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Towards identification of gaps in data availability for maintaining financial stability – the case of Montenegro¹

Maja Ivanović, Marijana Mitrović-Mijatović and Milena Vučinić,
Central Bank of Montenegro

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TOWARDS IDENTIFICATION OF GAPS IN DATA AVAILABILITY FOR MAINTAINING FINANCIAL STABILITY – THE CASE OF MONTENEGRO

Marijana Mitrović-Mijatović

Maja Ivanović

Milena Vučinić

Abstract

The recent crisis pointed to an importance of building a strong and stable financial system, which is resilient to potential risks and imbalances. Macroprudential policy is used to identify, monitor and asses systemic risks to financial stability. In an attempt to create effective and efficient macroprudential policy, it is crucial to build a strong institutional framework and effective and applicable databases. Without strong macroeconomic and financial analysis it is almost impossible to accurately predict and assess macro and financial risks and vulnerabilities.

Bearing in mind Montenegro's small size and a short history as an independent state, there are many gaps in data availability and the associated challenges. Montenegro is still in the process of catching up, which implies financial deepening and macroprudential policy are not easy to apply. Thus, our intention in this paper is to identify data gaps which hamper the ability of central bank to identify indicators with good early warning properties (credit to GDP gap) for Montenegro. Furthermore, we will try to propose indicators which may complement the credit to GDP gap for decisions to release the countercyclical capital buffer.

JEL classification: E58; E61; G21; G28.

Key words: financial stability, data gaps, macroprudential policy

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1. Introduction

The recent financial crisis showed that price stability alone is not enough to ensure macroeconomic stability. There are countries where dangerous imbalances are developed under low inflation and small output gaps. In order to safeguard macroeconomic stability, the policy should involve financial stability as an additional objective. Thus, the introduction of macroprudential policy and its tools should be introduced in order to target specific sources of financial imbalances. Macroprudential policies (MAPs) have received greater attention with the recent financial crisis. Building effective macroprudential policy provides risks identification ex ante while building buffers to absorb shocks ex post (IMF, 2013). Macroprudential policy requires the ability to assess systemic risk, monitor and close regulatory, data and information gaps. According to the IMF (2013, a) strong institutional and governance frameworks are crucial for macroprudential policy conduct and require appropriate strength of powers and clear responsibility.

An importance of building a strong and stable financial system resilient to potential risks and imbalances is crucial in order to guarantee safe and stable financial and economic atmosphere. The macroprudential policy objective is to prevent systemic risk from forming and spreading in the financial system. Systemic risk has two different dimensions. The time dimension reflects the build-up of systemic risk over time due to the procyclical behaviour of financial institutions contributing to the formation of unbalanced financial trends. The second dimension is cross-sectional and reflects the existence of common exposures and interconnectedness in the financial system. The two dimensions of systemic risk cannot be strictly separated. Actually, they are expected to evolve jointly over the financial cycle. In general, macroprudential policy can be defined as the application of a set of instruments with a potential to increase preventively the resilience of the system in the future by: creating capital and liquidity buffers; limiting procyclicality in the behaviour of the financial system; containing risks that individual financial institutions might create for the system as a whole.

The need for macroprudential policy has increased notably in the recent period. Economic costs arising from the financial crisis either through excessive financial cycles or spillovers through interconnectedness are highly recognized. A large number of countries have introduced various institutional arrangements as well as

macroprudential indicators and tools (instruments). The European Systemic Risk Board (ESRB) has identified four intermediate objectives for safeguarding financial stability and thus maintaining the ultimate objective of macroprudential policy. Those are: excessive credit growth and leverage, excessive maturity mismatch and market illiquidity, direct and indirect exposure concentrations, misaligned incentives with a view to reducing moral hazard. There are available instruments for each of the intermediate objectives. Considering excessive credit growth as the key predictor of a financial crisis, the macroprudential instrument should be designed to limit excessive credit growth. Thus, the ESRB (2014) developed the Countercyclical capital buffer in order to counter the procyclicality in the financial system, then loan to value, loan to income, debt service-to-income, sectoral requirement, systemic risk buffer, etc.

Countercyclical capital buffer (CCyB) is considered a genuine macroprudential tool proposed by Basel III. The aim of the CCyB is twofold. Firstly, it requires building up a buffer of capital in good times which may be used to maintain flow of credit to the real sector in difficult times. Secondly, it achieves the broader macroprudential aim of protecting the banking sector from indiscriminate lending in the periods of excessive credit growth that have often been associated with the building up of system-wide risk (BCBS, 2015).

In order to implement effective macroprudential policy, it is important to adopt the policy tailored to the country's characteristics, including its structural, institutional and financial market characteristics and exposures to shocks and risks. There is no one-size-fits-all approach. The effectiveness of the policy could depend on the effectiveness of structural, fiscal, and monetary policies. There are countries which can use monetary policy to affect the financial cycle while others that are in a monetary union or use pegged exchange regimes cannot use this option. There are countries with high public debt and less possibility to conduct countercyclical fiscal policy. According to the IMF (2014), open economies are highly exposed to external effects and can be easily affected by external shocks and prone to spillovers.

Country practices show that macroprudential policy requires powers that ensure the ability to act. These powers allow policymakers to obtain information from other responsible authorities. With these powers policymakers can ensure to fill data gaps (information powers); guide the activation and calibration of regulatory constraints (calibration powers); affect the designation of individual institutions as systemically important (designation powers) (IMF-FSB-BIS, 2016).

Montenegro is in the process of developing macroprudential policy and its strategy. A number of country specific factors influence the creation of macroprudential policy framework. Particularly, this is relevant for Montenegro given that country is euroised and small open economy strongly influenced by external factors. In the absence of an independent monetary policy, the key objective of the Central Bank of Montenegro (CBCG) is the preserving of financial stability. Even though it is not yet explicitly stated in the regulation, with financial stability as the main objective of the CBCG, there is not much need for discussion on the mandate for macroprudential policy, which would reside in CBCG. In 2010, the Financial Stability Council was established with the aim of analysing and monitoring financial stability situation in Montenegro. The Council has soft powers that include providing recommendations on measures and actions for preserving financial system stability (CBCG, 2010).

Strong macroeconomic and financial analyses are very important for accurate predictability and assessment of the macro and financial risks and vulnerabilities.

However, Montenegro has a short history as an independent country so there are short data series with data gaps. There is a need for closing data gaps that can compromise the reliability of analysis. Data analysis and systemic risk monitoring will strongly benefit from reliable statistics, such as statistics on real estate indices, capital flows, and flow of funds. In order to achieve its primary goal, the safeguarding of financial stability, the CBCG is developing a set of indicators on credit growth, lending standards and leverage, which would enhance the quality and effectiveness of risk monitoring and assessment.

Therefore, this paper aims to identify data gaps which hamper the ability of the central bank to identify indicators with good early warning properties for Montenegro, in particular to analyse the credit-to-GDP gap proposed under Basel III for the countercyclical capital buffer, and to discuss how to overcome the potential issues of the credit gap in the Montenegro context. In particular, we will try to propose indicators which may complement the credit to GDP gap for decisions to release the countercyclical capital buffer and to identify a set of fundamental factors that could provide a solid guidance for setting this instrument in Montenegro and using it in an efficient way.

