Follow-up on CCyB in Slovakia: build-up, calibration and release

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Macroprudential policy was designated to use a wide range of policy instruments of different types, scope or legal background. However, their practical implementation varies across the EU due to different legislative environment. Unlike most of other macroprudential policy instruments, countercyclical capital buffer (CCyB) frameworks are implemented in all member states. Despite this general homogeneity stemming from common EU legislation source, its practical implementation in member states reflects different characteristics of local financial and lending markets. Logically, approaches to financial cycle monitoring, calibration of benchmark buffer rates or concept of releasing the buffer remain different. Some frameworks are more sophisticated, while other uses more simple metrics, always searching for a balance between complexity and transparency, accuracy and intuitiveness. So far, reflecting the simple business models of local banks, absence of deep financial market and limited length of time series, NBS has opted for a more transparent and intuitive approach to all stages of countercyclical capital buffer process.

Identification of excessive credit growth

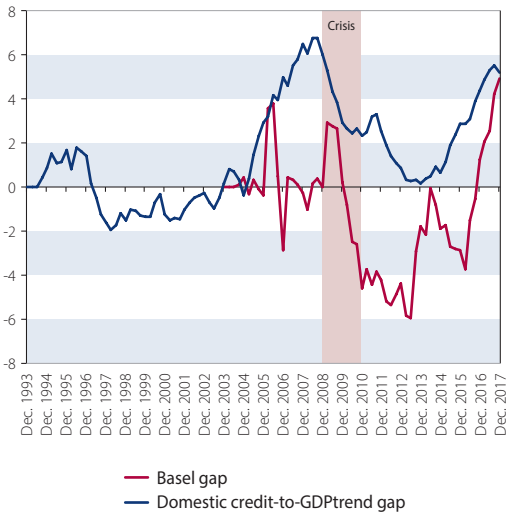
Limited signalling properties of Basel gap as the leading indicator was already mentioned by several authors (See Gersl – Seidler 2012, Rychtarik 2014, Castro et al. 2016 or Plašil et al. 2016). Logically, NBS has decided to anchor its decisions on countercyclical capital buffer rate on two additional indicators, where one is based on credit gap concept and the other benefits from aggregation of several variables under a composite indicator. Similar trends can be observed in other EU macroprudential authorities.

First, *Domestic credit-to-GDP$_{trend}$ gap* issues more reliable signals than the Basel gap mostly due increased stability of its denominator (GDP$_{trend}$ instead of GDP) and longer time series available for narrow definition of bank credit.

Although the sole use of bank loans instead of total debt is methodologically weaker, it brings several practical advantages. They are mostly related to doubtful data quality regarding debt of enterprises originated abroad, unsolvable question on the treatment of cross-border intra-group funding of enterprises and missing information on any foreign debts of households. Therefore, the narrow definition of credit provides a clearer picture, even if a part of the picture is still missing.

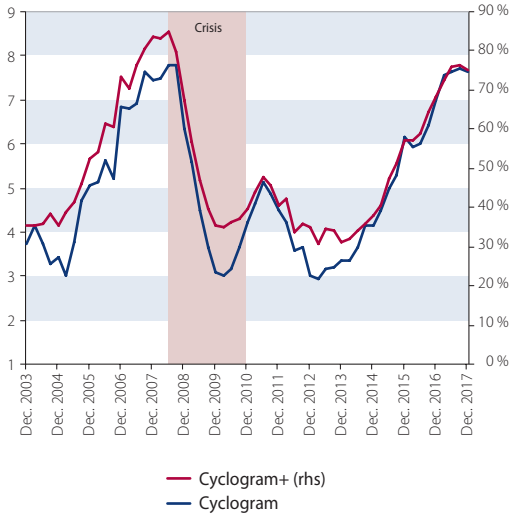
Second, composite indicator (*Cyclogram*) provides a more complex picture on the cyclical developments of Slovak economy. (Rychtarik, 2014) Based on a larger set of variables it covers more aspects of the market and creates an important link between financial and economic cycle. Its implementation in the countercyclical capital buffer

Chart 1 Mind the gap (in %)



Source: NBS.

Chart 2 Cyclogram and Cyclogram+



Source: NBS, author.

