the sole definition of the policy is not enough. In order to become efficient, the policy should become operational. In accordance with the Recommendation of the ESRB on intermediate objectives and instruments of macroprudential policy² macroprudential authorities are recommended to specify their macroprudential policy strategies. Such strategy is a crucial step towards a well-functioning policy.

Bank of Slovenia has already published the Guidelines for the macroprudential policy³ that broadly outlined the strategy of the macroprudential policy for the banking sector in Slovenia. This soft law document has linked the ultimate objective of macroprudential policy with the intermediate objectives and the macroprudential instruments under the direct control of the Bank of Slovenia.

This document brings much more. Deriving from the institutional framework and economic circumstances in Slovenia it establishes a detailed strategic framework for achieving the ultimate and intermediate objectives of macroprudential policy through the use of instruments under the direct control of the Bank of Slovenia. System for monitoring the emergence of systemic risks that is already established or will be introduced in the near future is connected with the principles that will guide the application, deactivation or calibration of macroprudential instruments. Coordination mechanisms with relevant authorities at the national and EU level have been introduced and are presented in the document. Additionally the text formulates a communication policy that will enhance transparency and accountability of the macroprudential policy of the Bank of Slovenia.

This introduction is followed by the description of the aim of the macroprudential policy in Chapter 2. Institutional settings of the macroprudential framework in Slovenia and the role of the Bank of Slovenia within this framework are described in Chapter 3. The text sketches the relations with the EU institutions and bodies responsible for the conduct of the macroprudential policy and briefly describes the organization of macroprudential policy making within the Bank. Frequently common instruments and similar targets of supervision (bank vs. banking system) require a description of relations between microprudential and macroprudential policies. Macroprudential policy must take into account also developments in the monetary policy stance. Chapter 4 will be therefore dedicated to relations between different policies. The text now turns from institutional perspective to the economic situation (Chapter 5). Conditions in the financial and banking sector crucially determine the focus of the macroprudential policy. Dynamic, cyclical instruments are foreseen to have a more important role than structural instruments in Slovenia due to the pivotal role of the banking sector and consequently more pronounced cyclical instabilities. The later are, together with structural instabilities and externalities that cause those risks to appear presented in Chapter 6. Chapter 7 and 8 extensively build on Guidelines. Chapter 7 presents the intermediate objectives of the macroprudential policy in Slovenia and describes the most common vulnerabilities that have been present in Slovenia or are expected to threaten individual intermediate objectives in the future. Chapter 8 brings a description of the instruments that were introduced in the Guidelines, with an explicit clause that they will be expanded

¹ Article 2 of the Macroprudential Supervision of the Financial System Act (hereinafter: ZMbnFS), OJ RS 100/13.

² Recommendation of the ESRB of 4 April 2013 on intermediate objectives and instruments of macroprudential policy (ESRB/2013/1), OJ 2013/C 170/01 (hereinafter: ESRB/2013/1).

³ Guidelines for the macroprudential policy of the Bank of Slovenia, 2015 (hereinafter: Guidelines, 2015).

whenever necessary. Next five chapters are dedicated to the description of the macroprudential policy cycle as foreseen to be conducted in Slovenia. Its general overview in Chapter 9 is followed by the description of the first stage of the cycle - Systemic risk identification and assessment - that presents the tools that Bank of Slovenia uses and will use in the future to identify risks in the financial system (Chapter 10). Chapter 11 is dedicated to the general principles that will determine the selection of an individual instrument, i.e. tools employed to link the risk and instruments available, general criteria for selection and calibration of the instruments and their transmission mechanism. Policy implementation (Chapter 12) focuses on more general principles of macroprudential policy conduct. It tries to answer the questions whether policy should be only preventive or also curative, should it be predominantly rule-based or should rely on a certain level of discretion. Also the implementation process and communication strategy of the Bank of Slovenia is described here. The last stage of the circle -Policy and instrument evaluation - follows in Chapter 13. The process of evaluation for different stages of the policy circle is described here. Finally this, last stage, of the process connects with the first phase and completes the circle. The meaning of bank recovery and resolution regime and deposit guarantee schemes for financial stability are described in Chapter 14.

2. Aim of the macroprudential policy

Recent financial crisis world-wide demonstrated that financial stability problems used to remain undetected in a timely manner or, in case they had been adequately identified no proper tools to address them were available. It was widely believed that threats to financial stability could be successfully managed with microprudential policy and monetary policy tools. However, this belief proved to be wrong and the extent of the crisis necessitated a large-scale change - the introduction of the macroprudential policy.

Aim of the macroprudential policy in Slovenia is to identify, monitor and assess systemic risks to financial stability with a view to protecting the stability of the financial system as a whole, which also includes enhancing the resilience of the financial system and preventing and reducing the accumulation of systemic risks to ensure that the financial sector makes a sustainable contribution to economic growth.⁴

Systemic risk has two dimensions - cyclical dimension that refers to the distribution of risks in time and structural dimension that refers to the distribution of risks across the financial system at any given point of time.⁵

As emphasized by the FSB, IMF and BIS the defining elements of the macroprudential policy that differentiate it from other economic policies are its:

- objective: limiting systemic or system-wide financial risk,
- scope of the analysis: the financial system as a whole and its interactions with the real economy,
- set of powers and instruments and their governance: prudential tools and tools specifically assigned to macroprudential authorities.⁶

However, macroprudential policy has its costs – systemic risk prevention might result in a suboptimal level of financial intermediation thereby negatively impacting the real sector. Careful conduct of the macroprudential policy is therefore necessary in order to adequately tackle the described trade-off. The

⁴ Article 2 of the Macroprudential Supervision of the Financial System Act (hereinafter: ZMbnFS), OJ RS 100/13; ESRB: The ESRB Handbook on Operationalising Macroprudential Policy in the Banking Sector, 2014 (hereinafter: ESRB Handbook, 2014).

⁵ More in Chapter 6.

⁶ Financial Stability Board, International Monetary Fund and Bank for International Settlements: Macroprudential policy tools and frameworks: update to G20 Finance Ministers and Central Bank Governors, 14.2.2011.

following text describes the strategy that the Bank of Slovenia will pursue in order to achieve optimal results.

3. Institutional settings of the dedicated macroprudential authority and the role of the Bank of Slovenia

The legislative framework concerning the macroprudential mandate in Slovenia has been implemented with the ZMbnFS, which came into force in December 2013.

According to the adopted legislative framework, the macroprudential authority is the Financial Stability Board (hereinafter: the Board)⁷. It is entrusted with formulating macroprudential policy⁸ that is implemented in cooperation with the Bank of Slovenia, Insurance supervision agency and Securities market agency.

The Board is composed of two representatives of each supervisory body (Bank of Slovenia, Securities Market Agency and Insurance Supervisory Agency) and two representatives from the Ministry of Finance (see Figure 1). Each Board member has one vote except for representatives of the Ministry of Finance who do not have voting rights due to the Board's principle of independence.⁹ The Board's regular meetings shall be called four times in a calendar year. More meetings can be called if so necessary.

The Board is granted with powers and instruments to conduct macroprudential policy at the national level by issuing guidelines in terms of three different possible measures depending on the seriousness of the threat it detects (i.e. recommendation, warning and instruction). The Board decides on a case by case basis whether to publish the guidelines or not.¹⁰

Bank of Slovenia is as a central bank given a decisive role in functioning of the Board due to its comparative advantage in terms of resource capacities, including, but not limited to long history of expert knowledge, informational infrastructure, as well as diverse human resource capacities. It is based also on the paramount role of the banking sector in the Slovenian economy.¹¹ Bank of Slovenia's leading role can for example be identified from the fact that the Board is chaired by the Governor of the Bank of Slovenia. Besides that Board's Secretariat is located within the Bank of Slovenia that also covers most of the Board's expenses.

However, macroprudential supervision requires in-depth cooperation between all supervisory bodies as they supervise only their segment of the financial system whereas risks arising from one segment can spill over to the whole financial system in the absence of fast and successful recognition. The interconnectedness of financial institutions and markets means that the monitoring and assessment of potential risks must be based on a broad set of macroeconomic and financial data and indicators.

The effectiveness of the macroprudential policy also depends on the coordination between Member States on the application of macroprudential instruments on national level. Therefore, supervisory bodies and the Board are required by ZMbnFS to cooperate on the exchange of data and information with the competent authorities of other EU Member States, the ESRB, the SSM and other international financial institutions to the extent and in the manner determined by EU rules.¹²

The Board can propose supervisory body to implement supervisory measures and instruments in response to the identified threats to financial stability. Supervisory bodies' response follows the so called "act-or-explain" principle.¹³

⁷ OFS – Odbor za finančno stabilnost, Financial Stability Board; Article 3 of ZMbnFS.

⁸ More in Chapter 6.

⁹ Article 5 of ZMbnFS.

¹⁰ Article 9 and 11 of ZMbnFS.

¹¹ More in Chapter 5.

¹² Article 15 of ZMbnFS.

¹³ Article 9 and 17 of ZMbnFS.

According to ZMbnFS, supervisory bodies may adopt various measures and instruments in accordance with the sectoral legislation in order to implement the Board's macroprudential policy and guidelines.¹⁴

Should the Bank of Slovenia be given a guideline to implement a macroprudential tool, it would follow the macroprudential policy circle described in Chapters 9-12. This process is predominantly conducted in the Financial Stability and Macroprudential Policy Department of the Bank of Slovenia. Actual implementation of the tool would require the approval by the Bank of Slovenia's Governing board, normally in the form of a regulation.¹⁵

Issuance of a guideline may be a result of Board's regular identification, monitoring and assessing of systemic risks to financial stability procedures or from warnings and recommendations of the ESRB – European Systemic Risk Board as well as from the European Central Bank. As part of the work on ensuring the effectiveness of the macroprudential supervision representatives from the Bank of Slovenia are engaged in the operations of the Eurosystem, ESCB, SSM and ESRB's working groups and committees. Notification of a draft macroprudential measure by the Bank of Slovenia or other supervisory agency in Slovenia is communicated to the Board and then to the relevant international institution.

The Board's Secretariat provides the Board with analytical, administrative and logistical support and is managed and steered by the Chair of the Board.¹⁶ The Secretariat coordinates assigned tasks from the Board, ESRB, SSM or any other applicable international institution to the relevant domestic supervisory body.

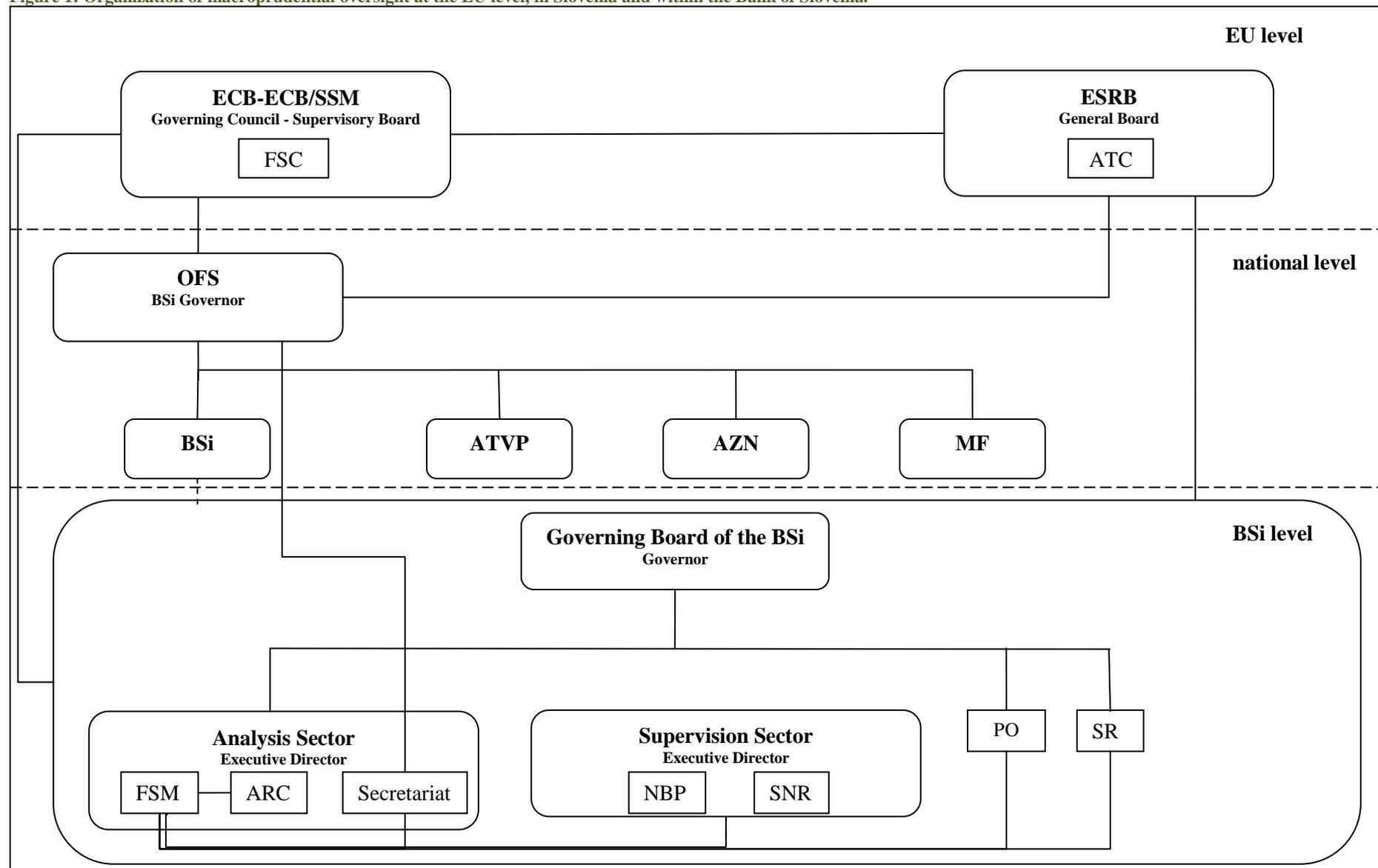
Actual process of the macroprudential policy preparation in the field of banking as presented in following chapters (especially Chapters 9-12) is performed by the Financial Stability and Macroprudential Policy Department (FSM) of the Bank of Slovenia, although assistance of the Analysis and research department (ARC), Banking supervision department (NBP), System control and regulation department (SNR) and Legal department (PO) is necessary. Also the administrative support of the Secretariat (SMN), as described above is needed. Financial Stability and Macroprudential Policy Department will cooperate also with the Resolution unit (SR) (see Figure 1).