2. Macroprudential indicators

2.1. Assessing credit to GDP gap in Montenegro

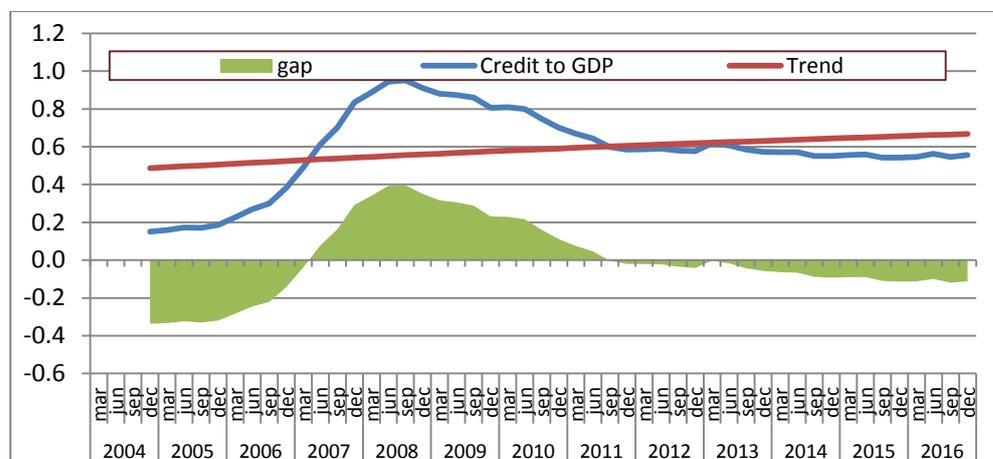
There have been growing concerns about the implications for macroeconomic and banking stability where rapid credit growth has coincided with vulnerabilities in the domestic financial systems. Minsky (1972) argues that credit booms tend to sow the seeds of crises. According to the empirical studies, the fast growth in bank lending during the upswing of the business cycle and the corresponding accumulation of debt in the non-financial sector increases banks' credit risk and the occurrence of non-performing loans and, consequently, fragility in the banking sector. This generates instability, amplifies the danger of financial crisis occurrence and increases systemic risk.

However, defining a credit boom might be sensitive. What was the "normal" or "satisfactory" level of credit? Was the fast credit growth just a result of the structural changes associated with the process of transition or the process of catching-up?

The Basel III framework proposes the countercyclical capital buffer as an extension to the regulatory capital framework for banks which policymakers should use in order to mitigate systemic risk. The countercyclical capital buffer is a time-vary macroprudential instrument which should be used with the aim to enhance the resilience of the banking system and over-exuberance in the supply of credit by discouraging the build-up of financial imbalances that might otherwise have led to a systemic banking crisis (Bank of England (2009), CGFS (2010), Borio (2011), FSB/IMF/BIS (2011) and IMF (2011) among others). Basel III assigns the credit-to-GDP ratio gap a prominent role for accumulating countercyclical capital buffers. The credit-to-GDP gap is defined as the difference between the credit-to-GDP ratio and its long-term trend (BCBS, 2010). Furthermore, the BCBS suggests that the long-run trend should be calculated by a one-sided, or 'real-time', Hodrick-Prescott (HP) filter with a smoothing parameter of 400,000.

Figure below illustrates this measure for Montenegro, showing that the broad measure would have signalled the need to tighten the countercyclical capital buffer ahead of the crisis in 2008.

Figure 1 Credit to GDP Indicator



Source: Central bank of Montenegro

The impressive growth in the Montenegrin banking sector in the pre-crisis period resulted in an increasing share of total credits in gross domestic product (GDP). This phase is represented in figure 1; by a positive gap i.e. the level of loan is above the long-term trend. 'Excessive' credit growth in the pre-crisis period, primarily financed by high external borrowing, posed a threat to banking sector stability, given that all sectors of the Montenegrin economy had a high level of debt. Namely, a strong credit growth from 2003 to 2008 led to an unsustainable boom that suddenly ended with the occurrence of the global financial crisis (GFC). Subsequently, the deep recession pointed to a number of accumulated problems, including the poor quality of many of the loans on banks' books.

Due to the influence of the GFC and restrictions on credit activities of the banking sector, the credit to GDP ratio growth slowed and fell below the trend line. Looking at figure 1, we can notice that there is still a negative gap at the end of 2016 (even higher than in the previous year), i.e. the level of loans is below the long-term trend, which points to the need to mitigate the situation in the market through the stimulation of adequate regulations and measures which will positively affect the expectations in the economy.

Even though the credit-to-GDP gap has received attention and critiques from both academics and practitioners, most of them have confirmed its usefulness as an indicator of financial vulnerabilities. Namely, as explained by the Bank of England (2013), it is difficult to find an indicator which could provide a perfect guide to systemic risks, given the complexity of financial inter-linkages, the tendency for the financial system to evolve over time, and time lags before risks become apparent.

In this section we tend to analyse whether the credit-to-GDP gap is a good measure for Montenegro, given that it has very short history as an independent country. Basel III recommends that at least 20 years of data is necessary in order to properly assess the forecasting ability of the credit gap. Thus, our first disadvantage is being limited by data availability. Furthermore, due to the short time horizon, the number of cycles and crises is very small compared with cross-country studies. Particularly, Montenegro experienced only one episode of the banking system crisis over the past 15 years. Similar to other countries, this crisis shared some common

characteristics: a rapid credit growth which fuelled real estate prices and banks that encountered liquidity problems as funding markets dried up. As described by Drehman (2014), a common challenge in implementing the credit to GDP gap in emerging countries is problematic, as credit statistics are either not available for longer time spans or they are plagued by structural breaks.

Assessing the credit to GDP gap might be tricky in a developing country such as Montenegro as it may hinder the beneficial financial deepening. Namely, the increasing trend in credits might be viewed as a positive consequence of the deepening and restructuring of the financial system, given that most of developing countries like Montenegro were, and some of them still are, in a transition phase (Ivanovic et al, 2016). Thus, as highlighted by Drehman (2014), to the extent that credit growth exceeds past norms, it could trigger increases in the CCyB that could be a drag on further deepening and slow the process of catching up with financially more advanced economies.

Orphanides and van Norden (2002), Edge and Meisenzahl (2011), and Giese et al. (2014) argue that the reliability of the credit-to-GDP gap in real time might be questionable, as revisions to the underlying data used to calculate the credit-to-GDP ratio may lead to significant policy error. This may be a more significant problem in Montenegro, due to the significant changes in methodologies for the coverage of credits and calculating GDP. Quarterly data of GDP in line with the concept of ESA 2010 exists only from 2012 because national definitions had been used before that. Thus, the relevance of GDP might be problematic not only for the purposes of credit to GDP gap but also in econometric models (macro models, stress tests, etc.) Furthermore, the coverage of total credits has changed from January 2013 pursuant to new regulations; banks are obliged to implement internal methodologies for measuring impairment of financial assets in accordance with the IAS. Changes in regulations necessitated changes in the chart of accounts. The most substantial changes are the following:

- Transfer of receivables classified in E category from off-balance to on-balance sheet.
- Loan receivables category is substantially expanded (funds and deposits from banks, factoring, accruals and prepayments)
- Introduction of accounts for recording impairments for all balance sheet asset items, and provisions for off-/on-balance sheet items, pursuant to the IAS.

Furthermore, this issue is linked to the stability of the filter's outcome as new data points become available. Namely, Basel III suggests that the credit-to-GDP ratio should be calculated by means of a one-sided (i.e. backward-looking) HP filter. Actually, this means that the HP filter is run recursively for each period, and the ex post evaluation of performance of the credit gap is based only on this recursive calculation. Thus the problem might appear when future data points become available. In addition, a similar problem might appear due statistical revisions in the underlying data, causing concerns that it can impair its signalling performance. Edge and Meisenzahl (2011) discuss that the backward revision of the trend renders the credit gap unreliable as a guide for the CCyB. Namely, they argue that the 'true' underlying trend, measured using a two-sided HP filter, may differ substantially from real-time estimates of the trend, measured using a one-sided filter, as one-sided filter uses only data available up to each observation, whereas the two-sided filter calculates the trend over the entire sample. Finally, they find that this makes a

substantial difference to estimates of the gap in the US. However, Borge et al. (2009) find that the one-sided filter leads the two-sided filter because it is influenced more by the latest observation and hence it becomes more pro-cyclical. However, since the trend lags behind the actual observations, this implies that the credit gap crosses the one-sided trend earlier than the two-sided trend, making the credit gap based on the one-sided trend more useful as a leading indicator.

