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Implementation of the countercyclical capital buffer regime in the European Union

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The countercyclical capital buffer (CCyB) is the main instrument in the macroprudential toolkit in the EU to mitigate procyclicality in the financial system. The Basel Committee on Banking Supervision (BCBS), the European capital rules for banks (CRDIV/CRR) and the ESRB have laid down the general framework for the use of this instrument. Within this broad framework, European Union (EU) Member States have the flexibility to accommodate national specificities, and many have made use of this option. The credit-to-GDP gap is the main reference indicator for activating the CCyB, but other indicators for signaling excessive credit growth in the financial system may complement it. This Commentary provides some first information on the different practices of EU Member States both in calculating this reference indicator and in using additional indicators.

Keywords: macroprudential policy, countercyclical capital buffer, credit-to-GDP gap, cyclical systemic risk

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1. The countercyclical capital buffer as a new macroprudential instrument

The CCyB was introduced by the Basel Committee on Banking Supervision (BCBS) as a new macroprudential instrument. Following the recent global financial crisis, the BCBS adopted a number of measures to strengthen the regulation of the banking sector. One of these measures was the adoption of the CCyB. In the European Union (EU), this instrument was introduced through the fourth Capital Requirements Directive and the Capital Requirements Regulation (CRD IV/CRR), which also provide for a role for the ESRB in the implementation of the CCyB regime in the EU.

The aim of the CCyB is to mitigate the systemic risk to the financial system resulting from excessive credit growth in the private, non-financial sector. During periods of strong economic growth and optimism, the level of credit to the economy tends to increase excessively, which might not reflect fundamentals and could therefore be unsustainable. When an economic downturn sets in, lenders revise their expectations and lending behaviour. This can result in a significant constraint on credit, causing the economy to underperform for a prolonged period. The CCyB is an instrument that has been devised to mitigate this so-called procyclicality in the financial system and its negative impact on the real economy.

The CCyB acts as a buffer that helps banks to absorb credit losses during economic downturns and might restrain excessive credit growth during upswings. The CCyB takes the form of an additional capital buffer for banks that is activated or increased during periods of excessive credit growth and released during downturns. By ensuring that banks hold more capital when they are providing high levels of credit, the CCyB serves as a first line of defence in a downturn, when banks are facing credit losses in excess of earnings. As this additional capital is costly for banks, credit also becomes more expensive and therefore less in demand. In this way, excessive credit growth during an upswing might also be dampened. The CCyB for a specific country is expressed as a percentage that is applied to the risk-weighted assets of a bank with credit exposures in that country. The total CCyB rate for a bank is then calculated as the weighted average of the CCyB rates in the countries in which the bank has a credit exposure to the private, non-financial sector.

2. Implementation of the countercyclical capital buffer framework in the EU

The EU capital rules for banks required EU Member States to implement the CCyB framework by 1 January 2016. A number of countries decided to adopt it as early as 2015. These include Croatia, the Czech Republic, Denmark, Finland, Latvia, Lithuania, Slovakia, Sweden and the United Kingdom (and also Norway as a member of the European Economic Area). This Commentary focuses on the 28 EU Member States and one EEA country (Norway) that have publicly disclosed details on the implementation of the CCyB regime.

The CCyB regime in the EU follows the principle of guided discretion. Hence, the authorities responsible for setting the buffer rate for the country combine a rules-based approach with the exercise of their discretionary powers. The authorities are therefore required to publish a buffer guide on a quarterly basis as a reference benchmark, but are also encouraged to exercise judgement when setting the buffer rate. Analysis by the BCBS shows that the credit-to-GDP gap is a useful indicator as a starting point to guide decisions on CCyB rates.[1] However, given the heterogeneity of financial

[1] Drehmann, M. and Tsatsaronis, K. (2014), The credit-to-GDP gap and countercyclical capital buffers: questions and answers, 9 March.

systems, the specificities of national economies and differences in data availability, further information needs to be taken into account taking that decision.

The ESRB provided guidance to EU Member States on the implementation of the CCyB regime. This guidance takes the form of a dedicated chapter on this instrument in the ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector[2] and a Recommendation on setting CCyB rates[3]. The ESRB guidance covers general principles for setting buffer rates, the calculation of the credit-to-GDP gap and the so-called buffer guide, additional indicators of systemic risk associated with excessive credit growth and indicators for maintaining or releasing the buffer. Finally, the ESRB publishes the applicable buffer rates and supporting information on the EU Member States on its website[4].