¹⁴ For details see Article 19 of ZMbnFS.

¹⁵ More in Chapter 11.

¹⁶ Article 6 of ZMbnFS.

Figure 1: Organization of macroprudential oversight at the EU level, in Slovenia and within the Bank of Slovenia.



4. The relationship between policies

4.1 Macroprudential and microprudential policies

4.1.1 Synergies and tensions between macroprudential and microprudential policy

Macroprudential and microprudential policies are tightly interconnected; however, in the short-run, they could pursue conflicting goals. Activities performed by microprudential supervision at the level of individual institutions could destabilize the system as a whole because of institutions' interaction on financial markets, the structure of their networks and behaviour of other financial institutions. To summarize, "the health of individual financial institutions is a necessary, but insufficient condition for financial stability".¹⁷ Therefore, the macroprudential supervision takes into account general equilibrium effects that might be ignored by the microprudential supervision.¹⁸

Mandate of the macroprudential policy in Slovenia is defined in the Macroprudential Supervision of the Financial System Act¹⁹ and in the Guidelines for the macroprudential policy of the Bank of Slovenia. As already emphasized in Chapter 2 macroprudential policy is used to identify, monitor and assess systemic risks to financial stability with a view to protecting the stability of the financial system as a whole, which also includes enhancing the resilience of the financial system and preventing and reducing the accumulation of systemic risks to ensure that the financial sector makes a sustainable contribution to economic growth.²⁰

The primary objective of micro-prudential supervision on the other hand is the promotion of safety and soundness of individual banks. It also aims to reduce the probability and impact of bank failures. The purpose and scope of microprudential supervision performed by the Bank of Slovenia are defined in the Banking Act (ZBan-2).²¹ According to this act the banking supervision focuses on assessing risks to which the banks are or might be exposed in their operations as well as on assessing the financial position and risks to which the banks are or might be exposed as a result of their relations with other persons.²²

Despite different mandates the relationship between the two policies is easier to coordinate when the two functions are performed under the same roof as it is the case in Slovenia. The relationship between macroprudential and microprudential policy for the Slovenian banking sector is determined in the Guidelines.²³ They state that the stability of the financial system is more important than the stability of an individual institution, so the macro concerns should override the micro ones, though necessarily taking into account microprudential considerations.

Table 1: Overlap of micro and macroprudential tools.

	Basic framework	Other
Microprudential tools	Pillar 2	Pillar 2
	Article 124/164, capital conservation buffer	
Macroprudential tools	CCB, O-SII buffer, SRB	Article 458 CRR

Source: Based on EBA: Review of macroprudential rules in CRR/CRD – EBA/OP/2014/06.

¹⁷ Osiński, J., Seal K. and Hoogduin, L.: Macroprudential and Microprudential Policies: Towards Cohabitation, IMF Staff Discussion Note (SDN 13/05), June 2013.

¹⁸ Ibid.

¹⁹ Article 2 of ZMbNFS.

²⁰ Guidelines, 2015.

²¹ OJ RS 25/15.

²² The objective of the microprudential supervision is defined in Article 234 (ZBan-2).

²³ Guidelines, 2015.

The tools of the two policies overlap; however, it is the application that qualifies them as either macro- or microprudential instrument. Although Pillar 2 is usually considered as a microprudential tool, it contains several macroprudential aspects, i.e. risks considered under the Pillar 2 include systemic elements, the primary tool of Pillar 2 is the creation of a capital buffer and the level of the buffer may be adjusted depending upon the point of the cycle.²⁴

Cyclical instruments are considered as the most important macroprudential tools in Slovenia due to the structure of the financial system (more in the following chapters); while at the same time the highest possibility of conflicts between the two policies exists in application of cyclical tools, more precisely in the extreme phases of the financial cycle.

While both policies encourage the build-up of **capital and liquidity buffers** in the upward phase of the cycle, the differences might appear in timing and scale of the required buffers. However, the differences might escalate when the cycle starts approaching its peak. Microprudential indicators are still encouraging; on the other hand, systemic risk indicators give warning signals. During the reversal the microprudential policy focuses on the stability of the individual firm requiring higher level of its capitalization, while the macroprudential policy tries to stabilize the system as a whole and focuses on prevention of excessive deleveraging pressures. Conflict between the policies is therefore obvious. Upon recovery macro- and microprudential policies become more aligned, although their opinion on timing and intensity of changes might still differ in short run.

Tensions are less likely to appear when mitigating **structural vulnerabilities**. Nevertheless, macroprudential concerns might require adjustments to microprudential policy.

4.1.2 Coordination of macroprudential and microprudential policies in the Bank of Slovenia

As can be seen from Table 1, overlap between microprudential and macroprudential tools exists in the applications of Article 124 and Article 164 of the CRR, capital conservation buffer as well as in the usage of Pillar 2. Therefore coordination of tasks between the two departments responsible for micro- and macroprudential policy within the Bank of Slovenia as well as agreement on internal procedures is important in order to achieve optimal results. Previous experiences with the development and implementation of macroprudential instruments between 2012 and 2016 have proven the benefits of such coordination. Furthermore, a constant cooperation between the departments with a special emphasis on data and information sharing is crucial. It is essential that both departments see the broader picture and are aware of the *raison d'être* of the other department.

4.2 Macroprudential and monetary policies

Monetary and macroprudential policies overlap in several aspects (for example they both affect financial system through a similar transmission mechanism), therefore the design and consequences of one policy have to be taken into account by the other policy. Since Slovenia forms a part of the euro area, monetary policy can be considered as exogenous for the macroprudential policy conducted by the Bank of Slovenia.

Possible consequences of monetary policy on financial stability that have been identified in the literature²⁵ are its impact on:

- tightness of borrowing constraints,
- risk-seeking behaviour of financial intermediaries,
- asset-price and exchange-rate externalities.

²⁴ Osiński, J., Seal K. and Hoogduin, L.: Macroprudential and Microprudential Policies: Towards Cohabitation, IMF Staff Discussion Note (SDN 13/05), June 2013.

²⁵ IMF: The Interaction of Monetary and Macroprudential Policies, January 29 2013, Pamfili Antipa, P. & Matheron, J.: Interactions between monetary and macroprudential policies, Banque de France, Financial Stability Review, No. 18, April 2014.

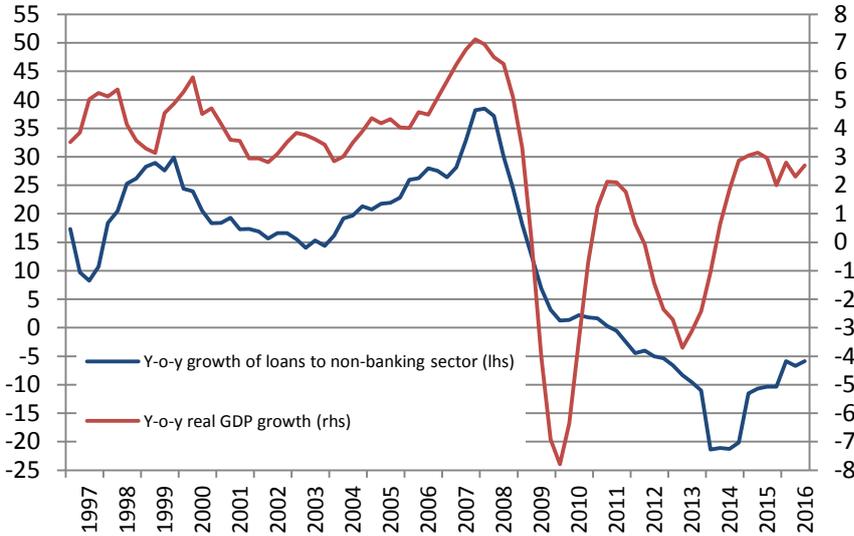
Bank of Slovenia will monitor financial stability consequences of changes in the monetary policy stance following its systemic risk identification and assessment processes²⁶ and take them into account when deciding on its macroprudential policy stance.

5. Economic circumstances and financial sector in Slovenia

5.1. The financial and business cycle in the recent decade

The close interactions between the business and financial cycles play an important role in shaping recessions and recoveries. Recessions associated with financial disruptions are often more pronounced than other recessions.²⁷ Consequently, the recoveries associated with disruptions in the credit growth tend to be more costly and time-consuming, accompanied by the long deleveraging process of both, the financial and non-financial sector. Following the 2005-2008 boom period (see Figure 2), the real GDP growth in Slovenia quickly recovered from the relatively short bust period. However, the economic recovery failed to materialise, and in 2012 Slovenia entered a double dip recession. The collapse of the construction sector, the close-down of several labour-intensive manufacturing companies and the slowdown of the economic activity as a whole, caused a severe banking crisis including a gradual growth of non-performing loans. Instead of a slow recovery, the drop in credit growth was prolonged, reaching record lows as late as six years from the start of the global financial crisis in 2008. It has to be emphasized that an important part of the decrease in lending was caused by institutional changes, i.e. transfer of NPLs to BAMC conducted in 2013 and 2014 and the liquidation of the two banks in 2016, rather than pure reduction in lending. The volume of lending is not expected to return to the pre-crisis levels due to the changed structure of the economy, with a strongly retracted construction sector, which operated based on bank financing. Companies are also relying more on internal sources of funding and sources outside the banking system.

Figure 2: Real GDP y-o-y growth and credit y-o-y growth in percent in the period from 1996 Q4 to 2016 Q2.



Source: Bank of Slovenia.

5.2. The structure of the Slovenian financial sector

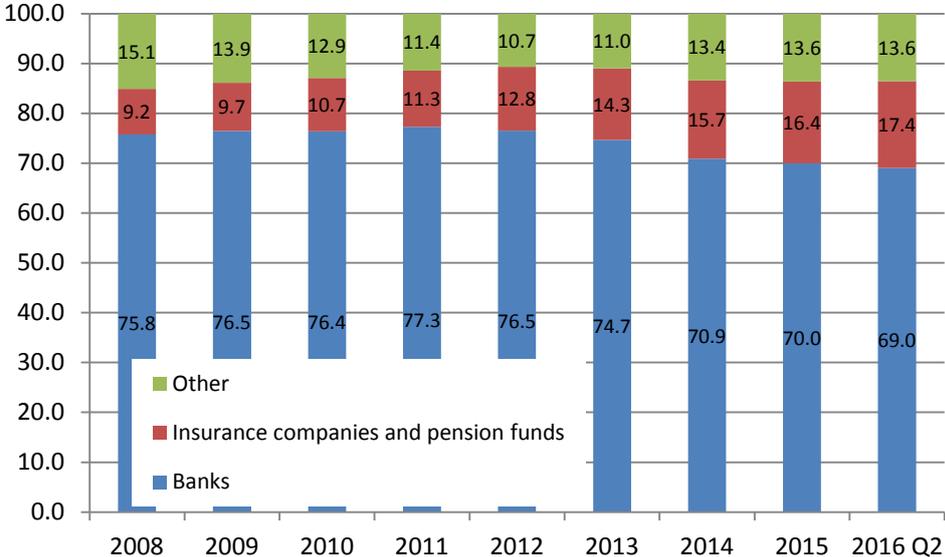
The size of the financial system in Slovenia with 150% of GDP at the end of 2015 is relatively small compared with the euro area overall, where the financial system is equivalent to 672% of GDP. A comparison with the euro area also reveals the relative lack of development in intermediaries that are not classed as banks or insurers. These manage just 13.6% of financial assets in Slovenia, compared with 36% in the euro area overall. The structure has been relatively stable over the last few years as

²⁶ More in Chapter 10.

²⁷ Claessens, S., Kose, M. A. & Terrones, M. E.: From Recession to Recovery: How Do Business and Financial Cycles Interact?, IMF WP/11/88, April 2011.

seen in Figure 3. Banks represent 69% of total assets in the financial system, making Slovenia a very bank dominated economy. The banks retain a large proportion of financial assets under management, although their assets are declining owing to deleveraging. Banks' recapitalisations in 2013 and 2014 strengthened the proportion of equity of the financial sector held by general government, which at the end of 2015 stood at 62.9%. The structure of the banking sector indicates a rationale for the introduction of structural macroprudential instruments.

Figure 3: Structure of the financial sector in terms of financial assets in percentages.



Source: Bank of Slovenia

5.3. Main characteristics of Slovenian banking sector and its developments through the pre-crisis and crisis period

Slovenian economy is, like many others in Europe, bank-based. Economic activity largely depends on banks' financing and any disruption in flow of funds from banks to non-financial corporations (NFCs) and households can have severe negative macroeconomic consequences. As depicted in Figure 2, credit cycle in Slovenia was very pronounced. On its peak in 2007, loans to non-banking sector reached almost 40% year-on-year growth, which can be deemed as excessive, since many risks were accumulating during that period. They started materialising once the crisis hit in 2009, which quickly pushed the credit cycle to negative year-on-year growth.