From Montenegro's perspective, it would be impossible for the policymaker to apply a two-sided filter since the future of a country like Montenegro is difficult to forecast. Namely, Montenegro is a small and open economy with very limited monetary policy since the euro is its official currency. Furthermore, Montenegro is service-oriented economy and highly dependent on foreign capital flows. Thus, it would be difficult to extend the sample by recommended five years (Gerdrup et al., 2013) with forecasts of the credit-to-GDP ratio and calculate a two-sided filter for this augmented series.

Drehman (2014) stresses that a similar problem arises at the beginning of the time series used to compute the credit gap in several emerging countries with short data series. Geršl and Seidler (2012) find that the trend calculation can depend significantly on the starting point of the data. This could be a problem in Montenegro, since at the beginning of the observed period, Montenegro experienced an expansive credit growth, which coincided with the privatization of several banks, mergers and was followed by the entry of foreign banking groups, amplifying the banks' lending process and increasing competition in this sector (Ivanovic, 2016). This means that the sample starts near the peak or the trough of the financial cycle. In these circumstances, the trend stays too high for a long period. For these situations Drehman (2014) recommends that policymakers should consider dropping some initial data points, although it still remains an issue for the ex post assessment of performance of the credit gap.

2.2. Other macroprudential indicators complementing the credit to GDP gap effectiveness

In this section we will discuss how to overcome potential issues of the credit gap in the Montenegrin context. In particular, we will try to propose indicators which may complement the credit to GDP gap for decisions to release the countercyclical capital buffer. Summarising the relevant empirical literature, we will try to identify fundamental indicators which could provide a solid guidance for identifying the systemic risk and setting the countercyclical capital buffer in Montenegro.

1. Level of credit and growth rates of credit

As suggested by the literature (Borio and Lowe (2004), Mendoza and Terrones (2008, 2012), Drehmann et al (2011), Dell'Ariccia et al. (2012), Drehmann and Tsatsaronis (2014), BCBS (2010), and IMF (2011), a high level of credit has been recognized as an indicator for the build-up of financial imbalances. Credit expansion is often considered to increase the possibility of a banking crisis.

Drehmann et al. (2011) argues that the credit-to-GDP gap is slow to decline once crises materialize. Namely, he explains that the stock of credit may not fall immediately in a downturn because corporates may have undrawn credit lines available. Also GDP may fall at a quicker pace, potentially even leading to an increase in the ratio. Thus, growth rate of credit variables may provide a timelier alternative to the credit gap in identifying turning points of the financial cycle.

However, as already mentioned, in periods of high levels of credit policymakers have to assess whether in these situations levels of credits are sustainable or whether they are a source of aggregate vulnerability.

Furthermore, it may be useful to look at sectoral splits to understand where exuberance might be building. Namely, Claessens et al. (2013) noted that while aggregate credit growth was less pronounced before the global financial crisis, reflecting slower corporate credit expansion, household indebtedness in the United States rose rapidly after 2000, driven largely by increased mortgage financing, with historically low interest rates and financial innovation contributing.

Figure 2 Total credits by the household and corporate sectors in Montenegro Figure 3 Total credits by sectors of the economy in Montenegro

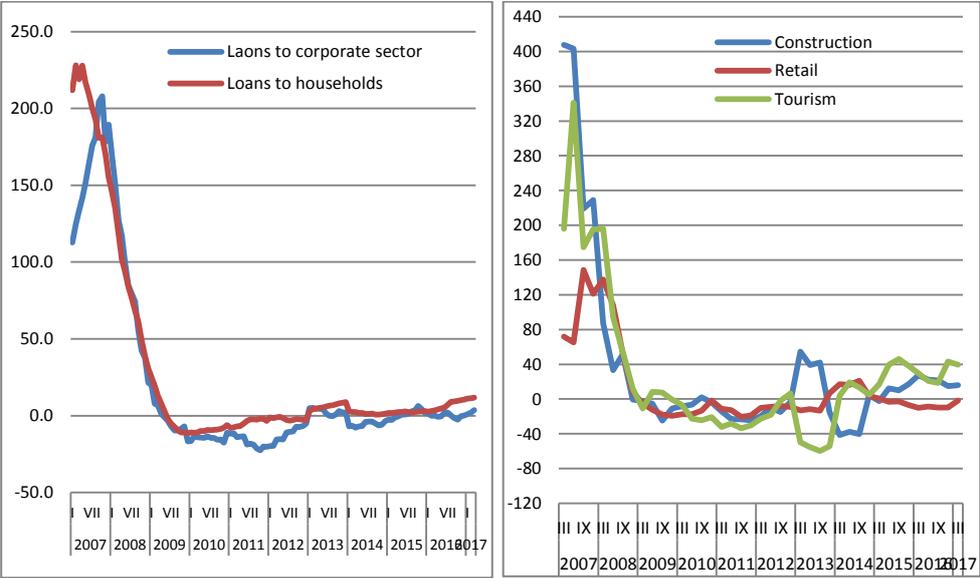


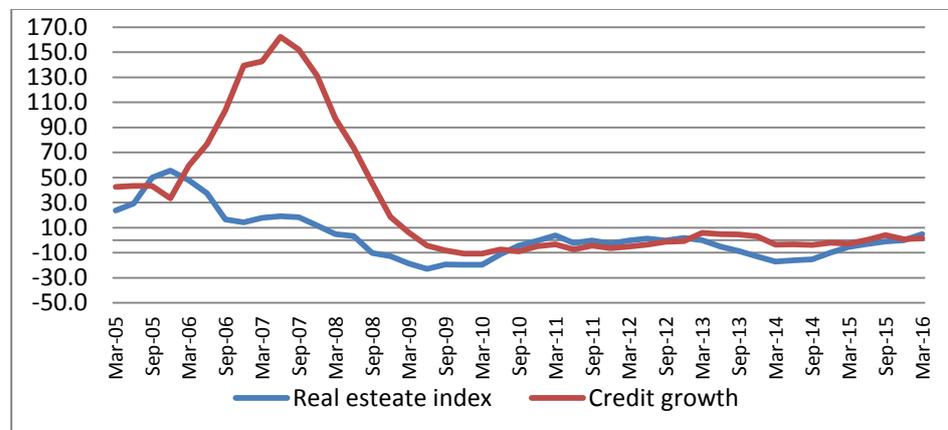
Figure 2 illustrates that loans to the corporate sector in Montenegro increased more rapidly than loans to households. Analysing the growth rate of household and corporate loans separately is useful particularly given that after the crisis, the share of non-performing loans of corporate sector in total loans was higher than the share of household non-performing loans. Furthermore, the sectoral structure of total amount of banking loans (Figure 3) shows that the largest portion of loans was granted to the retail sector, followed by the construction and tourism sectors. Thus, analysing leverage to these sectors and prescribing adequate measures for their monitoring would be beneficial.

As we have already identified data limitations, we would propose that the identification of systemic risk in Montenegro should mainly rely on analysing and monitoring credit developments. In particular, focusing on individual indicators which are grouped into a sectoral index would improve the quality of risk monitoring. Besides indicators of credit growth, developments in lending standards should be observed, as deterioration in lending standards can provide an early indication of an increase in systemic risk.

2. The quality of credit matters-house prices

House prices have typically been linked to financial crises (Drehmann et al. (2010), Claessens et al. (2010), Mendoza and Terrones (2008), Riiser (2005)) and they tend to lead volume-based credit indicators. As reported by Claessens et al. (2010) house prices increased dramatically before the crisis, in particular in the United States, the United Kingdom, Iceland, Ireland, Spain and most of the other markets that subsequently ran into problems. These booms in real estate prices were generally fuelled by fast rising credit, resulting in sharply increased household leverage. As seen in previous crises, the combination of rapid house prices increases and increased leverage turned out to be the most dangerous elements. According to (Crowe et al., 2011), real estate boom-bust patterns preceded more than two thirds of 46 systemic banking crises for which house price data are available.