Table 1 List of variables in Cyclogram and Cyclogram+

Category	Cyclogram	Cyclogram+	Methodology
Lending market	Domestic household credit-to-GDP$_{trend}$ gap	Domestic household credit-to-GDP$_{trend}$ gap	Gap
		Domestic enterprises credit-to-GDP$_{trend}$ gap	Gap
	Credit growth (Households)	Credit growth (Households)	Absolute change
	Credit growth (Enterprises)	Credit growth (Enterprises)	Absolute change
Risk appetite	Non-performing loans	Non-performing loans (Households)	Level
		Non-performing loans (Enterprises)	Level
	Default rates (Enterprises)	Default rates (Enterprises)	Level
		Interest margins (Housing loans)	Level
		Interest margins (Enterprises)	Level
Indebtedness	Indebtedness (Households)	Indebtedness (Households)	Level
	Indebtedness gap (Households)	Indebtedness gap (Households)	Gap
	Indebtedness (Enterprises)	Indebtedness (Enterprises)	Level
	Indebtedness gap (Enterprises)	Indebtedness gap (Enterprises)	Gap
Property market	Residential property price growth	Residential property price growth	Relative change
		Residential property price growth (Bratislava)	Relative change
	Price-to-income	Price-to-income	Level
		Price-to-rent	Level
		Flat-to-house	Level
Macro-economy	Economic Sentiment Indicator	Economic Sentiment Indicator	Level
	Unemployment rate	Unemployment rate	Level
	Output gap	Output gap	Gap
		Revenues gap	Gap
		Current account deficit-to-GDP	Level

Source: Author.

decision-making confirmed several advantages of composite indicators within this framework.

Apart from this official indicator, monitoring of cyclical developments is also done using a modified version of *Cyclogram* (*Cyclogram+*) Major amendments are related to a continues approach to variables in their historical distributions instead of percentile approach and to a modified set of underlying variables (Table 1).

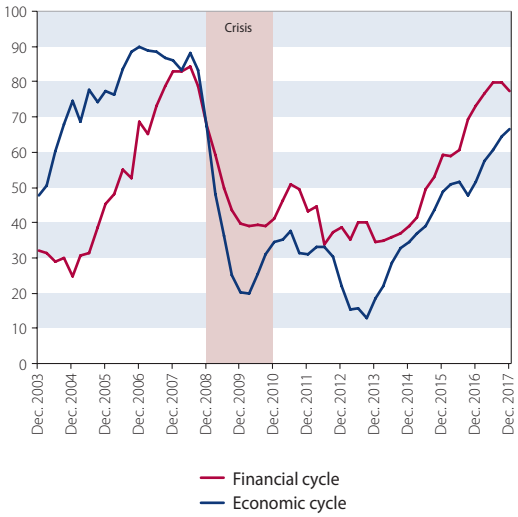
Despite these modifications, core principles of Cyclogram+ remain unchanged and the message about the cyclical developments is very similar to its official version (Chart 2). From an analytical viewpoint, the only difference is in the magnitude of the peak of 2008. Yet, the value added of Cyclogram+ is not in its general message about the cycle but rather in enhanced analytical properties and interpretations.

Firstly, as there are no weights assigned to respective variables, in its amended version, there is more equality in the number of variables per category. This practically means that the major five categories have similar weights, which enables more efficient guided judgment discussions (Table 1). Secondly, *Cyclogram+* can be easily decomposed into economic and financial cycle (Chart 3), or to separate cyclical trends in households and enterprises (Chart 4). Both decompositions are important when taking decisions on CCyB rate.

Identification of possible differences between financial and economic cycle can help to guide the cost-benefit discussion. For example, in expansionary phase of 2003-2007, the credit boom seems to be driven by buoyant macroeconomic trends. This appears to be slightly different in the current build-up phase, where low interest rates stimulate excessive credit growth, while economy recovery lags slightly behind. Within a cost-benefit discussion it is important to know if increase in capital requirements might negatively affect lending market and could consequently slowdown economic growth. Even if this causality was not observed so far, such dilemma can be avoided if output gap is positive.