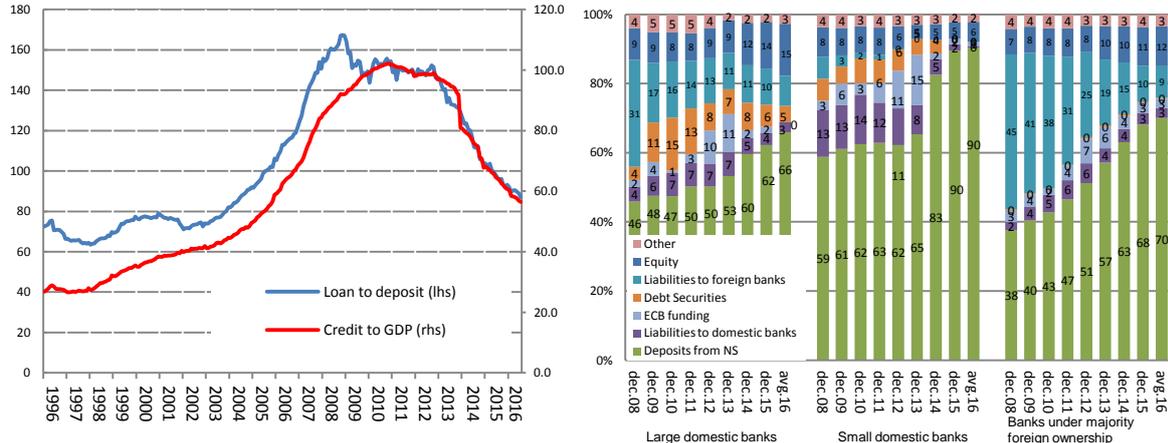
The accelerated deepening of Slovenian banking system in the pre-crisis period was to a large extent enabled with financial integration and financial openness. After 2004, when Slovenia became part of the European Union, credit-to-GDP ratio started rising significantly and gained approximately 50 percentage points in four-year period before the onset of the crisis. Deposits were not sufficient to finance such high credit growth, that's why banks largely relied on wholesale funding, which became more accessible after Slovenia joined the European Union. The share of wholesale funding rose from 12% of total liabilities in 2002 to more than 38% on its peak in 2008. Consequently, the loan-to-deposit ratio rose significantly and gained almost 100 percentage points in the same period (Figure 4).

The crisis would have been even more severe if the Bank of Slovenia in 2006 had not introduced the prudential filter causing the accumulated provisions and impairments to be transferred to capital rather than to profit as it would have happened with the introduction of the International Financial Reporting Standards (IFRS) in the absence of the instrument. By abolishing the prudential filter, the Bank of Slovenia acted counter-cyclically and mitigated the contraction in the banks' lending activities in the early period of the crisis's development.²⁸

²⁸ Bank of Slovenia: Financial Stability Review, 2012.

Financial crisis caused several adjustments in banks' balance sheets, both on the asset and liability side. Access to wholesale funding became severely limited, causing a drop in its share in total liabilities to 10.5% in August 2016. Similar level was last recorded in 2001. This, together with more or less stagnating level of deposits, had a strong effect on credit supply during the crisis period. At the same time, credit demand also dropped considerably. In deteriorated economic conditions, non financial corporations (NFCs) find it difficult to opt for investment projects supported by an appropriate capital investment. Indebtedness of Slovenian NFCs is closer to the median of the euro area; however the NFCs achieved this mostly by repaying outstanding loans rather than by increasing their equity.

Figure 4: Loan-to-deposit and credit-to-GDP ratio (left) and structure of bank funding (right), in percent.



Source: Bank of Slovenia

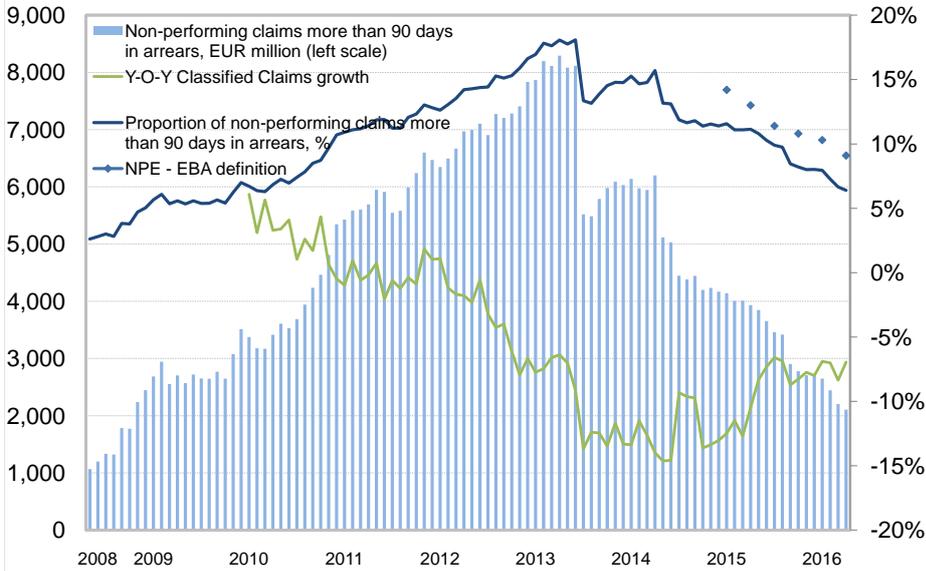
Note: LTD and credit-to-GDP ratio both have loans to non-banking sector before impairments in the numerator.

There were large differences in funding structure between domestically owned banks and banks under majority foreign ownership. As shown in Figure 4, the latter had significantly larger share of wholesale funding in their balance sheet on the peak in 2008 than large domestic banks and small domestic banks. Foreign owned banks are part of multinational banking groups, which enabled them easier access to wholesale funding through internal capital market. In the crisis, however, the access to wholesale funding was severely restricted for all groups of banks. The deleveraging in Slovenian banking system mainly materialized through the contraction in liabilities to foreign banks. Consequently, the deposits have become the prevailing funding source for all groups of banks.

The share of non-performing claims (measured as classified claims more than 90 days in arrears) increased severely in the crisis. As depicted in Figure 5, the share of non-performing claims started rising sharply after 2008, however declined after the transfers to BAMC in years 2013 and 2014. In accordance with the current IFRS provisioning model, based on incurred losses, this put a strong pressure on banks' capital through loan loss provisions. In financial distress, when raising capital is extremely difficult it led to additional deleveraging in order to fulfil the capital requirements. Several recapitalisations were needed, the largest being at the end of 2013 after the comprehensive review of Slovenian banking system. The trend of improvement in the banks' credit portfolio has continued through years 2015 and 2016. The stock of claims more than 90 days in arrears declined to EUR 2.2 billion in August, equivalent to 6.7% of the banks' classified claims. There have been several factors in the improvement in the credit portfolio in 2016: the completion of the orderly wind-down of Factor banka and Probanka in February 2016, increased write-downs, forbearance of claims and selling-off the bad assets by the banks. The proportion of non-performing exposures stood at 10.3% at the end of the first half of the year 2016 according to the broader EBA definition, which alongside its broader capture of bank investments also includes forborne exposures under non-performing exposures for some time after debtors have begun making regular debt repayments, while a declining trend is also evident.

Banks have become more risk averse and prefer to invest their funds in more liquid, less risky assets. The share of investments in securities stood at 25,7 % in 2015, comparing to 15% in 2008 importantly reflecting measures introduced for the recovery and resolution of the banking system.

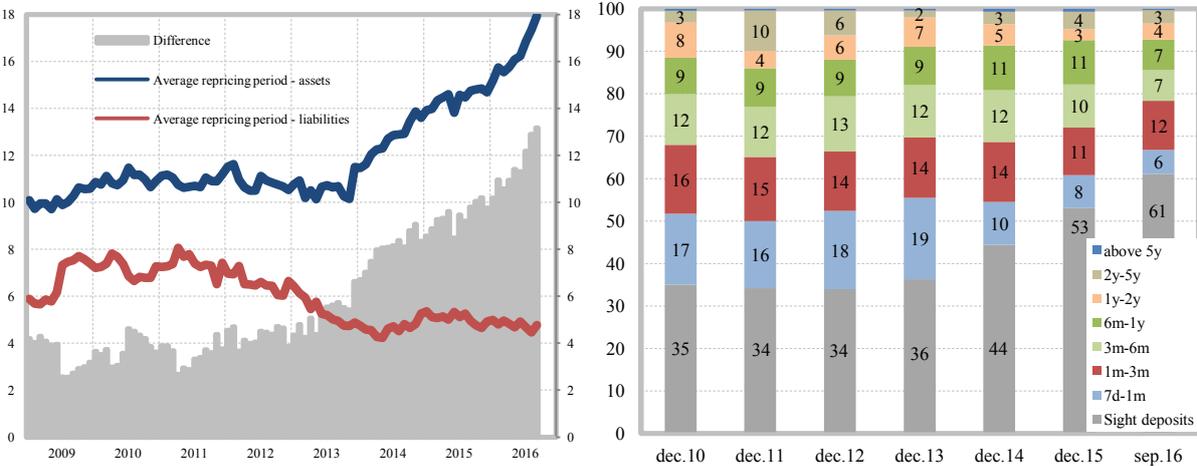
Figure 5: Indicators of the quality of credit portfolio in percent.



Source: Bank of Slovenia.

Interest rate risk mainly caused by the low interest rate environment is currently one of the most pronounced risks in the Slovenian banking system. It is importantly related to income and liquidity risk.

Figure 6: Average repricing period for interest rates for assets and liabilities of the Slovenian banking system, in months (left) and structure of deposits based on repricing period, in % (right).



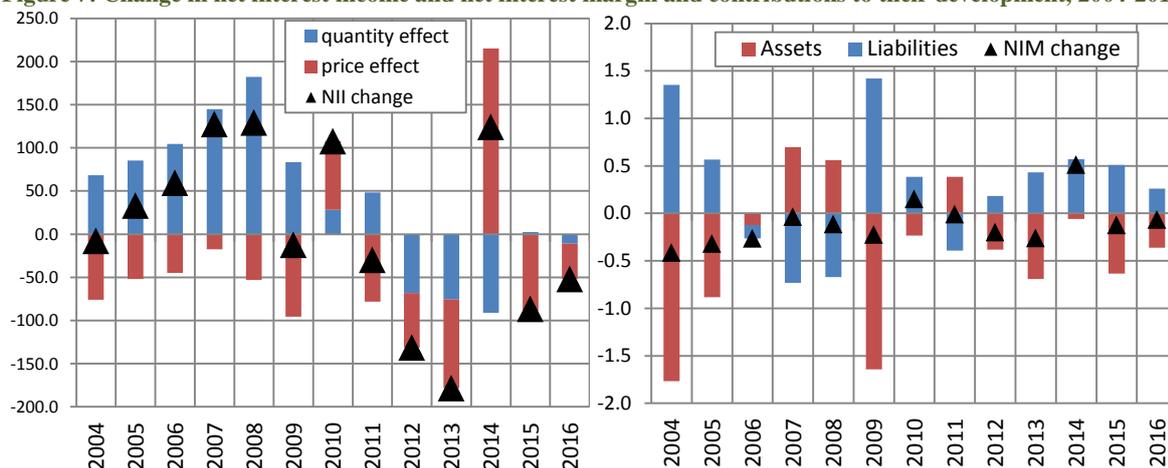
Source: Bank of Slovenia.

Interest rate risk measured as the difference between the average repricing periods for asset and liability interest rates indicates increased exposure to the risk of the interest rate increase. The difference between the average repricing period for asset and liability interest rates has reached 13.2 months in September, which is 3.4 months more than a year before. The share of fixed interest rate assets has increased recently. This situation indicates that pressures on banks' income might appear in the case of an interest rate increase. On the other hand, the increased share of cheaper sight deposits amplifies the maturity mismatch and creates potential instability (Figure 6).

Low interest rate environment could additionally represent a threat to the bank profitability. Banks' net interest margin has been mainly falling throughout the 1998-2016 period, reflecting diminishing inflation and strong competition pressures in the banking sector. Expansive growth of loans from 2005-2008 had a big positive quantity effect on net interest income. The contribution of the quantity

effect to changes in net interest income shrank sharply following the onset of the financial crisis and turned negative during 2012–2014. The contribution of the price effect was negative throughout, except for 2010 and 2014. From 2009 onwards, the contribution of the price effect has been greater than that of the quantity effect. The contribution of the asset side of the balance sheet to changes in the NIM has been negative in most years, while the liability side has tended to contribute positively (Figure 7).²⁹ Since banks will not be able to continue to further decrease their passive interest rates, the pressures on the net interest margin might continue. This could harm bank profitability and increase income risk as well as induce banks into reduction of lending standards that could contribute to the accumulation of risks.

Figure 7: Change in net interest income and net interest margin and contributions to their development, 2004-2016.



Source: Bank of Slovenia.

The crisis revealed the importance of properly functioning banking system for Slovenian economy. In the future, the emphasis should be on timely identification and prevention or at least mitigation of the crisis episodes. Developments in the pre-crisis and crisis period clearly indicate that cyclical instruments of the macroprudential policy will have a more important role in Slovenia than structural instruments. Currently prevailing funding structure of the Slovenian banking system points to the importance of the development of liquidity macroprudential instruments.

6. Systemic risk and its components

Systemic risk is at the core of the activity of the macroprudential policy. Article 2 of the Macroprudential Supervision of the Financial System Act defines it as the risk of disruptions to the financial system which can have serious adverse effects on the functioning of the financial system and the real economy. The final objective of the macroprudential policy, as described already in Chapter 4, is to protect the stability of the financial system.