3. The use of the credit-to-GDP gap

The credit-to-GDP gap is the main reference indicator in setting the buffer rate. The BCBS provided guidance on calculating a standardised credit-to-GDP gap. According to this guidance, the long-term trend of the credit-to-GDP ratio is estimated and then subtracted from the current value of this ratio to obtain the current gap. A credit-to-GDP gap of more than 2% points to a benchmark CCyB rate starting from 0% and increasing linearly up to 2.5% (reached at a credit-to-GDP gap of 10%). If justified by circumstances, the buffer rate may be set in excess of 2.5%.

Several EU Member States decided to activate the CCyB at a level different from the one suggested by the buffer guide (Table 1). This underscores the importance of analysing in greater detail the implementation regime of each country, as a significant number of countries make full use of the "guided discretion" approach and effectively complement the buffer guide with information from additional indicators. In the United Kingdom, for example, the CCyB rate was very recently reduced from 0.5% to 0% following a material change in the risk outlook resulting from the crystallisation of risks around the UK referendum on EU membership.

Table 1: Countries that activated a CCyB rate different from the standardised buffer guides

Country	Buffer guide	CCyB rate	Application date
Czech Republic	0.75%	0.5%	01/07/2017
Finland	0.25%	0%	14/06/2017
Norway	0%	1.5%	30/06/2017
Slovakia	0.25%	0.5%	01/08/2017
Sweden	0.5%	2%	19/03/2017
United Kingdom*	0%	0.5%	29/03/2017

Source: ESRB's website (August 2016).
Note: * At its meetings held on 28 June and 1 July 2016, the Financial Policy Committee decided to reduce the countercyclical capital buffer rate for the United Kingdom from 0.5% to 0% with immediate effect.

[2] ESRB (2014), *Handbook on Operationalising Macro-prudential Policy in the Banking Sector*.
[3] Recommendation of the European Systemic Risk Board of 18 June 2014 on guidance for setting countercyclical buffer rates (ESRB/2014/1).
[4] http://www.esrb.europa.eu/national_policy/ccb/applicable/html/index.en.html.

The BCBS guidance also includes direction on the statistical technique and credit definition for calculating the credit-to-GDP gap. The calculation of the long-term trend of the credit-to-GDP ratio is based on a statistical technique known as the Hodrick-Prescott (HP) filter. It extracts the trend from the data and can be one-sided or two-sided, depending on whether only past and current information is taken at each period (backward-looking) – the approach used in the calculation of the standardised credit-to-GDP gap – or the full available data sample. Further variations in the calculation method depend on the smoothing parameter used – the so-called lambda – which is adjusted for the length of the business/financial cycle and the frequency of the data used. Credit is defined in a broad sense as covering all credit, not only from banks, to households and non-financial corporations.

Most countries calculate the credit-to-GDP gap using the standard approach, but many of them either make small adjustments to it or focus mainly on the additional reference indicators they selected. The amendments can relate to both the statistical technique and the credit data used (see the Annex). For example, five countries (Hungary, Italy, Lithuania, Portugal and Norway) use a different filtering technique instead of the standard one-sided HP filter, since it has been found to be better suited for the domestic financial cycle. About half of the countries (Belgium, Croatia, Cyprus, Estonia, France, Germany, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta and Slovakia), use a narrow definition of credit (considering only credit by banks, but not by non-financial institutions, or another credit aggregate). This narrower definition may have the advantage that time-series are available quicker or for a longer time period. By contrast, the Czech Republic opted to make use of a shorter span of data than is actually available owing to structural breaks in the data series in the 1990s.

Some EU Member States opted to make quite substantial changes. In Slovakia, for example, the standardised credit-to-GDP gap as a main reference indicator was found to perform poorly in identifying excessive credit growth.[5] The national authority therefore decided to use for the identification of cyclical systemic risk a different, complementary method for the reference indicator, i.e. a country-specific "cyclogram"[6], in addition to the additional credit gap. In Italy, an additional credit-to-GDP gap based on a real-time estimate of the two-sided HP filter has been found to perform better than the standard one-sided HP filter in estimating the state of the credit cycle.[7] In Hungary, an additional credit-to-GDP methodology was adopted that introduces a variety of amendments – a different credit definition, an exchange rate adjustment, a combination of a one-sided and a two-sided filter and a higher threshold for the benchmark buffer rate (4% instead of 2%).[8] Germany made a rather minor modification to address a perceived weakness in the credit-to-GDP gap being used as a reference indicator resulting from the fact that, in times of a sharp fall in GDP, the credit-to-GDP gap would be positive, even though there might not be any credit growth at all. In such a case, the reference indicator might point to the need to set higher buffers precisely when this would be counter-productive for the economy.[9]