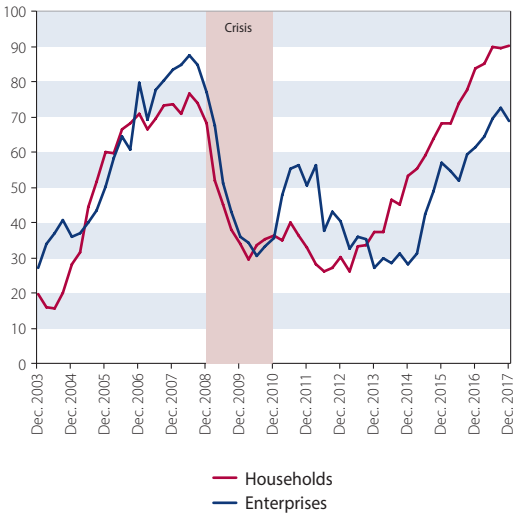
Similarly, there is a clear benefit from differentiation between the contribution of households and enterprises to the financial cycle. This is par-

Chart 3 Decomposition: financial and economic cycle (in %)



Source: NBS, author.

Chart 4 Decomposition: households and enterprises (in %)

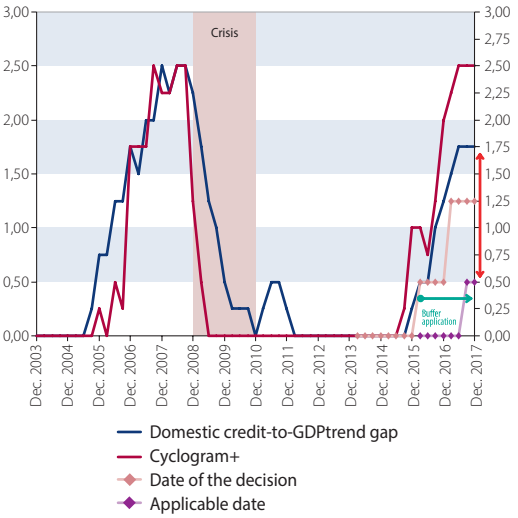


Source: NBS, author.

ticularly important because countercyclical capital buffer is a very raw instrument. As its rate is applied to all risk exposures, any non-zero decision should not be driven by excessive lending observed in one of the segments only. Moreover, currently identified excessive lending to households outpacing credit to enterprises can support macroprudential policy focused on borrower-based measures.

Finally, the new *Cyclogram+* also comprises the current account deficit as an additional variable and thus it better reflects available research and ESRB recommendation 1/2014. Even is signaling properties of current account deficit for Slovakia is not extremely strong (Rychtárik – Kopčár, 2018), this indicator should be part of the financial cycle monitoring also due to its obvious conceptual link to debt market.

Chart 5 Benchmark buffer rates and NBS decisions (in %)



Source: NBS, author.

Calibration

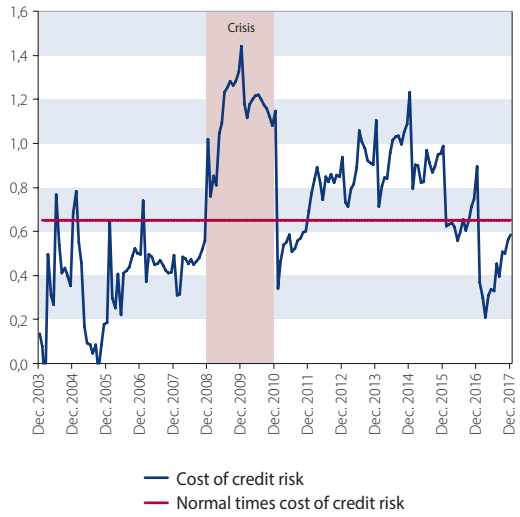
Decision on countercyclical capital buffer rate is built on the concept of guided discretion. This generally means that sole identification of financial cycle build-up phase is not enough to prepare a countercyclical capital buffer decisions. To guide such decision, selected indicator or indicators need to be translated into benchmark buffer rates. These benchmarks are part of the official public communication. Consequently, under the guided judgment framework, benchmark rates are expected to be translated into the decisions on countercyclical capital buffer rate.

It is important to mind the gap between the reference period and the date when the decision enters into force. Due to a combination of natural lag of financial and macroeconomic data reporting, to compulsory legislative procedures and to usual 12 month phase-in period, this gap is usually close to 6 quarters. This should essentially tighten the calibration as the capital buffer build-up materially lags behind the build-up of imbalances (see red flash on Chart 5).