Macroprudential literature differentiates between vulnerabilities and triggers. Vulnerabilities are potential sources of systemic risk from within or outside the financial system that determine the nature and source of systemic events and might be linked to multiple triggers.³⁰ On the other hand, triggers are exogenous or endogenous shocks that initiate a systemic event during which potential losses materialise.³¹

Regular operations of the financial system produce three main types of externalities:³²

²⁹ More in: Ahtik, M., Banerjee, B. and Remšak, F.: Net interest margin in a low interest rate environment: Evidence for Slovenia, *Bančni vestnik*, Special Issue, November 2016.

³⁰ ESRB: A Framework for the Systemic Risk Assessment, 2015.

³¹ ECB: Financial Stability Review, December 2009.

³² Claessens, S.: An Overview of Macroprudential Policy Tools, IMF WP/14/214.

1) Externalities related to strategic complementarities, that arise from the strategic interactions of banks and other financial institutions, and cause the build-up of vulnerabilities during the expansionary phase of a financial cycle, when institutions exhibit reduced risk-aversion.

2) Externalities related to interconnectedness, caused by the propagation of shocks from systemic institutions or through financial markets or networks.

3) Externalities related to fire sales and credit crunches that arise from a widespread sell-off of assets causing a decline in asset prices, a deterioration of balance sheets of intermediaries and investors and a drying up of financing caused by excessive risk-aversion, especially during the contractionary phase of a financial cycle. During the crisis, especially in 2008, stock indices at Ljubljana stock exchange fell significantly, reducing the value of the equity of Slovenian companies and consequently also their creditworthiness.

The *cyclical (conjunctural, dynamic)* component of systemic risk is connected with the first and third externality and refers to the distribution of risks in time. Slovenian economy is mainly bank-based as described in Chapter 5 causing the cyclical dimension of the systemic risk to be more pronounced.

The *structural (cross-sectional)* component occurs because of externalities related to interconnectedness and refers to the distribution of risks across the financial system at any given point of time. Small size of the Slovenian economy in connection with the oligopolistic nature of the banking business conditions a rather high level of concentration of the banking sector as well as concentration of its exposures.

Both components cannot be strictly separated and have to be assessed jointly, especially because they can reinforce each other.

7. Intermediate objectives of the macroprudential policy for the banking sector in Slovenia

Macroprudential authorities are recommended to pursue the intermediate objectives with the aim of achieving the ultimate objective of the macroprudential policy - a stable and resilient financial system. According to the Recommendation ESRB/2013/1 the identification and definition of intermediate policy objectives is crucial, since they make the macroprudential policy more operational, transparent and accountable and present a basis for instrument selection. Slovenia has, in accordance with the Recommendation introduced following intermediate objectives in the Guidelines for the macroprudential policy of the Bank of Slovenia:

- (a) Mitigate and prevent excessive credit growth and leverage;
- (b) Mitigate and prevent excessive maturity mismatch and illiquidity;
- (c) Limit direct and indirect exposure concentrations;
- (d) Limit the systemic impact of misaligned incentives aimed at reducing moral hazard;
- (e) Strengthen the resilience of financial infrastructures.

a) The first intermediate objective includes the mitigation and prevention of the **excessive credit growth** that has been identified as a key component of financial crisis worldwide with Slovenia being no exception. Banks in Slovenia were granting credit also to financial holdings involved in mergers and acquisitions as well as in heavily leveraged management buy-outs. Endogenous risk taking of the banking sector during a boom period prior to the crisis along with decreasing lending standards has been the number one culprit for the recent crisis. Underestimation of risk, the so called risk illusion, as well as newly found market opportunities arising prior to the recession have diminished the credit requirements. The increased **leverage** has further boosted the crisis as it acted as an amplification channel. The crisis in Slovenia has resulted in a severe credit crunch originating in tightening of credit standards and the reduction of credit availability especially to non-financial sector that further inflated the macroeconomic imbalances.

Further possible underlying market failures that could endanger the objective are interconnectedness externalities.³³ Banks in Slovenia have already experienced this type of problem - during the recent financial crisis they faced a strong reduction in the wholesale funding.

On the other hand also the consequences of the excessive behaviour in the past, namely current subdued credit growth should be mitigated or eliminated. Anyhow, it is hoped that the process of stimulating credit growth will be influenced by the ECB through its non-standard measures.

b) The second objective relates to the **maturity mismatch**, which is defined as the difference between maturity of banks' assets and liabilities that could lead to **illiquidity**. The Slovenian banking system was highly dependent on short-term funding, which demonstrated a sudden drop after the outbreak of the last crisis. Moreover, the reliance on the short-term wholesale funding does not ensure a long term stable funding. A significant distinction also exists between the funding structure of larger Slovenian banks and banks under majority foreign ownership. While the later are highly dependent on borrowing abroad, the domestic banks are mainly dependent on the nonbanking sector (predominately households).³⁴

Fire sale interventions might provoke a liquidity spiral inducing further deleveraging and sales. A rise to pessimistic expectations or even panic can further deteriorate the market resulting in bank runs and market crashes.

c) The third objective covers **direct exposure** that stems from concentration risk and **indirect exposure** that originates from the interconnectedness of both, the non-financial and financial sector. The last financial crisis revealed high concentration of the Slovenian economy, which is dependent on very specific sectors and tightly interlinked in terms of the ownership. For example the construction sector has been severely hit during the recession causing bankruptcy of several companies as well as high unemployment. On the other hand government crisis interventions increased the exposure of the banking sector towards sovereign and deepened the bank-sovereign nexus.

d) The fourth objective of the macroprudential policy is to **limit the systemic impact of misaligned incentives aimed at reducing moral hazard**. Since it is impossible to prevent crises for certain it is important to strengthen key systemically important institutions since their default would lead to the breakdown of the entire system. "Too big to fail" perspective of vital institutions is a systemic risk component that should be prevented *ex ante*. By reinforcing the key financial institutions as well as limiting the more risk friendly players it is possible to lower the negative effects of an implicit government guarantees. Another important aspect of moral hazard is connected to management remuneration and the mismatch between long and short term goals. The lack of public disclosure and transparency as well as possible political instability and corruption present future plausible risks to the objective. Subject to the nature of risks other policies should support macroprudential policy in achieving this intermediate objective.

e) The last but not least among intermediate objectives is the **strengthening of resilience of the whole financial infrastructure**, where the macroprudential authorities should cooperate with the departments in charge of the infrastructure oversight. This step is important in reaching stability of all financial intermediaries as well as reaching a favourable economic climate resulting in economic growth and stability. The Slovenian financial infrastructure contains vital payments and settlements systems such as TARGET2-Slovenija, SEPA and in the future also TARGET2Securities. In case of a severe distress in the banking sector a deposit guarantee scheme might activate. The failure of the described parts of financial infrastructure could jeopardize not only the functioning of the entire banking sector, but of the whole economy.

³³ More on dependency of the Slovenian banking system on short-term funding and its consequences during the last financial crisis in Chapter 5 and under point b).

³⁴ For further details, please see Chapter 5.

The advancement of technology as well as the increase in online banking and other internet related service has introduced a new form of danger - cyber risk. Due to the advent of cyber crime, cyber resilience is of key importance in supporting the infrastructure.

The recent crisis revealed that the business model of some of the Slovenian banks was unsustainable and not resilient enough due to over-reliance on wholesale funding; however their faults only surfaced when the crisis hit thus prolonging and deepening the recession. This intermediate objective could be compromised also by several externalities related to previous objectives such as interconnectedness, fire sales and risk illusion. Also incomplete contracts can provide an incentive for risky behaviour and moral hazard of the bank management. The outlook for Slovenia exposes the threat of not carrying out all the necessary infrastructural reforms hindering the reinforcement of the financial infrastructure.

Table 2: List of possible indicators monitored by the Bank of Slovenia linked to intermediate objectives.

Mitigate and prevent excessive credit growth and leverage
Real GDP growth
Unemployment
Real estate prices
Credit-to-GDP gap
Growth of loans to non-banking sector
Share of non-performing assets in total assets
Coverage of non-performing claims by impairments
Capital adequacy
Leverage
Mitigate and prevent excessive maturity mismatch and illiquidity
Loan-to-deposit ratio
Liquidity coefficient
Balance sheet structure
Limit direct and indirect exposure concentrations
Exposure to the risk of contagion
Concentration of exposures to individual subjects and individual risks
Limit the systemic impact of misaligned incentives aimed at reducing moral hazard
ROE
Net interest margin
Bank interest rates
Assets-to-GDP
HHI based on assets
Strengthen the resilience of financial infrastructures
All of the listed above

Source: Guidelines, 2015.

With periodic assessment of intermediate policy objectives over time, the objectives may be revised by taking into account additional risks presented to financial stability. In view of gaining experience in operating the new macroprudential policies as well as taking into account any structural or country specific changes the objectives can be further adjusted to cope with new emerging threats. The balance between the objectives can change with macroprudential policy and instruments taking effect so future revision could be necessary.

The set of indicators will be expanded further with the operationalisation of macroprudential instruments within the framework of meeting individual intermediate objectives and for guiding decisions in relation to the introduction, deactivation and calibration of macroprudential instruments.

8. Instruments of macroprudential policy³⁵

8.1 Potential instruments of macroprudential policy

To pursue the intermediate objectives of the macroprudential policy defined in the Guidelines, the Bank of Slovenia will, based on the assessment of risks observed in the financial system, use instruments regulated in CRR and CRD IV (implemented through ZBan-2), instruments that have already been introduced into national legislation (a cap on the deposit interest rate and GLTDF), and other instruments in accordance with the Slovenian legislation. The list of the (potential)

³⁵ Descriptions of the instruments in this chapter are coming from the Guidelines and are based on the legislative framework listed in Table 3, ESRB Handbook (2014), ESRB/2013/1 and <https://www.bsi.si/en/financial-stability.asp?MapaId=1192>.

macroprudential instruments is mapped with the intermediate objectives of the macroprudential policy of the Bank of Slovenia and is presented in Table 3 together with the legal basis for their introduction.

The **countercyclical capital buffer (CCB)** rate may be increased or reduced (counter-cyclically) in accordance with the variation in systemic risk over time. The CCB indirectly curbs the expansive phase of the credit cycle by reducing the supply of loans or increasing the cost of lending. The release of the buffer (at the reversal of the credit cycle) mitigates the risk of the supply of loans being limited by regulatory capital requirements. The CCB rate may range from 0% to 2.5% of risk-weighted assets, exceptionally it can be higher. The CCB buffer is mandatory as of 2016.

Table 3: List of potential macroprudential instruments and corresponding legal basis

Intermediate objective	Instrument	Legal basis
Mitigate and prevent excessive credit growth and leverage		
	LTD cap	ZMbnFS, ZBan-2
	Countercyclical capital buffer	ZBan-2
	Sectoral capital requirements	Articles 124 and 164 of CRR, ZMbnFS, ZBan-2
	Macro-prudential leverage ratio	ZMbnFS
	Loan-to-value (LTV) requirements	ZMbnFS
	Debt service-to-income (DSTI) requirements	ZMbnFS
	Loan-to-income (LTI) requirements	ZMbnFS
Mitigate and prevent excessive maturity mismatch and illiquidity		
	Gross loans to deposits flows (GLTDF) – implemented in June 2014	ZBan-2
	Macro-prudential adjustment to liquidity ratio (liquidity coverage ratio – LCR)	ZMbnFS, ZBan-2
	Macro-prudential restrictions on funding sources (net stable funding ratio – NSFR)	ZMbnFS, ZBan-2
	Additional liquidity requirements	ZMbnFS, ZBan-2
	Macro-prudential unweighted limit to less stable funding (loan-to-deposit ratio)	ZMbnFS, ZBan-2
Limit direct and indirect exposure concentrations		
	Large exposure restrictions	Article 395 of CRR, ZBan-2
	Structural systemic risk buffer	ZBan-2
Limit the systemic impact of misaligned incentives aimed at reducing moral hazard		
	Limitation of the excessive growth of deposit interest rates – implemented in February 2012	ZBan-2
	O-SII buffer	ZBan-2
Strengthen the resilience of financial infrastructures		
	Systemic risk buffer	ZBan-2
	Increased disclosure	ZBan-2, Article 458 of CRR

Notes: The Bank of Slovenia is additionally responsible for the introduction of measures under Article 458 of the CRR. In the event that additional intermediate objectives or instruments are needed, the list will be expanded accordingly. Selection of additional macro-prudential instruments will be based on their efficiency and effectiveness in addressing structural and cyclical risks in the financial system.

Sectoral capital requirements are used when the microprudential requirements do not manage to sufficiently tackle the systemic risk. They are targeted to a specific sector or class of financial asset (in the CRR limited to the real estate sector). An increase in the capital requirements for a specific sector alters the relative prices/costs, thereby reducing lending to the targeted sector. The measure additionally encourages banks to reduce exposures to the specific sector.

Macroprudential leverage ratio is defined as the ratio of a bank's equity to its total (non-risk-weighted) assets. Its introduction brings an increase in the price of lending, and a decline in the amount of lending approved.

The **required loan-to-value (LTV) ratio** represents the maximum loan value relative to pledged collateral (e.g. residential real estate). The **required debt service-to-income (DSTI) ratio** represents the maximum cost of servicing debt relative to available income, while the required loan-to-income (LTI) ratio represents the maximum loan value relative to available income (if used statically, but can also vary over time). A stricter LTV ratio reduces the amplitude of the credit cycle and improves the resilience of the banking system, as it lowers loss given default (LGD). A lower LTI or DSTI ratio reduces the probability of default (PD).

GLTDF defines minimum requirements for the ratio of the annual change in the stock of loans to the non-banking sector before impairments to the annual change in the stock of deposits by the non-banking sector (gross loans to deposits flows or GLTDF). The purpose of the instrument is to slow the pace of the reduction in the LTD ratio, stabilise the structure of the banking system's funding and reduce systemic liquidity risk in funding. The measure was introduced on the basis of national legislation (ZBan-1).