Figure 4 Credit growth and real estate index (Hedonic index)



Source: Central Bank of Montenegro

The existing empirical literature finds that the loan-to-value ratio would be a good indicator for the quality of credits. Loan to value is defined as the cap on the ratio of the value of the loan relative to the value of underlying collateral (real estate). Namely, Kuttner and Shim (2012) assess the degree of effectiveness of macroprudential instruments in mitigating housing price and credit cycles using data from 57 countries. Employing panel techniques, they find that caps on loan-to-value (LTV) and debt-to-income (DTI) ratios attenuate housing credit growth and are related to lower house price inflation. Wong et al. (2011) investigate the policy effectiveness using panel data across 13 economies and find caps on LTV ratios effective in mitigating boom and boost cycles. Furthermore, Crowe et al. (2011) explore the effects of these instruments on real estate booms and busts, and find caps on loan-to-value (LTV) ratios related to the real estate cycle have the best chance to curb a real estate boom, whilst dynamic provisioning, although ineffective in avoiding the boom, can help during the bust.

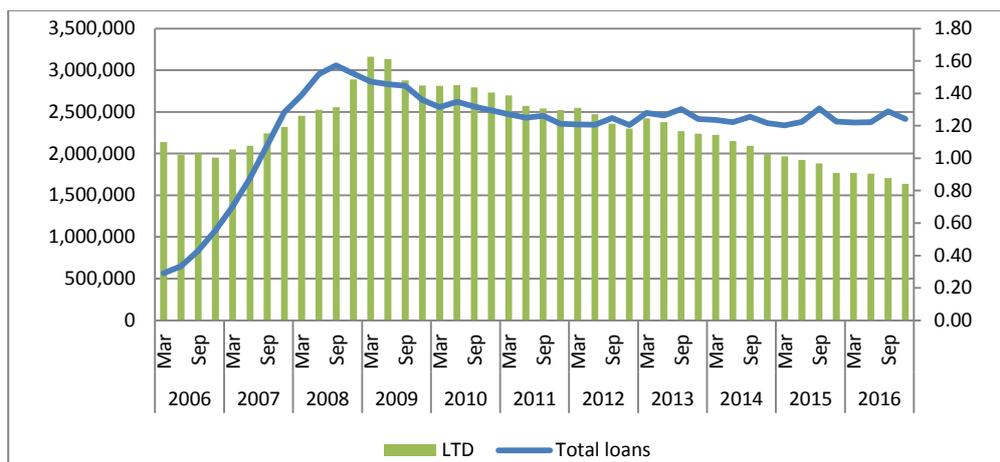
However, this ratio might be problematic in Montenegro given that the available information on developments in property prices is limited and fragmented. Furthermore, a transactions-based indicator of housing prices is only available for newly built apartments (from 2010) and in the central bank's Hedonic index for real estate price is calculated only for the capital city. In addition, there is no information on transactions in commercial real estate.

The quality of systemic risk monitoring would benefit significantly from a comprehensive database of price indices for real estate. However, closing these data gaps will take time and require substantial capacity from the central bank and other state institutions. In the meantime, macroprudential measure like higher capital requirements or limits on mortgage loans might tackle excessive bank risk-taking associated with real estate booms. However, the calibration of these measures will be a learning process. Namely, excessive changes in the limits may lead to confusing signals and carry the risk of generating policy-induced real estate cycles (Dell’Ariccia, 2012).

3. The way lending is funded is important

Stable bank funding is important. Widely used indicator to measure funding risk in banks is the ratio of loans to deposits. A high and increasing loan-to-deposit ratio would signal a weakening in banks’ funding. Thus, the loan-to-deposit ratio should be observed carefully in order to control funding and thus limit increases in lending in the periods when economy is booming and prepare banks for liquidity shortages during crises.

Figure 5 Loan to Deposit Ratio in Montenegro



Source: Central Bank of Montenegro

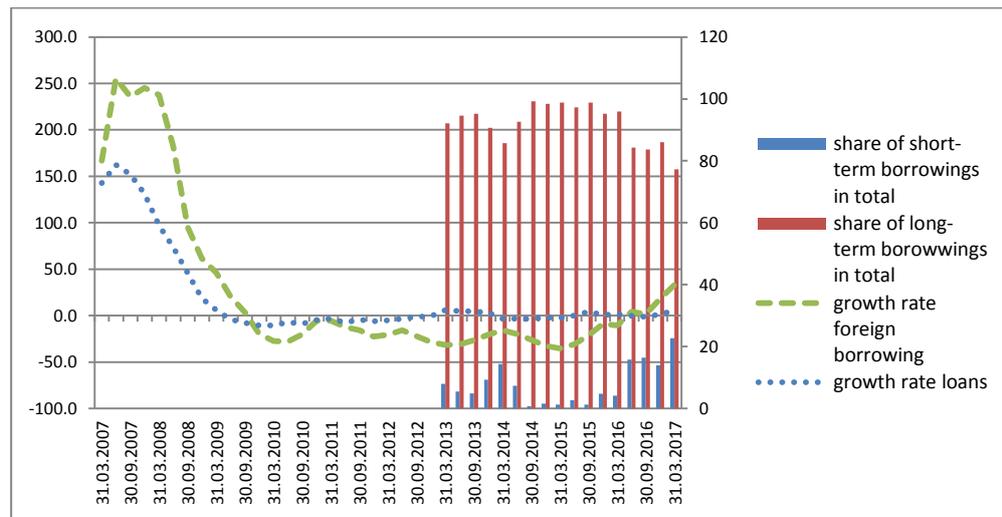
As shown in Figure 5, until 2007, credit growth was supported by an increase in deposits related to high capital inflows. However, from 2007 credit growth significantly exceeded deposit growth. The loan to deposit ratio (LTD) has been extremely high until 2013, suggesting that deposits in that period have not been able to meet loan demand. This has led to an increasing dependency on foreign funding, which has mainly been channelled through the banking sector. Additional reason for the high LTD was that due to the global financial crisis, total deposits declined significantly. Significant withdrawals of deposits have been compensated with an increase in borrowings and credits (see Figure 6).

From 2012, both citizens and corporates restored their confidence into the banking system of Montenegro, and deposits have been growing continually. As a result of strong inflow of deposits and low growth rates of loans, corporate and household sectors have become net creditors as of 2015. Namely, as of 2015, the loans to deposit ratio has improved significantly in comparison with previous years,

and it has remained below 1 percent, suggesting that banks have enough available funds to grant loans.

Extremely high LtDs have led to a growing dependency on foreign funding, which mainly involve borrowing from foreign parent banks, whose subsidiaries dominate the Montenegrin banking sector. For example, financing from parent banks constituted 76 percent of total borrowings at end-2008, exposing the banking sector to liquidity shocks in the case where parent banks were unable to sustain financing to their subsidiaries (Ivanovic, 2016). Thus, indicators such as the share of non-deposit funding and the share of FX funding might be useful to impede excessive maturity mismatch and market illiquidity.

Figure 6 Borrowings and their maturity



Source: Central bank of Montenegro

Differentiation of data for short-term and long-term borrowings, which is available in Montenegro only from 2013, might be useful as when the credit is funded by high levels of short-term debt, it is likely to make the financial system more prone to liquidity crises.

Generally, banks are considered by being construction fragile taking in account the maturity transformation that they undertake. Banks should constantly hold enough liquid assets in order to minimize liquidity risk. As Nikolaou states (2009) liquidity risk lies in the heart of banking. Banks' main role in the financial system is to provide liquidity through intermediation between depositors and investors. Banks provide liquid funding to investors by transforming short term maturities, deposits, into long term maturities and thereby promoting efficient allocation of resources in the system. That is the reason why banks become exposed to maturity mismatch. Further, it can result in instability of banking system because banks can fail in providing liquidity to depositors or borrowers (Nikolaou, 2009).