Covering historical losses

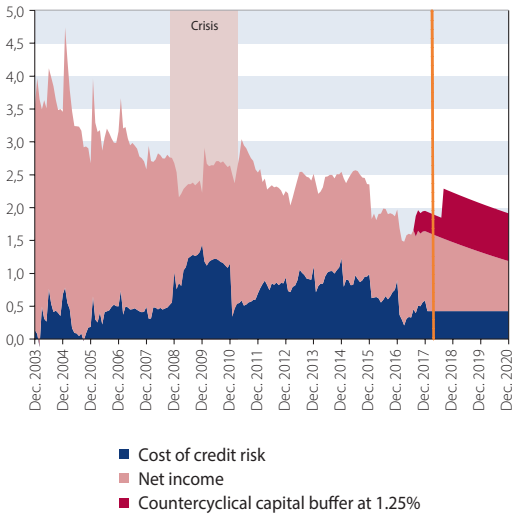
The most straightforward approach to calibration of benchmark buffer rates is based on historical observations of cost of credit risk. Cost of credit risk can be defined as a sum of net provisioning, net costs of write-offs and sell-offs. Such approach is conceptually based on the primarily objective of countercyclical capital buffer, i.e. to protect banking system against credit losses related to excessive credit growth. Historical observation of cost of credit risk clearly identifies years 2008-2010 as a period of increased cyclical losses (Chart 6). Simple comparison of their magnitude with the "normal times" average results into a stylised calibration. In simple terms, to absorb cyclical

Chart 6 Cost of credit risk and its normal times average (in %)



Source: NBS, author.

Chart 7 Net income and cost of credit risk (in %)



Source: NBS, author.

losses of 2008-2010, the Slovak banking sector would cumulatively need an additional capital of approximately 2,5% of risk exposures. Consequently, both leading indicators (*Domestic credit-to-GDP$_{trend}$ gap* and *Cyclogram+*) can be calibrated to indicate a capital buffer of 2,5% of risk exposure in March 2008. However, such calibration has some serious limitations. First, to have the capital buffer of 2,5% ready in march 2008, this level must have been decided in march 2007, based on end-2006 data. Yet the data of December 2006 indicate a level of 1,75% only. Second, we have only one observation of cyclical losses on an emerging lending market. Furthermore, many trends, such as growing indebtedness, decreasing average risk weights, different accounting standards or weaker banks' profitability should tighten the countercyclical capital buffer calibration.

Historical losses in the context of profitability dynamics

As mentioned above, falling banks' profitability should be a part of the discussion. This is because banks' earnings from the current year constitute the first line of defence against credit losses. However, this should, by no means, lead to a framework in which we do not require banks holding countercyclical capital buffer not even in case banks are sufficiently profitable or hold voluntary capital buffers. Importantly, weak profitability outlook should help us to understand the growing role of capital buffers in absorbing losses and could contribute to a tighter calibration of the countercyclical capital buffer rate (Chart 7).

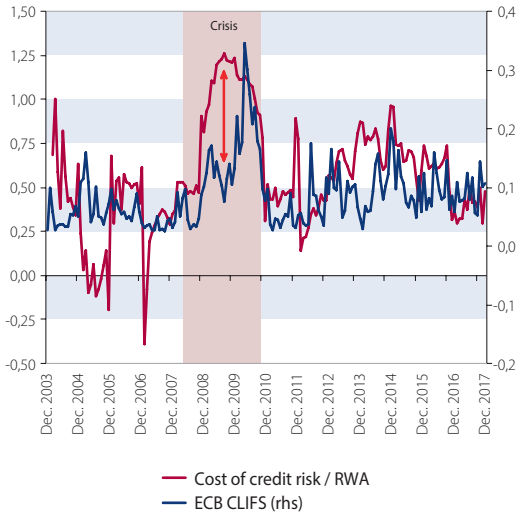
Stress testing

Macro stress-testing can be used as an additional tool to enhance the discussions on countercyclical capital buffer rate. As already mentioned, possible positive stress test result indicating that banks have sufficient voluntary capital buffers or robust profitability to face even cyclical losses must not be used as a pretext for inactivity. However, stress testing results can help to better understand different sources of capital needs in times of crisis. Also, the design of adverse scenario can provide an intuition about the type of crisis from which is banking sector protected due to a non-zero countercyclical capital buffer. Interestingly, some results show, that the fall in Tier 1 ratio in adverse scenario is not resulting from cyclical losses only. Even larger decrease in the ratio comes from an increase in risk exposures resulting from the continuation in lending and increase in risk parameters on existing portfolio. Such results return the discussion to the very beginning about the countercyclical capital buffer objective.