Institutions should maintain sufficient levels of liquidity buffers to cover sudden outflows of liquidity in highly stressed conditions for a period of thirty days (**liquidity coverage ratio or LCR**). The LCR will be introduced gradually between 2015 and 2018. The macroprudential measure can be implemented in the form of an addition or other macroprudential adjustments of the ratio for specific bank groups, or the banking sector as a whole. A (gradual) increase in the ratio is reasonable in periods of excess liquidity (disproportionately high values of assets used as collateral, low volatility and low interest rate spreads). The banks can meet the liquidity requirements by increasing the maturity of funding or investing in liquid assets. To avoid procyclicality the ratio should be released during periods of liquidity distress.

The **net stable funding ratio (NSFR)** sets the lower limit for the amount of long-term funding that banks should hold as a counterweight to less-liquid assets. The indicator can be adjusted for macroprudential purposes, for example as a time-variable addition to the minimum value. Tightening and relaxing the allowed mismatch between assets and liabilities in different stages of the financial cycle can help to reduce the amplitude of the credit cycle.

Additional liquidity requirements might be applied before the final introduction and harmonisation of liquidity instruments (LCR, NSFR) at EU level in order to limit systemic liquidity risk.

Macroprudential unweighted limit on less-stable funding (LTD ratio) is defined as a maximum required LTD ratio³⁶ and can vary over time. In the latter case it is suited to the management of cyclical risks. Its objective is to prevent excessive reliance on short-term wholesale funding, which leads to excessive credit growth and leverage. It can contribute to an improvement in the banks' liquidity position.

Large exposure³⁷ restrictions, otherwise a microprudential measure,³⁸ might be tightened to meet macroprudential objectives. Exposures to certain sectors that are classed as particularly high-risk could create a rationale for a macroprudential intervention. Large exposure restrictions can mitigate concentration risk and reduce counterparty risk and the possibility of contagion (including the one arising from the shadow banking system). They also reduce financial institutions' sensitivity to general or sectoral shocks. The Bank of Slovenia introduced this microprudential measure on the basis of the ZBan-1 and kept it with the introduction of ZBan-2.

Limits on deposit rates can be imposed in a situation when banks are competing for deposits by raising deposit rates, which does not lead to an increase in the overall stock of deposits but to deposit-switching between banks and a rise in their funding costs. The measure can contribute to a fall in interest rates and to the narrowing of their dispersal across the different maturity intervals. The Bank of Slovenia introduced this measure in March 2012 on the basis of national legislation valid at that time (ZBan-1).

In January 2016 it became possible to introduce **capital buffers for systemically important financial institutions³⁹ (so called O-SII buffer)** ranging from 0% to 2%. The buffer will contribute to the increase of the ability to cover losses, reduction of the likelihood of stress events and limit their consequences. Additionally it can correct for the implicit financial benefits enjoyed by SIFIs as a result of the implicit government guarantee.

Structural **systemic risk buffer (SRB)** in the form of CET1 may be introduced for the whole financial sector or for a group of institutions to prevent and mitigate long-term non-cyclical (structural)

³⁶ In addition to deposits, the denominator may also include other types of stable funding, while the numerator may be expanded to other non-liquid assets that have similar characteristics as loans.

³⁷ Large exposure is defined as an exposure to a person or group of connected clients that is equal to or greater than 10% of own funds.

³⁸ Credit institutions and investment companies may not accept an exposure to any person or group of connected clients that exceeds 25% of their own funds (capital).

³⁹ SIFIs.

systemic risks not captured by the CRR. The risk of disruptions in the financial system that could have serious adverse consequences for the financial system and the real economy in a country might arise as a result of changes in legislation or accounting standards, cyclical spillover from the real economy, and a large (or excessively large) financial system relative to GDP, or as a result of financial innovations that increase the complexity of the system. The structural buffer increases the resilience of the financial system by increasing the ability to cover losses, limits the level of indebtedness and mitigates the risks taken up by the banking system and the financial system.

Institutions may be compelled to make more frequent/detailed disclosures of information (so called **increased disclosure**). This supplementary measure makes it easier for the public to oversee the operations of financial institutions, via which the resilience of the financial system is strengthened.

8.2 Instruments of the macroprudential policy implemented by the Bank of Slovenia and way forward

The Bank of Slovenia already has experience with capital based instruments. In early 2006 it introduced the prudential filter as a deduction item from original own funds to correspond with the introduction of the International Financial Reporting Standards (IFRS), which meant a significant reduction in the scope of required impairments. Thus, accumulated provisions and impairments at that time were transferred to capital rather than to profit and distributed to shareholders. Despite numerous efforts by the banks and external auditors to abolish the prudential filter, the Bank of Slovenia maintained this form of reserves until October 2008, when the financial crisis intensified. By abolishing the prudential filter, the Bank of Slovenia acted counter-cyclically to mitigate the contraction in the banks' lending activities in the early period of the crisis's development. The abolishment of the prudential filter resulted in an increase in regulatory capital, which had the favourable effect of increasing the capital adequacy of the majority of banks.⁴⁰

During and after the acute phase of the crisis no need existed to implement mostly asymmetric macroprudential instruments, designed in the international and EU framework.

Nevertheless, Bank of Slovenia developed two unique instruments, not foreseen in the EU instrumentarium that addressed specific situation in the banking sector. The first one, competition for deposit funding that did not lead to increase in deposits, but resulted only in the redistribution of deposit funding and augmented deposit rates (2012) was addressed with the limits on deposit rates. The second one, rapidly reducing loan to deposit ratio (2014) was addressed with the GLTDF.

In 2015 the Bank of Slovenia introduced two macroprudential instruments, as requested in the EU and Slovenian legislation: the countercyclical capital buffer and the buffer for other systemically important banks. However, none of them is currently limiting for the banks.

As indicated above, the purpose of the countercyclical capital buffer is to protect the banking system against potential losses when excessive growth in lending is linked to an increase in risks in the system as a whole. The basic criterion for determining the buffer rate is the gap between the credit-to-GDP ratio and its long-term trend, although because of the specificities of the Slovenian economy other indicators are relevant as well. Consequently annual growth in real estate prices, annual growth in loans to the domestic private non-financial sector, the LTD ratio for the private non-banking sector, ROE and the ratio of credit to gross operating surplus were used. Since 1 January 2016 the buffer has been set at 0% on the basis of assessment of the deviation from the historical values of the aforementioned indicators.⁴¹

The reason for the special regulation of systemically important banks (O-SIIs) is that their collapse could endanger financial stability and could lead to significantly larger adverse effects on the financial system and the entire economy than the collapse of a systemically unimportant institution. Banks are

⁴⁰ Bank of Slovenia: Financial Stability Review, 2012.

⁴¹ More in: <https://www.bsi.si/en/financial-stability.asp?MapaId=1886>

evaluated as O-SIIs with regard to the criteria of size, importance to the Slovenian economy, cross-border activity, and the interconnectedness of the bank or group with the financial system. Eight banks were identified as O-SIIs. The capital buffer ranges from 1.00% to 0.25%. The banks must meet the buffer requirement as of 1 January 2019.⁴²

Since the developments in lending activity to individual sectors, more precisely to households for housing purposes might lead to disruptions to financial stability, two real estate macroprudential instruments, a limit on LTV and a limit on DSTI for residential real estate loans have been introduced in 2016 in the form of a recommendation. The recommended maximum level of the LTV ratio is 80%, while the recommended maximum level of the DSTI ratio is 50% for borrowers with monthly income less than or equal to EUR 1,700, and 50% for that portion of income up to EUR 1,700 inclusive and 67% for that portion of income exceeding EUR 1,700 for borrowers whose monthly income is greater than EUR 1,700. Moreover, in the loan approval process (when assessing creditworthiness) it is recommended that banks apply, *mutatis mutandis*, the limitations on the attachment of a debtor's financial assets set out in the Enforcement and Securing of Claims Act and the Tax Procedure Act, i.e. earnings that are exempt from attachment and limitations on the attachment of a debtor's financial earnings.⁴³

In the future the Bank of Slovenia will follow the EU wide initiatives that focus on development of the leverage ratio and of liquidity instruments, such as LCR and NSFR for macroprudential purposes.

9. Four stages of the macroprudential policy cycle

The decision-making process of the macroprudential policy follows a four-step cycle. Each of the four stages of the macroprudential policy process will be precisely described and analysed in the following four chapters. The four stages of the macroprudential policy cycle presented in Figure 8 are tightly connected in practise and cannot be considered in isolation.

Identification and evaluation of systemic risks (Chapter 10) serves the recognition of vulnerabilities in the financial system and their connection with the intermediate objectives (described in Chapter 7) to which they pose risk using different types of tools developed within the Bank of Slovenia.

Selection and calibration of the macroprudential instrument (Chapter 11) is dedicated to linking identified risks to possible instruments presented in Chapter 8 and further to selecting and calibrating the best instrument on the basis of the cost-benefit analysis and transmission mechanism analysis for each possible instrument.

Implementation of the macroprudential instrument (Chapter 12) requires following the pre-defined legal framework as well as principles of the macroprudential policy set up already in the Guidelines. Extremely important is also communication with the relevant stakeholders.

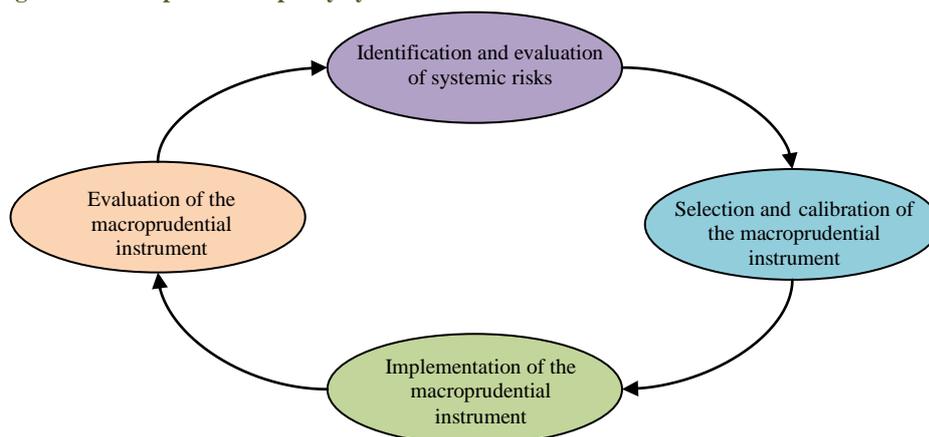
Evaluation of the macroprudential instrument (Chapter 13) serves the assessment of the instrument mix from the effectiveness and efficiency perspective and enables a decision whether to abolish, maintain or modify the instrument(s) implemented.

When the process comes to the last point the circle starts from the beginning – last stage in the process, the evaluation of the macroprudential instrument connects with the first one – the assessment of the presence of systemic risks amid the presence of the macroprudential instruments enables a decision on the future macroprudential policy mix.

⁴² More in: <https://www.bsi.si/en/financial-stability.asp?MapaId=1887>.

⁴³ More in: <http://www.bsi.si/en/financial-stability.asp?MapaId=2034>.

Figure 8: Macroprudential policy cycle.



Source: ESRB Handbook.

10. Systemic risk identification and assessment

Main tools used by the Bank of Slovenia for the systemic risk identification beside regular risk identification process strongly relying on expert judgement are risk dashboard, early warning system, stress tests including contagion risk identification and tools for identification of systemically important banks. Indicators presented in Chapter 7 are employed in the risk identification and assessment process.

Despite being very broad, the list of tools used is not complete and will further develop in the future.

10.1 Regular risk identification

Identification of systemic risks in the banking system and wider in the whole financial system through regular and ad-hoc analysis based on the results and expert judgment of the developments is already a well established process in the Bank of Slovenia. The results of the tools presented below, critically evaluated using expert judgements are publically presented in the Bank of Slovenia regular reports:

- Monthly information (monthly monitoring of developments in the financial system with a special focus on the banking system),⁴⁴
- biannual Financial Stability Review (analysis of the whole financial sector from the perspective of systemic risks).^{45,46}

10.2 Risk Dashboard

Risk Dashboard is a tool used for identification of key systemic risks based on a wide variety of quantitative and qualitative indicators.

Bank of Slovenia Risk Dashboard follows the intermediate objectives of its macroprudential policy. For each intermediate objective the specific risk areas and the relevant indicators are defined. The main indicators values are coloured based on a five level risk scale ranging from highest to lowest risk (red, orange, yellow, green, dark green). Thresholds for the five risk categories are defined based on

⁴⁴ <https://www.bsi.si/iskalniki/porocila.asp?MapaId=1329> (only in Slovene).

⁴⁵ <https://www.bsi.si/iskalniki/reports.asp?MapaId=784>

⁴⁶ Until 2016 annual publication Stability of the Slovenian Banking System (<https://www.bsi.si/iskalniki/reports.asp?MapaId=1357>) was published. From 2016 Financial Stability Review is published twice a year, while the Bank of Slovenia ceased to publish the Stability of the Slovenian Banking System.

Slovenian banking system historical distribution, EU countries distribution and expert opinions of analysts covering specific risk area. The outlook for the risk development is presented with an arrow taking into account all the known information even when not yet reflected in the data or the risk level, as well as encompassing future expectations and predictions. A comment is added to further explain the changes of the risk level.

This tool allows for a direct connection between the systemic risk and the intermediate objective at risk and is used as a guide for the use of macroprudential instruments.

10.3 Early warning system

Early warning system (EWS) is a step forward from the Risk Dashboard towards more forward looking view and more quantitative assessment. It consists of the indicators having the signalling power to indicate future distress or crises events but is therefore conditional on higher model complexity and is yet to be fully developed by the Bank of Slovenia in the following years.