For liquidity purpose, banks in Montenegro have liquid assets available mainly in a very short term. Namely, Montenegrin banks are funded mainly through deposits, except during the periods around the credit boom. However, demand and short term deposits have a dominant part in total deposits. For example, at the end of 2016, short term deposits (with maturity of up to and including one year) comprised 77% of total deposits, while long-term deposits refer only to 23%. Furthermore, with regard to highly emphasized long term structure of credit portfolio, we may recognize a potential vulnerability as banks miss stable long term deposit potential.

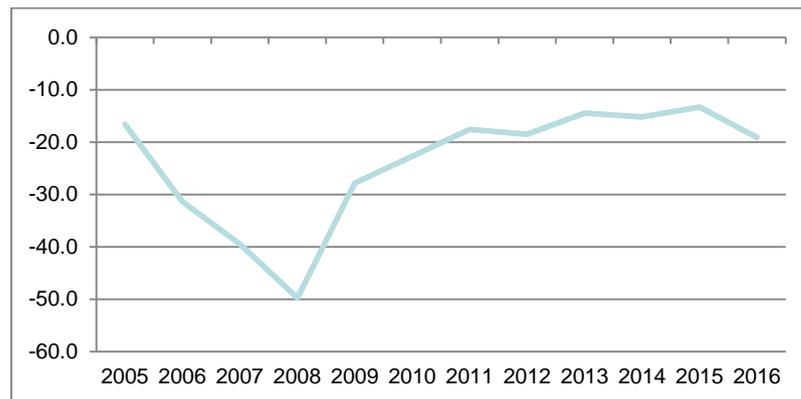
As the ESRB Handbook of operationalizing macroprudential policy in banking sector (ESRB, 2014a) states that application of instruments, aimed to address excessive credit growth and counter pro-cyclicality in the financial system, will help to prevent the systemic risks to materialize. However, the last financial crisis has evidenced that the implementing only prudential rules and strengthening capital buffers are not enough to address liquidity risk. There are instruments designed to address excessive maturity mismatch and market illiquidity. Both sides of banks' balance sheets are subject to illiquidity, market illiquidity on the asset side, and funding risk on the liability side. Materialization of these risks can lead to problems such as fire sales and contagion. In the scope of CRR/CRD, Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) are proposed. We currently have prescribed the minimum liquid assets ratio; however, the LCR and NSFR are not defined in our regulation. The liquidity coverage ratio by the Basel Accords defines how much liquid assets have to be held by financial institutions. The NSFR limits overreliance on short-term wholesale funding, encourages better assessment of funding risk across all on- and off-balance sheet items, and promotes funding stability (BCBS, 2014). Furthermore, they also propose indicators that are under national jurisdiction such as Loan to Deposit (LTD) Ratio and Stable Funding Requirements (SFR) (ESRB, 2014).

4. Large and persistent current account deficits

Large and persistent current account deficits might be seen as a warning sign of building vulnerabilities in financial sector (Reinhart and Reinhart (2008)). Large current account deficits are of concern, as they pose financing risks if capital inflows stop. In most cases, similar to that in Montenegro, credit booms are funded by capital inflows from abroad. According to Vamvakidis (2008), deterioration in the current account balances in emerging Europe was driven by an increase in investment, as high investment was expected to improve these countries' growth prospects and then, eventually, help reduce their current account deficits. By the end of 2007, these vulnerabilities were recognized. Namely, the IMF (2008, p. 15) warned that *"...the heavy dependence on foreign capital leaves the region exposed to an abrupt retrenchment of capital inflows"* and *"economies with large current account deficits or high external debt ratios would be especially vulnerable if foreign financing dried up."* As reported by the ECB (2009), strong growth in housing loans and rising housing prices contributed to the output boom in the construction sector, stimulating demand for particular imported goods such as white goods, furniture, and the like. In addition, they reported that housing loans have raised the overall ability of households to finance consumption; thus, these loans may have also contributed to rising inflationary pressures and/or current account deficits. Even though in situation where foreign lending was directly extended to end-users but domestic banks took part in excess lending, resilience of the financial sector might also weaken (Giese et al., 2014).

Figure below shows that Montenegro ran huge current account deficit before the current banks' crisis.

Figure 7 Current account deficit in GDP%



Source: Central Bank of Montenegro

During the period 2006–2010, net FDI financed 70 per cent of the current account deficit, on average. Even though access to capital was retained through foreign banks' increased financial support to their Montenegrin subsidiaries, this contributed to a rise in external debt which also poses a threat to the system. Owing to euroisation, a high level of external debt, and large debt service requirements Montenegro is prone to a slowdown in capital inflows and this requires the CBCG to pursue a macroprudential policy as soon as possible.

A significant limitation to the national statistics refers to firms' foreign leverage data. The measure of foreign leverage represents the value of foreign financial liabilities extended to firms by foreign banks. Unfortunately, due to the absence of any regulation and, consequently, no obligation by a borrower to inform the CBCG about the loan structure and other loan related information, there is no possibility for a more detailed analysis of these flows. Furthermore, based on Montenegro's experience, it is sometimes difficult to make a difference between FDIs and firms' foreign leverage, as some companies register their investment financing as an intercompany debt, which is turned into capital after some time. Thus, with a lack of firms' foreign leverage data we cannot grasp the actual indebtedness of firms in Montenegro given that their credit history is not complete and their leverage is not properly registered.

Conclusion

Like many other transition countries, Montenegro has a financial system with the dominant role of the banking sector. Therefore, a sound banking system is fundamental for financial stability, macroeconomic stability, and economic development. Furthermore, in its process of European integration as an EU candidate country, Montenegro is adopting necessary regulation to align with EU requirements and standards. In that context, the banking sector regulation is in the process of compliance with the Basel III and CRD IV. New legislation and standards will grant more powers to the CBCG to address structural and countercyclical systemic risks. Until that, there are still macroprudential instruments other than

those specified in the CRD that the national authorities have to propose and implement.

The existing empirical literature shows that macroprudential policy instruments can be effective in mitigating systemic risk. In the paper we analysed the credit-to-GDP gap which is used as a tool in setting the countercyclical capital buffer. Applying this measure for Montenegro, we find that the credit to GDP gap would have signalled the need to tighten the countercyclical capital buffer ahead of the crisis in 2008. However, the forecasting ability of the credit gap might be questionable due to a very short available data series and underlying quality of the data. Furthermore, given the short time horizon, the number of cycles and crises is very small compared to cross-country studies. Thus, in this paper we proposed indicators which may complement the credit to GDP gap for decisions to release the countercyclical capital buffer.

Other indicators, credit levels or growth ratios and sectoral credit ratios, might provide useful indications of credit quality. Namely, focusing on individual indicators which are grouped into a sectoral index would improve the quality of risk monitoring. In order to prevent excessive credit growth and leverage, it is also possible to apply capital requirements (sectoral), risk weights (sectoral), and limits on credit growth. However, the calibration of these measures has to be prescribed in regulation. Furthermore, indicators of housing prices such as loan-to-value are important as housing prices tend to lead volume-based credit indicators. In addition, indicators related to banks' balance sheets, such as the leverage ratio or the loan-to-deposit ratio would provide information how credit booms are financed. Given that credit is funded mainly by short term debt, the financial system might be prone to liquidity crises. Thus, indicators such as the share of non-deposit funding and the share of FX funding might be useful to impede excessive maturity mismatch and market illiquidity.

In the analysis of macroprudential policy, the limitations mainly relate to short data series with data gaps. Thus, there is a necessity for closing data gaps as they may endanger the reliability of analysis.