Release phase

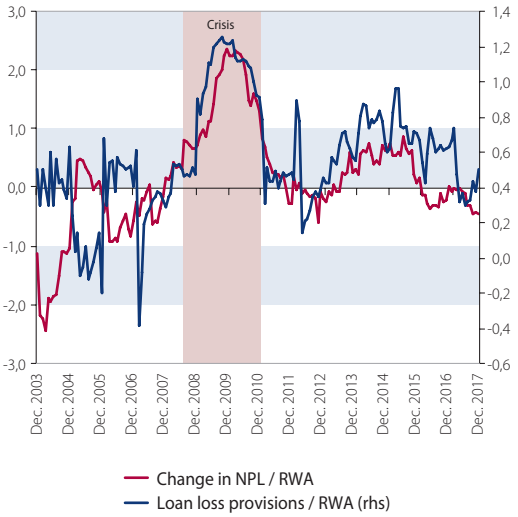
Countercyclical capital buffer was only recently introduced into legislation of EU member states. Therefore, there is no practical experience with its release or reduction resulting from a turning financial cycle. So far, all thoughts on the release phase are only theoretical concepts. In this context, the European Systemic Risk Board recommends using measures of stress in bank funding markets and measures that indicate general systemic stress. Under such frameworks, the countercyclical capital buffer would be reduced in case banks or financial markets face a stress situation. However, primary objective of countercyclical capital buffer is to protect banks against cyclical losses. Thus, the capital buffer should not be released unless no cyclical credit losses occur. Moreover, there are examples such as dot-com bubble, where the market stress was not accompanied by cyclical credit losses and potential release of the countercyclical capital buffer would be unnecessary.

Chart 8 ECB CLIFS and cost of credit risk (in %)



Source: NBS, ECB, author.

Chart 9 Examples of release indicators (in %)



Source: NBS, author.

A different example is Slovak experience from 2009. Despite an extraordinary increased cyclical credit losses observed in Slovak banking sector, the ECB CLIFS indicator was not particularly high. It peaked only in mid-2010, when credit losses were already on downward trend (Chart 8). This was mainly due to the character of the Slovak banking sector that is rather dependent on real economy performance than on financial market developments.

Against this backdrop, use of balance sheet items indicating credit losses seems to be better linked to countercyclical capital buffer objectives than potential overreliance on market stress information (Chart 9). Need for consistency between build-up and release phase can be underlined by countercyclical capital buffer objective. Firstly, capital buffer should be built along excessive credit growth. Secondly, capital buffer release should be triggered by credit losses resulting from previously observed excessive credit growth.

Importantly, use of balance sheet indicators for the release or reduction of countercyclical capital buffer is conditioned by a flexible decision-making framework. It is important that the capital buffer can be used without any delay, as banks incur cyclical credit losses.

Conclusions

Although any experience with implementation of countercyclical capital buffer is very limited, it is possible to collect several practical thought:

- Problems with credit gaps should not be exaggerated. Their signalling properties, even if limited under certain conditions, can still contribute to guided judgment.
- Composite indicators proved to be useful in decision-making framework as they are intuitive and easy to discuss.
- More detailed insight into cyclical developments (e.g. households vs. enterprises or finance vs. macroeconomy) is useful.
- Due to dynamic circumstances, calibration of benchmark buffer rates is far from exact and this fact should be accordingly considered in guided judgment framework.
- Calibration of countercyclical capital buffer rate should take into account not only the magnitude of the benchmark rates, but also the persistence of gap between decided capital buffer and benchmark rates.
- Signalling properties of market stress indicators such as CISS of CLIFS should not be overstated in the release phase. Use of simple bank balance sheet data can be more efficient and is conceptually consistent.

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