10.4 Stress tests

Top-down stress tests are one of the main tools used by the Bank of Slovenia in identifying vulnerabilities present in the banking system and potential systemic risks in the forward looking perspective of 2-3 years and in assessments of the potential impacts and implications for the banking system stability would such systemic risks materialise. More specifically with top down stress tests the impact of different macroeconomic scenarios on banks balance sheet items, profitability and solvency is estimated. At least two scenarios are tested – the baseline scenario being the Bank of Slovenia macroeconomic projections, and one or more adverse scenarios.

The top-down stress tests keep the system-wide focus even though they are performed on individual banks and the most fragile banks are identified and their potential capital shortfalls calculated. However the latter is the main focus of the bottom-up stress tests, which are generally performed by the banks, using their internal models and bank specific granular data with one of the main assumptions being the static (zero-growth) balance sheet assumption. The top-down stress tests can be a useful independent cross-check for the bottom-up stress tests. They could also be used for confirmation of potential outliers among banks but they can not be a substitute for the bottom-up stress tests as the approach used is more aggregate and less granular data are used. Besides that they are performed by the Bank of Slovenia independently from banks, therefore not enough emphasis is given to the bank-specific business models and business plans. The main advantages of the top-down stress tests as opposed to the bottom-up are:

- a consistent methodological approach and consistent data used across the banks,
- less quality assurance, with regard to data used and methodology applied, needed,
- greater flexibility for adjustments to different assumptions, methodology, scenarios, data,
- dynamic balance sheet assumption, although static balance sheet could be used as well,
- less resource intensive,
- independent cross-check for bottom up results.

10.5 Contagion risk identification

Contagion risk analysis is the satellite analysis in the scope of the top-down stress tests framework. It is based on the matrix of net interbank exposures taking into account additional assumptions regarding the transmission of contagion across banks. Final output of the analysis is the impact of contagion on banks' solvency positions.

10.6 Indicators for identification of systemically important banks

Bank of Slovenia has defined the indicators for identification of systemically important banks already in the past. However; the implementation of macroprudential instruments requires also the use of specific methodology for identification of so called other systemically important institutions (O-SII) that was developed at the EU level. Therefore, the process of the identification of systemically important institutions follows the Guidelines on the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD) in relation to the assessment of other systemically important institutions (O-SIIs), developed by EBA.⁴⁷ As requested in ZBan-2 the buffer for other systemically important banks was determined for the identified banks.⁴⁸

10.7 Other tools that will be recognized as relevant in the future

The list of tools Bank of Slovenia will use for systemic risk identification cannot be completed yet and will further develop through time as the topic is under a lot of scrutiny also in the other central banks and in the economic literature.

11. Selection and calibration of the macroprudential instruments

After the identification and the assessment of risks in the financial system have been performed, it is necessary to link the identified risks with available macroprudential instruments using a combination of a top-down and bottom-up approach. Selection of a proper timing for its activation is at least as important as the choice of the instrument. This chapter will describe the essential elements for an optimal selection and calibration of the macroprudential instrument(s).

11.1 Linking systemic risk and macroprudential instruments

Two main approaches for linking systemic risk and macroprudential instruments exist, namely the top-down and bottom-up approach.⁴⁹ However, they should not be strictly separated, because they are normally mixed in practice.

11.1.1 Top-down approach

Under the top-down systemic risk approach macroprudential policy decisions are guided by a general, comprehensive, system-wide risk assessment. A pre-condition for the application of the top-down approach is the existence of a combination of indicators and forecasting models that captures the links between systemic risk, market dynamics and macroprudential policy decisions. This approach would enable to comprehensively assess the impact of individual macroprudential measures – their effectiveness in reducing systemic risk, costs associated with them, possible side effects and interactions with other policy objectives.

The downside of the approach is that adequate generally accepted theoretical and empirical framework that would enable its functioning is still under development – both, around the world and in Slovenia.⁵⁰

⁴⁷ Bank of Slovenia has passed a Regulation that obliges it to follow the EBA Guidelines when identifying systemically important banks for the purpose of the O-SII buffer implementation (OJ RS 66/2015).

⁴⁸ More in 8.2.

⁴⁹ The top-down and bottom-up approaches used for the selection of instruments should not be mixed with equally labeled approaches of stress testing.

⁵⁰ CGFS: Operationalising the selection and application of macroprudential instruments, CGFS Papers No. 48, December 2012.

11.1.2 Bottom-up approach

The bottom-up, instrument based approach starts from the other side – from individual instruments. Possible instruments or set of instruments are analyzed from the perspective of vulnerabilities that they can address and the type of indicators that can be used to trigger their implementation and release.

This approach is more controllable than the top-down approach, since it allows for understanding of the basic features of the instrument without requiring the development of a general analytical framework. Besides that it is less prone to model risk and enables the usage of other countries' experience. On the other hand there are several effects of macroprudential measures that cannot be satisfactory captured using this approach, among them being potential spillovers, second-round effects and general equilibrium effects. Similarly this approach might neglect the effects of interactions and combined effects of several instruments.⁵¹

11.1.3 Usefulness of the top-down and bottom-up approaches in Slovenia

As indicated above, adequate theoretical and empirical framework for top-down approach is still under development. Bank of Slovenia will therefore initially focus on the use of the bottom-up approach. However, it will in parallel develop appropriate tools for the use of the top-down approach, regularly monitoring developments in the economic science and activities of the ECB, ESRB and macroprudential authorities of other countries with the aim to start relying also on the top-down approach.

11.1.4 Activation and release of the macroprudential instruments

For the macroprudential policy it is crucial to find the right timing for the activation and deactivation of its instruments. This is especially true for the **dynamic cyclical instruments** that require regular alignments with the stage of the financial cycle. Nevertheless, it is important also for some of the **structural instruments**, especially in the contractionary period, when the build up of additional buffers connected with structural instruments could conflict with the cyclical developments that would require a release of the buffer.⁵²

Timely identification of risks and the stage of the cycle are crucial for the correctly timed activation of **cyclical macroprudential instruments**. However, even if the risks are identified in time, the activation might still be mistimed. The costs of an ill-timed intervention are normally asymmetric – higher for a delayed action than for a premature one. During the build-up phase of the financial cycle delayed action might cause the measure to be less effective or ineffective. During the release phase a premature deactivation might imply a wrong signal to the market participants, while a delayed one might induce pro-cyclicality.

11.2 Criteria for selection and calibration of the macroprudential policy instruments

When a particular systemic risk is identified and acknowledged as a threat to one or more of the intermediate objectives of the macroprudential policy, the list of potential instruments narrows down. Decision, which precise instrument(s) to implement, has to be based on legal and economic considerations.

Several principles that should assure that the instruments that bring the highest net benefit to the society will be designed have been listed in the Guidelines:

⁵¹ CGFS: Operationalising the selection and application of macroprudential instruments, CGFS Papers No. 48, December 2012.

⁵² ESRB Handbook (2014).

1) The **effectiveness** criterion tries to evaluate the extent to which the instrument can address market failures and achieve the ultimate and intermediate objectives. Macroprudential instruments are considered effective if there is a robust transmission mechanism to achieve the ultimate objective and if the underlying vulnerability can be tackled accurately through the usage of the instrument. Lag between their introduction and the time when the effects of the measure can be observed should not be too long.

2) The **efficiency** criterion, evaluates the potential of the instrument to achieve the ultimate and intermediate objectives at minimum cost. As emphasized by the ESRB, the key issue is the trade-off between resilience and growth. Instruments that support long-term growth while containing systemic risk are preferable.⁵³ Besides that it is important that macroprudential instrument does not interfere with other policies⁵⁴ objectives. The possibility that the macroprudential instrument is used at an inappropriate moment or that it affects other policy objectives in an unforeseen manner should be low. Synchronization with other macroprudential instruments, especially if they serve different intermediate objectives, is important. Furthermore, negative interaction effects should be avoided. Additionally, the administrative burden of the instrument implementation should be low.⁵⁵

3) **Proportionality**. The burden imposed on individual institutions should be in line with their contribution to the systemic risk.

4) Definition of the instrument and its requirements should be **straightforward and simple**. Instruments that can be easily communicated and explained should be favoured since they can encourage banks to meet requirements faster due to pressures arising from the market. In order to achieve better understanding of instruments, their functioning and objectives external communication strategy outlined in section 12.4 will be followed.

5) Definition and selection of the instrument should aim at preventing **regulatory arbitrage** through cooperation with other macroprudential authorities within or outside Slovenia or with the simultaneous use of several instruments.

6) **Negative (cross-border) spillovers** should be **prevented** *ex ante* to the largest extent possible.

7) Selection and calibration of the instrument will to the highest possible extent⁵⁶ take into account **national specifics** (i.e. characteristics of the Slovenian banking system and contemporary conditions in the financial and banking system).

The selection of the instrument should be based also on the origin of the imbalance, i.e. is it more supply or predominantly demand related. Potential instrument will be assessed also from the expected welfare costs it might have. Welfare costs are negatively connected with effectiveness and efficiency (lower costs of regulation) of the instrument and positively with signalling errors (both, type 1 – systemic risk emerging without being detected and type 2 – systemic risk being signalled without being present) and related wrongful (non)-introduction of the instrument.⁵⁷

In order to achieve optimal results numerous instruments might be necessary. Situations requiring a combination of several instruments are inter alia the presence of both types of risks, structural and cyclical; the presence of both, supply and demand induced risks and legal limitations (caps) posed on some of the instruments that require an upgrading with another instrument.

⁵³ ESRB/2013/1.

⁵⁴ Among them being for example monetary, fiscal and competition policy.

⁵⁵ Bennani, T., Després, M., Dujardin, M., Duprey, T. & Kelber, A.: Macroprudential framework: key questions applied to the French case, Banque de France, Occasional papers 9, 2014.

⁵⁶ Taking into account limitations imposed by the European and Slovenian legislation, as well as ESRB, SSM and EBA recommendations.

⁵⁷ CGFS: Operationalising the selection and application of macroprudential instruments, CGFS Papers No. 48, December 2012.

European legislation not only poses constraints to the use of certain instruments,⁵⁸ but it also determines the (theoretical) sequence of instruments. All these should be taken into account when deciding about the instrument(s).

11.3 The transmission mechanism of macroprudential instruments

One of the most important criteria to assess the potential effectiveness of the instruments is their transmission mechanism. This section offers a general overview of the transmission mechanism for three main groups of macroprudential instruments: capital-based, liquidity-based and asset-side tools.

Capital based tools address externalities⁵⁹ related to strategic complementarities. These tools reduce the accumulation of risks and equip credit institutions with buffers that can be used in the contractionary phase of the financial cycle.

Asset-based tools impose quantitative restrictions on borrowers. Similarly as capital based tools they address externalities arising from strategic complementarities, although they address the borrower, rather than the lender. Asset-based instruments that are defined in the Guidelines are loan-to-value (LTV) requirements, loan-to-income (LTI) or debt service-to-income (DSTI) requirements and large exposure restrictions.⁶⁰

Both, capital- and asset-based tools can also be used to tackle externalities related to interconnectedness. Among those tools are for example sectoral capital requirements, systemic risk buffer, systemically important institutions capital surcharge (O-SII) and large exposure restrictions.

Liquidity based tools try to reduce banks' vulnerabilities related to (over-)exposures to unstable sources of financing and the likelihood of adverse funding shocks. Instruments defined in the Guidelines are adjustment to liquidity ratio (liquidity coverage ratio – LCR), restrictions on funding sources (net stable funding ratio – NSFR), additional liquidity requirements, unweighted limit to less stable funding (loan-to-deposit ratio) and already implemented GLTDF and limitation of the excessive growth of deposit interest rates.

The map in Figure 9 highlights the main channels through which the three types of macroprudential tools impact the credit cycle or increase resilience, directly or indirectly through the credit channel, in the tightening phase. Since the financial system in Slovenia is mostly bank-dominated as outlined in Chapter 5, possible bank reactions (green cells) are of higher importance. The release phase follows the downswing of the financial cycle in order to avoid pro-cyclicality. It can differ in crisis and non-crisis times. If there is no crisis, the transmission mechanism is similar as in the build up phase, only in reverse. The ideal scenario in crisis times would be that the buffers absorb losses and encourage counter-cyclical behaviour when the shock occurs. In reality they may only have a limited effect, since the increase of the risk averseness induces financial institutions to increase voluntary buffers instead of following the intentions of the policy maker and reducing them.