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Towards identification of gaps in data availability for maintaining financial stability – the case of Montenegro¹

Maja Ivanović, Marijana Mitrović-Mijatović and Milena Vučinić,
Central Bank of Montenegro

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**TOWARDS IDENTIFICATION OF GAPS IN DATA AVAILABILITY
FOR MAINTAINING FINANCIAL STABILITY – THE CASE OF
MONTENEGRO**

Authors: Marijana Mitrović-Mijatović

Maja Ivanović

Milena Vučinić

- ❑ Introduction
- ❑ Objectives of the paper
- ❑ Macroprudential policy and countercyclical capital buffer
- ❑ Assessing the credit to GDP gap in Montenegro
- ❑ Other indicators complementing the credit-to-GDP gap
- ❑ Concluding remarks

- ❑ Montenegro is in the process of developing macro-prudential policy. The country is still in a catching-up process, which implies financial deepening, thus macroprudential policy is not easy to apply.
- ❑ Number of country-specific factors influence creation of macro-prudential policy framework.
 1. It is a small euroized and open economy strongly influenced by external factors. In the absence of independent monetary policy, key **objective of Central bank of Montenegro (CBM) is preserving financial stability**.
 2. Montenegro has a financial system with dominant role of banking sector. Therefore, healthy and sound banking sector is fundamental for stability of financial system.
 3. Montenegro is a country with short history as independent state, thus there are many **gaps in data availability and the associated challenges**. There is a necessity for closing data gaps which can endanger the reliability of analysis.
 4. In order to achieve its primary goal, safeguard financial stability, the CBM **is developing a set of indicators on credit growth, lending standards and leverage**, which would enhance the quality and effectiveness of risk monitoring and assessment.

Objectives of the paper

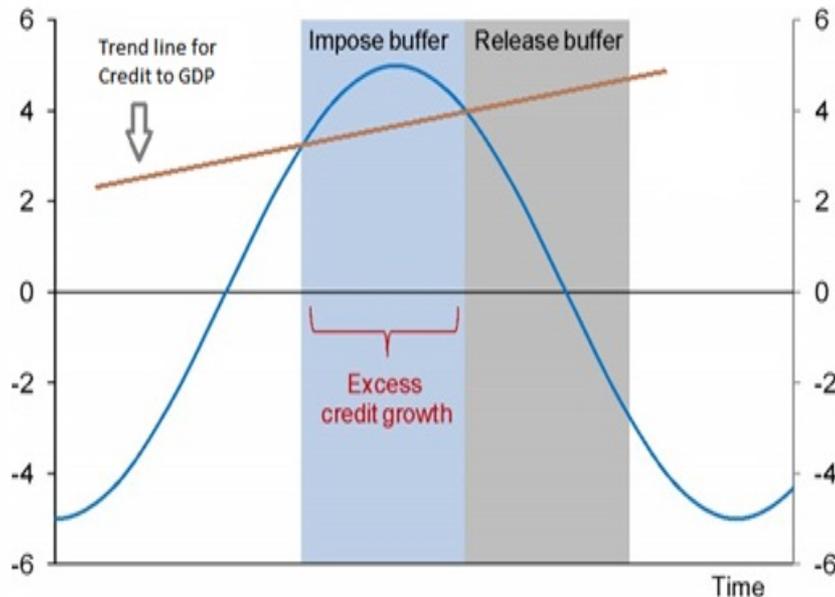
1. To identify data gaps which hamper the ability of central bank to identify indicators with good early warning properties for Montenegro.
 - To analyse the credit-to-GDP gap proposed under Basel III for the countercyclical capital buffer.

2. To discuss how to overcome the potential issues of the credit gap in the Montenegro context.
 - In particular, we will try to propose indicators which may complement the credit to GDP gap for decisions to release the countercyclical capital buffer.
 - To identify a set of fundamental factors that could provide solid guidance for setting this instrument in Montenegro and using it in efficient way.

- The macroprudential policy objective is **to prevent systemic risk** from forming and spreading in the financial system.
- **Systemic risk has two different dimensions:**
 - **The time dimension** reflects the build-up of systemic risk over time due to the pro-cyclical behaviour of financial institutions contributing to the formation of unbalanced financial trends.
 - The second dimension is **cross-sectional** and reflects the existence of common exposures and interconnectedness in the financial system.
- The two dimensions of systemic risk cannot be strictly separated, actually they evolve jointly over the financial cycle.
- In general, macroprudential policy can be defined as the application of a set of instruments that have the potential to:
 - increase preventively the resilience of the system, in the accumulation phase, against the risks of emergence of financial instability in the future by
 - creating capital and liquidity buffers,
 - limiting procyclicality in the behaviour of the financial system,
 - containing risks that individual financial institutions may create for the system as a whole.
 - mitigate the impacts, in the materialization phase, of previously accumulated risks if prevention fails.

Countercyclical capital buffer (CCB)

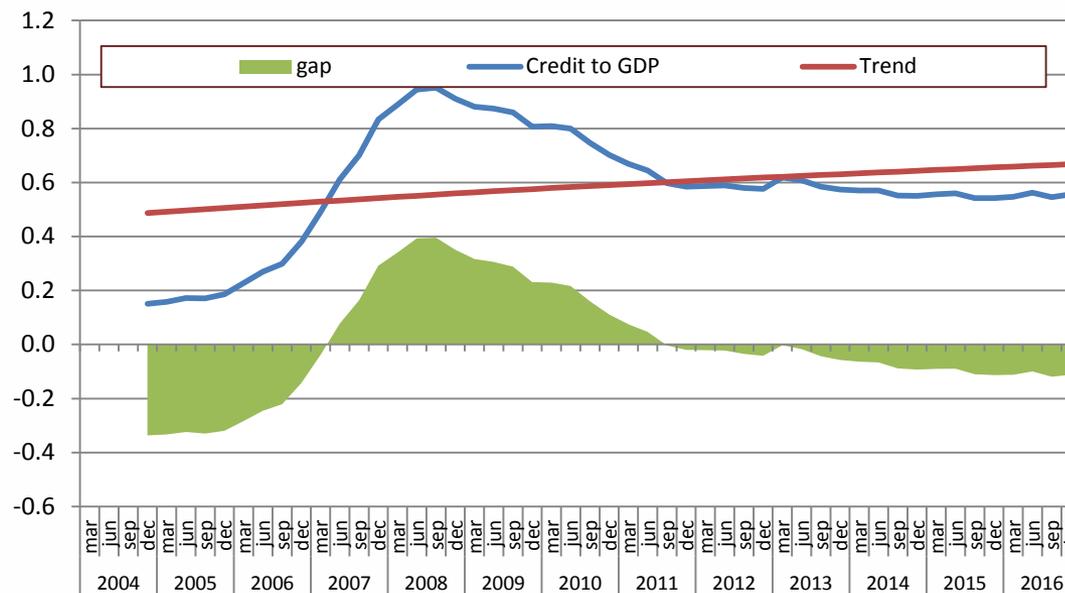
- **Countercyclical capital buffer (CCB) - genuine macroprudential tool, proposed by Basel III**
- The aim of the CCB is twofold:
 1. it requires the build up a buffer of capital in good times which may be used to maintain flow of credit to the real sector in difficult times.
 2. it achieves the broader macro-prudential aim of protecting the banking sector from indiscriminate lending in the periods of excessive credit growth that have often been associated with the building up of system-wide risk.
- The common reference guide (BCBS , 2010) for setting the CCB is based on the aggregate private sector credit-to-GDP gap.



- A gap between currently observed value and the calculated long-term trend of private sector credit to GDP.
- BCBS suggests that the long-run trend should be calculated by a one-sided, or 'real-time', Hodrick-Prescott (HP) filter with a smoothing parameter of 400,000.

- In pre-crisis period an excessive risk was overtaken and it had been materialised,, immediately after the crisis hit banks` balances.
- Figure below illustrates this measure for the Montenegro, showing that the broad measure would have signalled the need to tighten the countercyclical capital buffer ahead of the crisis in 2008.