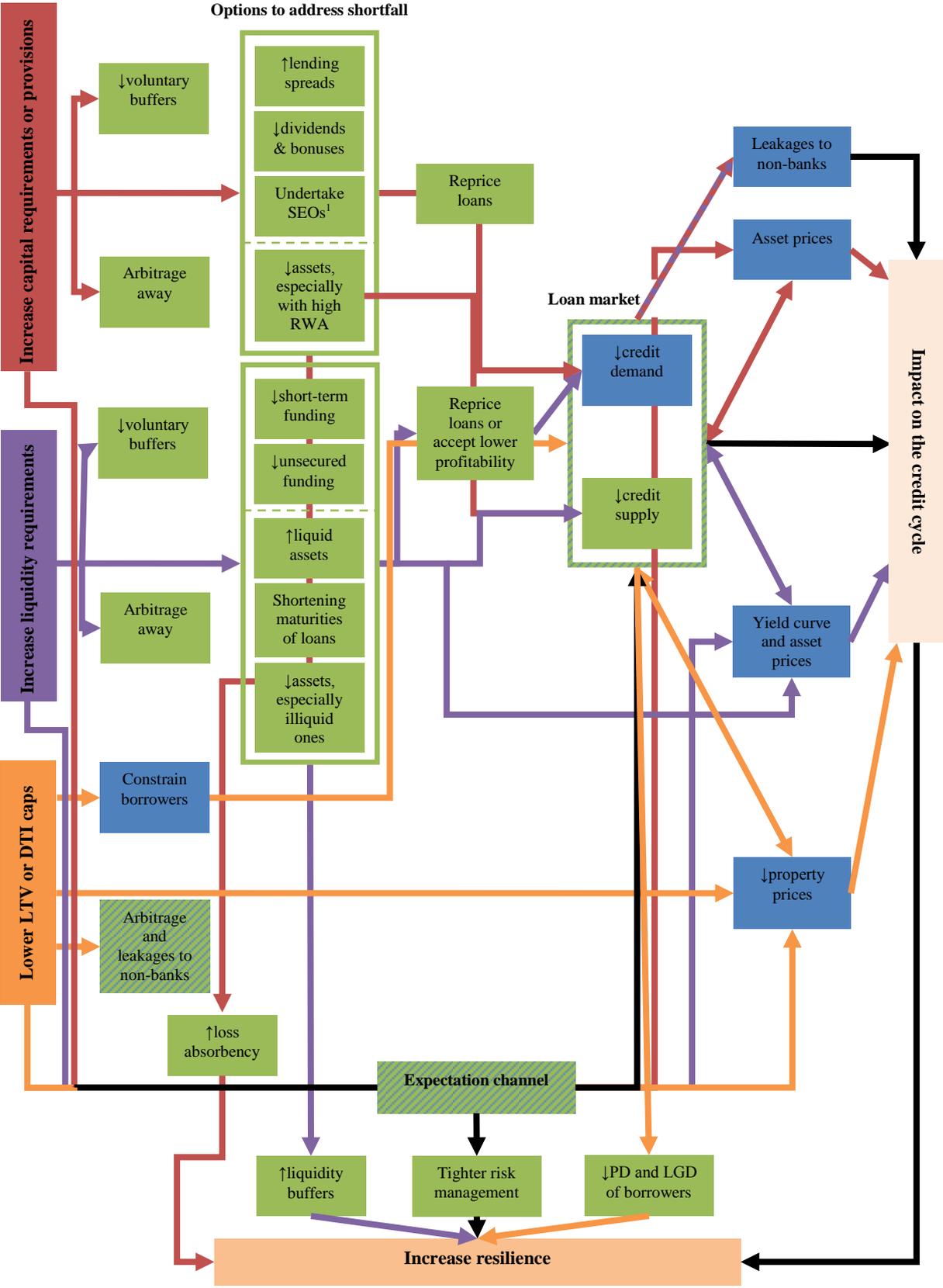
Among (potentially) cyclically adjustable capital-based tools currently defined in the Guidelines are: countercyclical capital buffer, sectoral capital requirements and macroprudential leverage ratio.

⁵⁸ Several of them were presented in Chapter 8.

⁵⁹ Externalities caused by the financial system are described in Chapter 6.

⁶⁰ For detailed description of individual instruments see Chapter 9.

Figure 9: Transmission mechanism of macroprudential instruments for capital-based tools, liquidity-based tools and asset-side tools.



¹ SEO: seasoned equity offer. Note: Green cells = possible bank reactions; blue cells = possible market reactions; red – capital based tools, purple – liquidity based tools, orange – asset based tools. Source: CGFS: Operationalising the selection and application of macroprudential instruments, CGFS Papers No. 48, December 2012.

12. Policy implementation

Several issues have to be tackled when implementing macroprudential policy. Some of them are related to the role of the macroprudential policy – should it have only preventive or also curative role? Should it focus more on the strengthening of the resilience of the financial system or on the reduction of the vulnerabilities present in the system? Another issue is connected with the question whether risk assessment and decisions on macroprudential instruments should be based on rules or on discretion. More practical policy implementation issues relate to legal foundations for the conduct of the macroprudential instruments and internal decision-making processes. Last, but not least, this chapter tries to answer also the question about optimal macroprudential policy communication strategy and its addressees.

12.1 Preventive vs. curative role of the macroprudential policy

Experience of the financial crisis has shown that the prevention of the risk propagation is less expensive than mitigating and removing the consequences of the crisis.

Macroprudential policy evolved precisely in order to prevent crises as can be seen also from the wording of intermediate objectives described in Chapter 7.

Two separate ways of mitigating risks exist for most of the instruments:

- a) strengthening resilience of the financial system,
- b) reducing the build-up of vulnerabilities.

Table 4 shows what is the impact of individual instruments on strengthening the resilience of the financial system and reducing vulnerabilities in the financial system. Both outcomes of macroprudential tools are considered as equally important by the Bank of Slovenia.

However, the curative role of the macroprudential policy should not be neglected, especially in the current circumstances as the macroprudential buffers have not been accumulated yet due to non-existence of the macroprudential policy in the past, pre-crisis period.

Table 4: Individual instruments' contributions to mitigating risks in the financial system.

INSTRUMENT	INCREASING RESILIENCE	REDUCING BUILD-UP OF VULNERABILITIES
CCB	Increase banks' loss absorption capacity	Slow down credit growth through higher funding cost
LTV/LTI/DSTI cap	Decrease banks' LGD, decrease borrowers' PD	Direct restriction of lending
Sectoral capital requirements	Increase banks' loss absorption capacity, lowers potential losses and shifts lending away from sector	Possible impact on financial cycle through higher funding cost
Structural systemic risk buffer	Increase banks' loss absorption capacity	
Macroprudential leverage	Safeguards against error in risk-based capital buffers	
GLTDF	Safeguards functioning financial intermediation process, increase banks' liquidity buffers and contributes to the stability of funding	Reduce funding liquidity risk and accelerated deleveraging
Limits on deposit rates	Increase stability of funding base	Possible impact on financial cycle through lower funding cost, reduction of income risk and misaligned incentives
NSFR	Increase stability of funding base to limit sudden outflows	Possible dampening effect on financial cycle (e.g. shift to liquid assets and/or higher liquidity premia)
Unweighted limit to less stable funding (LTD limits)		
LCR	Increase stock of liquid assets to cover sudden outflows	
Additional liquidity requirements		

INSTRUMENT	INCREASING RESILIENCE	REDUCING BUILD-UP OF VULNERABILITIES
Large exposures restrictions (including intrafinancial)	Increase banks' loss absorption capacity	Possible impact on financial cycle through higher funding cost
O-SII buffer		

Source: ESRB Handbook (2014), Bank of Slovenia.

12. 2 Rule-based vs. discretionary macroprudential policy

Both of the previously described stages of the macroprudential policy circle, namely the risk assessment and decisions on macroprudential instruments can be based on rules, on discretion, or on a combination of both - so called guided discretion.

Rule based macroprudential policy means that a rule indicates when to activate an instrument and/or how to set its level. It is possible to distinguish between "instrument rules" and "target rules". The former are rather inflexible, since they are led by indicators in a mechanical manner and precisely determine when to use an instrument and how to set its level. The later are more flexible since they indicate only which objectives should be achieved, while they allow for flexibility in the selection and calibration of instruments. Policy rules usually rely on a combination of theoretical and empirical evidence. Anyhow, all rule-based indicators and thresholds are a result of historic developments that cannot necessarily predict future movements.

On the other hand when leading a **discretionary** macroprudential policy the authority bases its actions on subjective assessment and qualitative criteria. Such a policy allows for faster reactions and greater elasticity in changing circumstances. Limited knowledge about risk indicators and the transmission mechanism of macroprudential instruments at the current juncture speaks for the use of flexibility, but it allows to the policy maker to develop a more rule based approach through experience gained over time.

However, there are several "middle paths" between strictly rule-based and perfectly discretionary policy. Macroprudential policy should take the best from the two approaches presented above.

Table 5: Advantages and disadvantages of rule-based and discretionary approaches.

	Advantages	Disadvantages
Rules	<ul style="list-style-type: none"> - transparent - predictable - easy to communicate - relies on quantitative data - building up reputation (time consistency) - eases expectation formation - rules can act as automatic stabiliser - no need for continual justification or express decisions - limits inaction bias 	<ul style="list-style-type: none"> - difficult to design appropriate rules given inherent uncertainty - rather static - allows no discretion - little experience with macroprudential instruments - new experience may make it difficult to respect the rule - data may not be available, or available too late - lack of experience on choosing indicators - indicators are influenced by policy areas other than macroprudential policy (e.g. fiscal policy) - difficult to measure success in achieving the ultimate objectives of macroprudential policy, including the prevention and mitigation of systemic risks - may be subject to Lucas critique (a variable can no longer serve as a reliable indicator for the underlying risks once it is targeted under regulation)
Discretion	<ul style="list-style-type: none"> - flexible tool, can be tailored to current situation - can rely on qualitative data - can allow decision-makers to learn from interactions between macroprudential policy, the financial system and the economy over time - ensures ability to react to unforeseen consequences 	<ul style="list-style-type: none"> - subjective judgement, less transparent - risk of inaction bias - discretionary policy can be time inconsistent - can be open to pressure from outside

Source: ESRB Handbook.

A **guided discretion approach** creates some presumptions as to when risk is identified or when certain action should be taken in response to the development of key indicators. It is the most common approach around the world. So called bounded discretion with possibility of applying discretionary judgement within given limits as well as conditional rules that give the possibility to override them are

possible. Bank of Slovenia will follow the guided discretion approach - it will rely on indicators presented in Table 2 (Chapter 7); based on them it will develop thresholds, both for risk identification as well as for instrument activation, however they will be used only as an orientation for an expert decision. Due to the previously described role of the thresholds they will normally not be published.⁶¹

12.3 Implementation process

Implementation process of the macroprudential policy is partly determined in the existing EU and national legislation as well as in the soft law, such as Bank of Slovenia Guidelines. However, some basic principles have evolved in the literature that should influence the macroprudential policy process and thereby increase its efficiency.

12.3.1 Principles of effective macroprudential policy process

Guidelines for the macroprudential policy of the Bank of Slovenia have established a set of eight principles that have to be taken into account when formulating macroprudential policy.

1) **Independence of the macroprudential policy** has to be assured in order to prevent the prevalence of short-term over long-term benefits. Therefore Bank of Slovenia will strive for freedom from outside (fiscal policy and financial institutions) and inside pressures (from monetary and microprudential policy)⁶².

2) **Transparency** improves the understanding of the macroprudential policy by the financial sector and the general public. Timely publication and explanation of macroprudential decisions, as more precisely described in 12.4 is needed unless such publication could have a disruptive effect on financial stability.

3) **Accountability** is the legal and political obligation of the Bank of Slovenia to explain and justify its decisions to Slovenian citizens and their elected representatives as stated in Article 26 of the Bank of Slovenia Act.⁶³ It is tightly connected with transparency, the later being economic category and the accountability legal one.

4) **Avoiding inaction bias.** All four stages of the macroprudential policy process aim at assuring timely introduction and adjustment of the tools of the macroprudential policy to the changes in the systemic risks. Combination of rules and discretion in the risk assessment and instrument determination process should assure that macroprudential policy avoids both, inaction as well as action bias.

5) **Guided discretion.** Chapter 12.2 has explained in detail why macroprudential policy cannot entirely rely on rules.

6) **Flexibility** covers the possibility to use any or several of the instruments available and potentially use new instruments.

7) **Legal framework.** An adequate legal framework that will be precisely described in 12.3.2 is required in order to assure timely introduction and control over the introduced macroprudential instruments.

8) **Coordination.** The efficiency of the macroprudential policy strongly depends on coordination with microprudential and monetary policy, other supervisory institutions both within and outside Slovenia, and European institutions and authorities (the ECB, ESRB, SSM, EBA and EC). The institutional set-

⁶¹ The publication policy is presented in 12.4.

⁶² Relations with the microprudential supervision have been described in Chapter 4; independence from the monetary policy is of lower importance since it is conducted at the supra-national level.

⁶³ OJ RS 72/06, 59/11.

up of the macroprudential policy that strongly determines coordination process has been extensively presented in Chapter 3.

12.3.2 Legal framework

European legal framework in the field of macroprudential policy is primarily composed out of Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (CRR)⁶⁴, Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV)⁶⁵ and Regulation (EU) No 1024/2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions⁶⁶ as well as several soft law documents, such as recommendations and guidelines issued by the ESRB, ECB and EBA. In accordance with the Regulation (EU) 1024/2013 the ECB has the possibility to tighten the policy measures decided by national authorities, regarding the common EU instruments set out in the CRD IV and the CRR.

In Slovenia general mandate to strive for financial stability, while taking into account the principles of an open market economy and free competition is given to the Bank of Slovenia in Article 4 of the Bank of Slovenia Act.⁶⁷

Legal framework for the conduct of the macroprudential policy in Slovenia is given in the Macroprudential Supervision of the Financial System Act (ZMbNFS) that was passed at the end of 2013. This Act stipulates general provisions for the conduct of the macroprudential policy that are applicable to the whole financial system.⁶⁸

Two existing instruments (GLTDF and limitation of deposit interest rates) have been introduced already on the basis of the Banking Act (ZBan-1). New Banking Act (ZBan-2⁶⁹) was passed in 2015 and has transposed CRD IV into Slovenia legislation and thereby assured more precise legal framework for macroprudential decisions of the Bank of Slovenia.

When implementing macroprudential policy, Bank of Slovenia will in accordance with Article 19 of ZMbNFS issue generally applicable regulations and occasionally individual decisions. All types of documents will be drafted in Financial stability and macroprudential policy department with an input from other relevant departments (i.e. microprudential supervision, analytical and research department, statistics, legal department etc.). Executive acts will be passed by the Governing Board of the Bank of Slovenia and published in the Official Journal of the Republic of Slovenia. Decisions will be, similarly, taken by the Governing Board and delivered to the banks in accordance with the Banking Act.