Figure: Credit to GDP Gap



Source: CBM

- Whether the Credit to GDP gap is appropriate measure for Montenegro?
- Potential problems:
 1. Data availability limitations: Montenegro has very short history.
 - Basel III recommends that at least 20 years of data is necessary in order to properly assess the forecasting ability of the credit gap.
 2. The number of cycles and crises is very small compared with cross-country studies.
 - Particularly, Montenegro experienced only one episode of banking system crisis over the past 15 years.
 - Fast credit growth is incorporated in the trend
 3. Assessing the credit to GDP gap might be tricky in developing country as Montenegro, as it may hinder the ***beneficial financial deepening***.
 4. Orphanides and van Norden (2002), Edge and Meisenzahl (2011) and Giese et al. (2014) argue on the reliability of the credit-to-GDP gap in real time is questionable as ***revisions to the underlying data*** used to calculate the credit-to-GDP ratio may lead to policy error.
 - significant problem in Montenegro, due to the significant ***changes in methodologies for the coverage of credits and for calculating GDP***.

➤ Changes into the methodology:

- **Changes in GDP compilation – quarterly data exists only from 2012 in line with the concept of ESA 2010.**
 - *Before 2012 national definitions were used, data with many structural breaks.*
 - *Thus the relevance of GDP might be problematic not only for the purposes of credit to GDP gap but also in econometric models (macro models, stress tests, etc.)*

- **The coverage of total credits** has changed from January 2013 pursuant to new regulations, banks are obliged to implement internal methodologies for measuring impairment of financial assets in accordance with the IAS. Changes in regulations conditioned change of the chart of accounts. The most substantial changes are the following:
 - *Transfer of receivables classified in E category from off-balance to on-balance sheet.*
 - *Loan receivables category is substantially expanded (funds and deposits from banks, factoring, accruals and prepayments,...)*
 - *Introduction of accounts for recording impairments for all balance sheet asset items, and provisions for off/balance items, pursuant to IAS.*

□ Discussions in the literature: one-sided (i.e. backward-looking) HP filter vs : two - sided (i.e. forward looking) HP filter.

- the future in country like Montenegro is difficult to provide precise forecast, due to the facts that it is small, open and euroised economy, service oriented and highly depended from foreign capital flows.

❑ Level of credit in the economy - *robust indicator for the build-up of financial imbalances.*

- ❑ Drehmann et al. (2011) argues that the **credit-to-GDP gap is slow to decline once crises materialize**. The stock of credit may not fall immediately in a downturn because corporates may have undrawn credit lines available. Also GDP may fall at a quicker pace, potentially even leading to an increase in the ratio. Thus, **growth rate of credit variables may provide a more timely alternative to the credit gap in identifying turning points of the financial cycle.**
- ❑ In addition, it may be helpful to look at sectoral splits to understand where exuberance might be building.

Figure: Households vs Corporate Sector

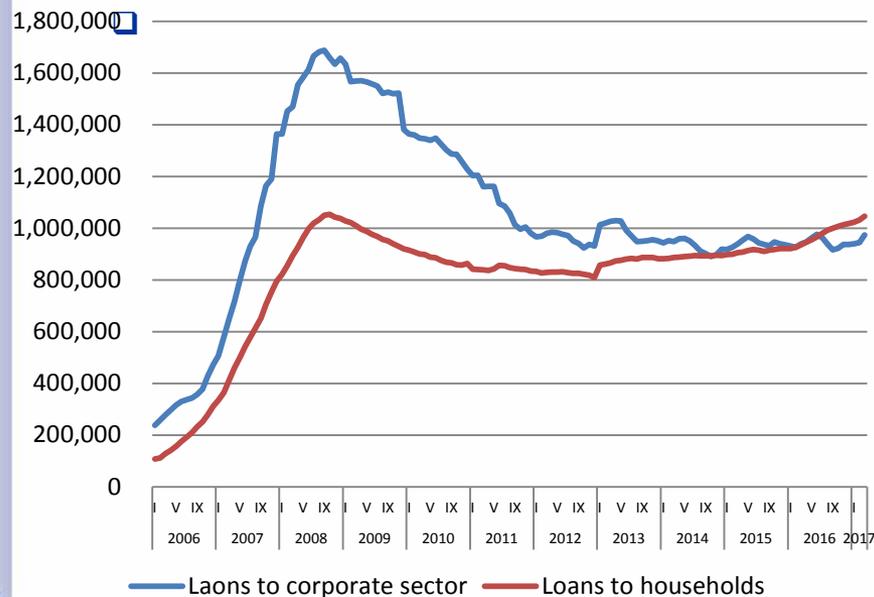
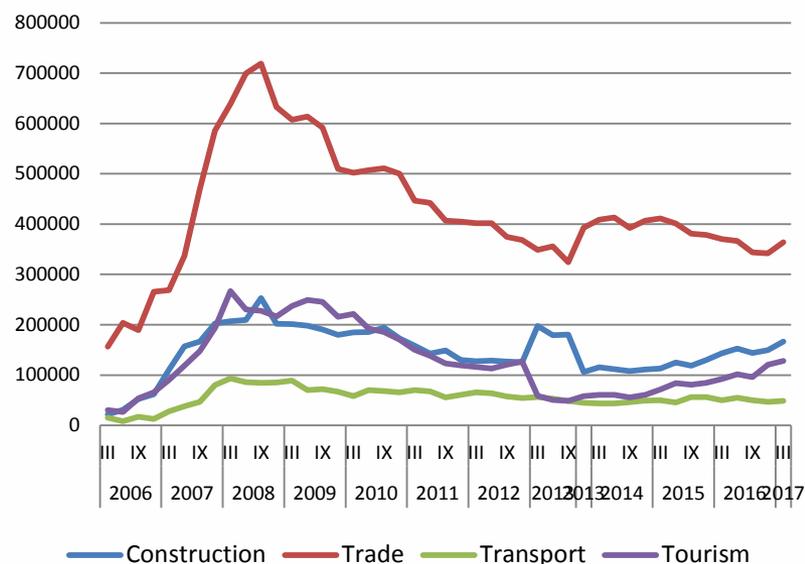
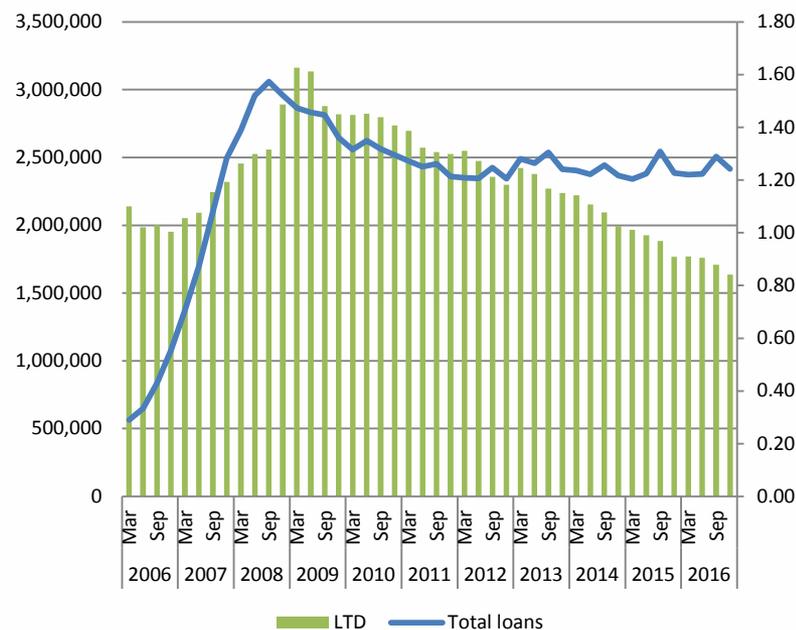
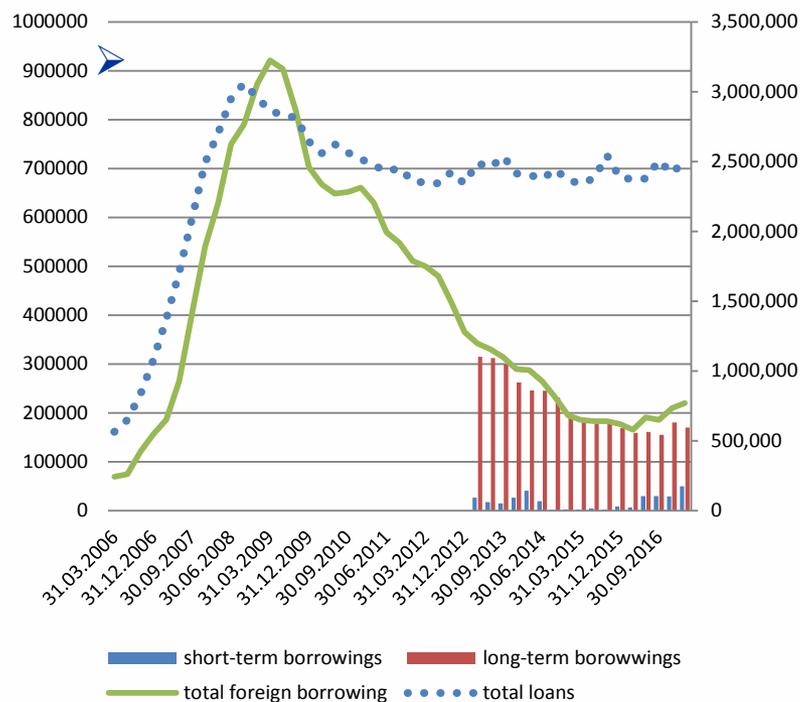


Figure: Sectoral split – most indebted sectors in economy



□ The sources of credit - the way lending is funded

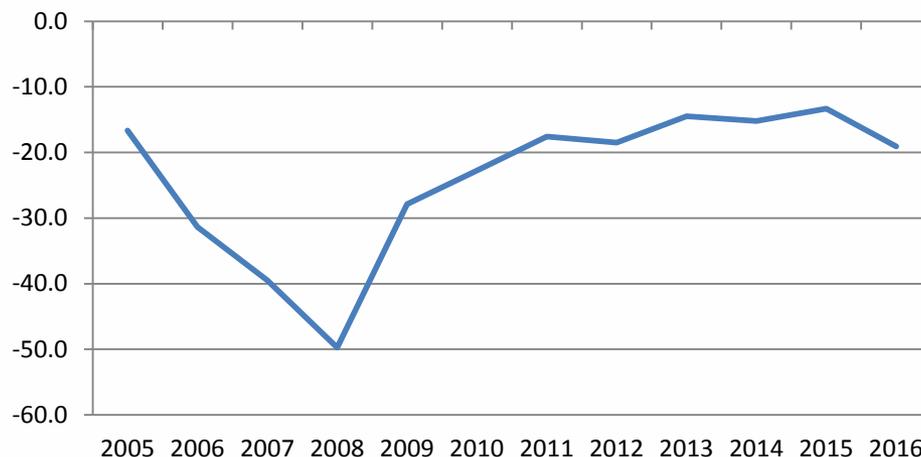
- highly leveraged financial system is fragile,
- **maturity transformation**, when the credit is funded by high levels of short-term wholesale debt, is likely to make the financial system more prone to liquidity crises,
- high and increasing loan-to-deposit ratio would then signal a weakening in banks' funding.



Source: CBM

- If foreign lending was directly extended to end-users but domestic banks took part in excess lending, resilience might also weaken. Large and persistent current account deficits are therefore also often seen as a warning sign of building vulnerabilities (Giese et al., 2014).

Current account in GDP%

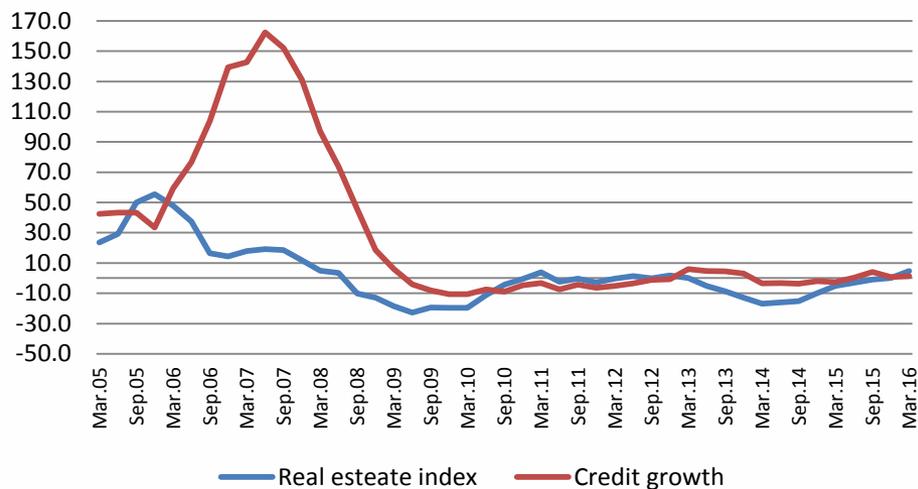


Source: CBM

- Significant limitation to national statistics and firms leverage data – there is no data of foreign indebtedness of Montenegrin companies.

□ The quality of credit matters

- House prices have typically been linked to financial crises (see, among others, Barrell et al. (2010), Drehmann et al. (2010), Claessens et al. (2011), Mendoza and Terrones (2008) and Riiser (2005)) and they tend to lead volume-based credit indicators.
- Loan-to-value ratios were a good leading indicator of stress.
- However this is a problem in Montenegro:
 1. the available information on developments in property prices is limited and fragmented.
 2. A transactions-based indicator of house prices is only available for newly built apartments (from 2010) and in the CBM Hedonic index for real estate price is calculated only for the capital city)
 3. There is no information on transactions in commercial real estate.



Source: CBM

Intermediate objectives	Potential macroprudential indicators	Potential CBM policy tools	
		Currently available	Available from CRR/CRD IV
Excessive credit growth and leverage			
Aggregate	Credit to GDP gap Credit growth Growth in credit to GDP	Capital requirements (sectoral) Risk weights (sectoral) Limits on credit growth (sectoral)	Countercyclical capital buffer Leverage ratio
Households	Growth in household credit (cash loans, housing loans) ^a Debt to income ^b Debt service to income (new lending) ^c Loan to value ratio (new housing loans) ^a	Limits on DSTI and LTV ratios for new lending	
Non-financial corporates	Growth in corporate credit (total and by industry) ^d Share of Foreign Exchange (FX) loans		
Financial sector	Bank capital ratios Bank leverage ratio		
Real estate	Growth in real estate lending ^a House price growth Price to income ^b Commercial property price growth		
Excessive maturity mismatch and market illiquidity	Loan to deposit ratio Share of non-deposit funding Share of FX funding	Minimum liquid assets ratio Stable funding requirement Reserve requirements Constraints on FX funding	Liquidity Coverage Ratio Net Stable Funding Ratio

a. Data is available in the credit registry. For some indicators, loan or borrower characteristics may have to be added to the credit registry reporting template (e.g., borrower income).

b. Income data is available from Monstat.

c. Data is available in the credit registry. Borrower income could be added as an extra attribute to the credit registry reporting template, alternatively income data from Monstat can be used

d. This should include foreign lending and could be based on the information that the CBM uses to compile the BoP statistics.

Concluding remarks

- The ability of the CBM to monitor and assess systemic risk is limited by substantial data gaps. That limits the usefulness of indicators that strongly rely on the availability of long time-series, such as the credit gap.
- Central bank should develop own judgments about the sustainable level of credit in the economy.
- Credit-to-GDP ratio should serve as a guide.
- Other indicators should be tested as to their signaling properties for a built-up of systemic risk.

Thank you for your attention!

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