12.3.3 Guidelines⁷⁰

The Guidelines for macroprudential policy of the Bank of Slovenia set up an operational framework for the macroprudential policy and macroprudential supervision of the banking system. Further they establish the connection between:

1. The ultimate objective of the macroprudential policy and its intermediate objectives;
2. Instruments of the macroprudential policy and its intermediate objectives; and
3. Selected indicators of systemic risk and intermediate objectives.

⁶⁴ OJ EU L 176.

⁶⁵ OJ EU L 176.

⁶⁶ OJ EU L 287.

⁶⁷ OJ RS 58/02.

⁶⁸ They were presented in detail in Chapter 3.

⁶⁹ OJ RS 25/15.

⁷⁰ <<https://www.bsi.si/library/includes/datoteka.asp?DatotekaId=6082>>

Guidelines also set the principles of the macroprudential policy conduct and principles for the selection of the instruments. Both sets of principles are, due to their importance for the macroprudential policy conduct, reiterated and described in this document.

12. 4 Communication with relevant stakeholders

Content of the communication process refers to three components of the macroprudential policy formation – its institutional framework, systemic risk assessment and activation of measures. Similarly, it requires interaction with several different stakeholder – i.e. direct addressees of the measures (credit institutions), EU institutions and both, general and expert public. The communication process with the EU institutions is described in Chapter 3; other processes will be explained here.

Institutional framework related communication focuses on the mandate of the macroprudential policy, its objectives, governance, decision-making process, powers and available instruments. Most of the documents connected with this part of the communication process are public. This includes legally binding acts as well as soft law documents that are published in the Official Journal of the European Union and in the Official Journal of the Republic of Slovenia (OJ EU and OJ RS, respectively). Guidelines for the macroprudential policy of the Bank of Slovenia are published on the central bank's website.

Systemic risk assessments⁷¹ performed by the Bank of Slovenia experts are presented in the Financial Stability Review, published twice a year, as well as in the monthly reports with data on developments of the banking system and capital market. Main conclusions are presented also to the general public with the official press release and in communication with journalists where further information can be provided. Additionally, developments are presented to the banks and other professional public with the contributions on conferences and seminars, most detailedly on the annual conference on financial stability. As already argued, the Bank of Slovenia will not publish thresholds for risk alarm activation, since they represent only internal guide for an expert opinion.

Additionally, Bank of Slovenia publishes rather detailed information about macroprudential instruments that are already in use and plans to continue doing so. For some of the instruments, e.g. counter-cyclical buffer, the legislation prescribes the publication of their characteristics. Different types of communication will be used depending on the addressees of the message. Legal and technical acts are directed to banks therefore they have to be detailed enough. Short descriptions on the website of the Bank of Slovenia are addressed to the general public that wants to acquire basic knowledge about the instruments.⁷² Bank of Slovenia has also prepared expert papers addressed to the professional and scientific public explaining the economic circumstances and risk presence that prompted the introduction of the instrument, its detailed description, transmission mechanism and historical data simulations.⁷³

In case Slovenia issues a request for a reciprocation of a macroprudential measure introduced by the Bank of Slovenia, the latter will provide all the necessary information to the ESRB and to the national authorities to which it will issue reciprocation requests as suggested in the Recommendation ESRB/2015/2.⁷⁴

13. Policy and instrument evaluation

Assessment of the macroprudential policy is composed out of the evaluation of each of the three already described stages of the macroprudential policy cycle, namely the success of the risk

⁷¹ More in Chapter 10.

⁷² See for example: <<https://www.bsi.si/en/financial-stability.asp?MapaId=1192>>, accessed: 25.2.2015.

⁷³ See for example: <<https://www.bsi.si/library/includes/datoteka.asp?DatotekaId=5923>>, accessed: 25.2.2015.

⁷⁴ Recommendation of the ESRB of 15 December 2015 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy (ESRB/2015/2) OJ C 97, 12.3.2016.

identification and assessment process, instrument selection and calibration as well as the policy implementation. Evaluation should assess whether the intermediate objective is sufficiently addressed and whether there are any substantial undesirable domestic or cross-border spillovers. Further, the evaluation should assess also the whole policy mix, not only individual instruments. The evaluation process is extremely important at the initial stage of the macroprudential policy implementation, since learning from experience is very valuable due to the lack of theoretical and empirical analyses of the macroprudential policy outcomes. The process should evolve in time taking into account the theoretical and practical developments in other EU and non-EU countries.

13.1 Has risk identification been successful?

The risk identification process is monitored regularly. Special emphasis of the monitoring process is on the timely identification of risks that is on the other side a necessary pre-condition for the well-timed instrument activation.

As indicated in Chapter 10 Bank of Slovenia plans to follow theoretical and practical developments in the field of risk identification and implement them if deemed appropriate. If it turns out that some of the risks have not been adequately or timely identified or have appeared anew, additional tools will be developed in order to correctly spot and monitor their development.

13.2 To what extent has the intermediate objective been achieved?

In order to assess whether the intermediate objective has been achieved an efficient monitoring system should be established. The precondition for the fulfilment of the objective through the means of the macroprudential instrument is the compliance of the credit institutions with the regulations issued by the Bank of Slovenia. Within the central bank, it is the microprudential supervision department that is best equipped to control the compliance of individual credit institutions therefore this role is entrusted to the Banking Supervision Department.

Only after the Banking Supervision Department confirms that banks followed the regulations issued by the Bank of Slovenia, the assessment of the instrument from the macroprudential perspective can begin.

Enough time should be given to the instrument to show its effects. The evaluation of the instruments used can be done as presented in the decision tree of the Figure 10. It has to be emphasized that the phases of the evaluation process tightly connect with previously described stages of the initial macroprudential policy determination as presented in the figure.

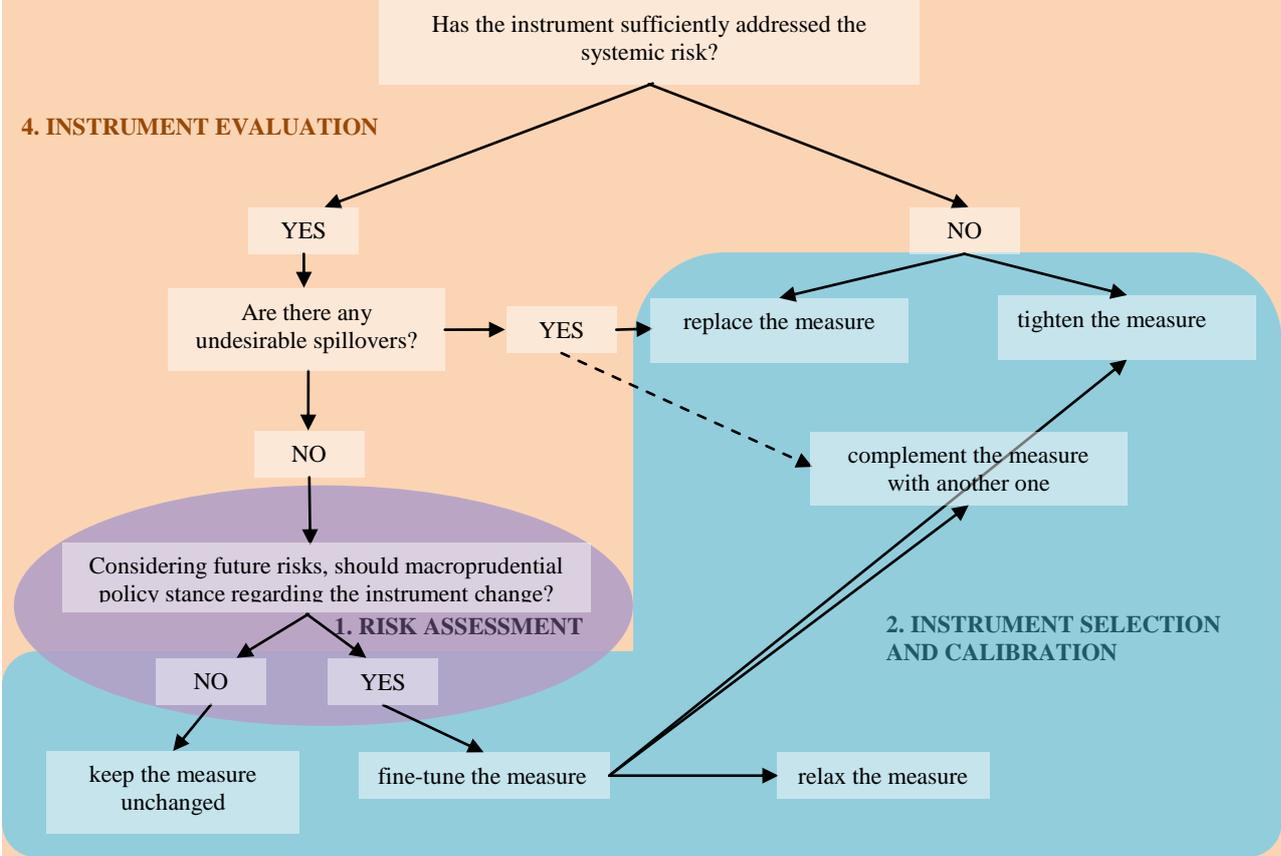
First the policy maker has to decide whether the risk has been sufficiently addressed. What is sufficient depends on the type of the risk and the initial goal of the policy maker. Was the main purpose of the measure to create a buffer that would be released or consumed in case the risk materialised or was the goal of the policymaker to mitigate the risk by reducing the presence of the vulnerability, for example, by reducing the amplitude of the cycle or making lending more expensive for certain borrowers?

In any case, if the answer is "yes", the tool has been effective and the goal of mitigating or eliminating the risk has been achieved. Next question that has to be answered is connected with efficiency. Are there any negative spillover effects, either to other countries or within the country? If the costs (spillovers) exceed the benefits and the answer is "yes", then the instrument has not been efficient and has to be either replaced or (in very rare cases) complemented with another instrument that would annul the side-effects of the initial measure. In all these cases the second phase of the macroprudential policy cycle activates – the instrument has to be selected anew.

If the answer is "no", meaning that no significant side-effects occurred, the instrument is efficient. Anyway the decision has to be taken whether the instrument should be changed – reflecting the

forward looking assessment of risk developments. At this stage the assessment translates into the first stage of the macroprudential policy cycle. The analysis of approaching risks than allows for a decision whether to keep the measure unchanged or to accommodate it in the second stage of the decision cycle (instrument selection). The measure can be tightened, relaxed or supported with another macroprudential instrument.

Figure 10: Evaluation of the appropriateness of the individual instrument



Source: own.

Taking into account the co-existence of several macroprudential instruments implemented in order to pursue one or several intermediate objectives the process described above becomes considerably more complex. Joint, rather than isolated assessment of all instruments becomes necessary. Bank of Slovenia will focus on development of appropriate tools for the evaluation of macroprudential instruments.

13.3 Evaluation of the macroprudential policy implementation

Besides risk identification and instrument implementation and calibration process also the policy implementation process should be evaluated.

Currently more emphasis is put on the discretionary rather than rule based macroprudential policy implementation. In the future we will regularly monitor whether this approach is still optimal. With the development of more sophisticated tools macroprudential policy might move more towards the rule based approach. Anyhow, expert judgment will always represent an important input for the formation of the final policy stance.

Bank of Slovenia will regularly assess decision making processes within the Bank of Slovenia from the perspective of their efficiency. We will also evaluate the appropriateness of the legal framework and propose or implement its changes if the evaluation process indicates that changes are required.

Additionally, Bank of Slovenia will evaluate whether the communication, both with banks as well as with the general public is appropriate – in terms of clarity, correctness and completeness.

13.4 Evaluation of the instruments through the transmission mechanism perspective

As indicated in the Guidelines the Bank of Slovenia will study the transmission mechanism and compare it with the forecasted one (as roughly and generally presented in Chapter 11) in order to better understand the impact of the instruments and assure their better selection and more precise calibration.

14. Bank recovery and resolution regime and deposit guarantee scheme from financial stability perspective

Crisis management and resolution policies are complementary to macroprudential policy. Since macroprudential policy can only reduce the probability of the occurrence of future financial crisis but cannot eliminate them, it is crucial that crisis mechanisms are defined in advance. The management of crises may require monetary easing and emergency liquidity assistance by the central bank, the effective resolution of failing banks by dedicated resolution or deposit insurance agencies, and potentially public guarantees and capital support provided by the fiscal authorities. On the other hand, proper design of recovery and resolution regimes can also support the objectives of macroprudential policy. Effective and credible recovery and resolution regimes can strengthen market discipline and reduce incentives to take excessive risks, mitigating the need for macroprudential intervention. By contrast, where difficulties in the resolution of specific financial institutions remain, this will require more forceful macroprudential action, which can in turn lead to greater incentives for circumvention.

At the EU level, in order to strengthen the Economic and Monetary Union and enhance financial stability a Banking Union was established containing three pillars; two of which are a common deposit guarantee scheme and a single bank resolution mechanism. These two pillars are addressed i.a. by the Bank Recovery and Resolution Directive (BRRD⁷⁵), the Single Resolution Mechanism (SRM⁷⁶), complementing other two pillars, i.e. the Single Supervisory Mechanism (SSM), and the new Directive on Deposit Guarantee Schemes (DGSD⁷⁷).

On-going changes in the EU and Slovenian financial safety net will put more emphasis on enhancing crisis preparedness and crisis management in order to prevent or minimize macroeconomic, cross-sectoral, or fiscal implications of a potential crisis. These changes are expected to have a positive impact on financial stability.

⁷⁵ Directive 2014/59/EU, OJ EU L 173.

⁷⁶ Regulation (EU) 806/2014, OJ EU L 225.

⁷⁷ Directive 2014/49/EU, OJ EU L 173.