[5] Rychtárik, Š (2014), "Analytical background for the counter-cyclical capital buffer decisions in Slovakia", *Biatec*, Vol. 22, No 4, Národná banka Slovenska, Bratislava.
[6] A cyclogram is an aggregation of a number of underlying variables that are chosen as relevant, and is preferred by the authority because it summarises the information from the different indicators into one aggregate measure.
[7] Alessandri P., Bologna, P., Fiori, R. and Sette, E. (2015), "A note on the implementation of a Countercyclical Capital Buffer in Italy", *Questioni di Economia e Finanza (Occasional Papers)*, Banca d'Italia, No 278, June.
[8] Methodology underlying the determination of the benchmark countercyclical capital buffer rate and supplementary indicators signalling the build-up of cyclical systemic financial risk, Magyar Nemzeti Bank, 2016.
[9] Tente, N., Stein, I., Silbermann, L. and Deckers, T. (2015), *The countercyclical capital buffer in Germany: Analytical framework for the assessment of an appropriate domestic buffer rate*, Deutsche Bundesbank, November.

4. The use of additional indicators

The abovementioned ESRB Recommendation identifies six categories of indicators that may point to a build-up of system-wide risk. The Recommendation further suggests that national authorities monitor at least one indicator in each of these six categories where appropriate and if the data is available. The six categories are as follows:

- measures of credit developments (Category 1)
- measures of private sector debt burden (Category 2)
- measures of potential overvaluation of property prices (Category 3)
- measures of external imbalances (Category 4)
- measures of potential mispricing of risk (Category 5)
- measures of the strength of bank balance sheets (Category 6)

The EU Member States take a wide variety of approaches to the number and types of additional indicator used in their decision to activate or increase the CCyB. While some countries use only a small number of additional indicators, others are monitoring more than 15 additional indicators (Figure 1). Furthermore, while some have chosen additional indicators in all six categories (Austria, Estonia, Finland, Germany, Greece, Hungary, Latvia, Luxembourg and Portugal), others opted for only two or three categories. Some, such as Italy, also selected indicators that cannot be mapped in any of the six categories, but which have nevertheless been shown to be statistically significant in predicting the build-up of risks. France uses additional indicators but does not publish them on its website because it does not wish to suggest that there is an unchangeable list of indicators that it considers for CCyB activation.[10] The additional indicators most often used concern bank loan/credit growth (21 countries), house prices (19 countries), the current account (18 countries), housing/property in relation to income (12 countries), bank lending spreads (9 countries), the leverage ratio (9 countries) and the loan-to-deposit ratio (8 countries) (see Figure 2).

[10] This position is subject to regular reviews.

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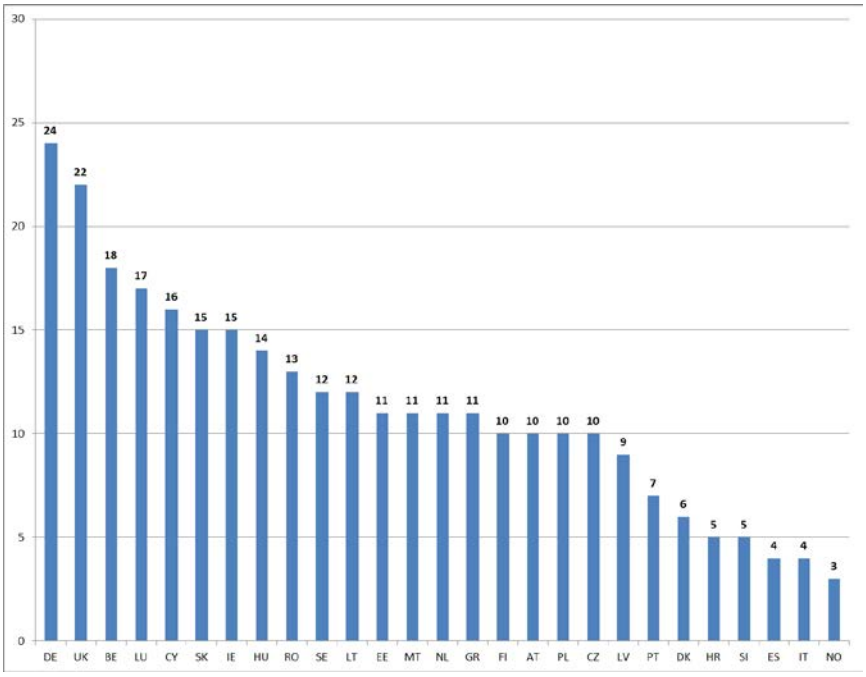
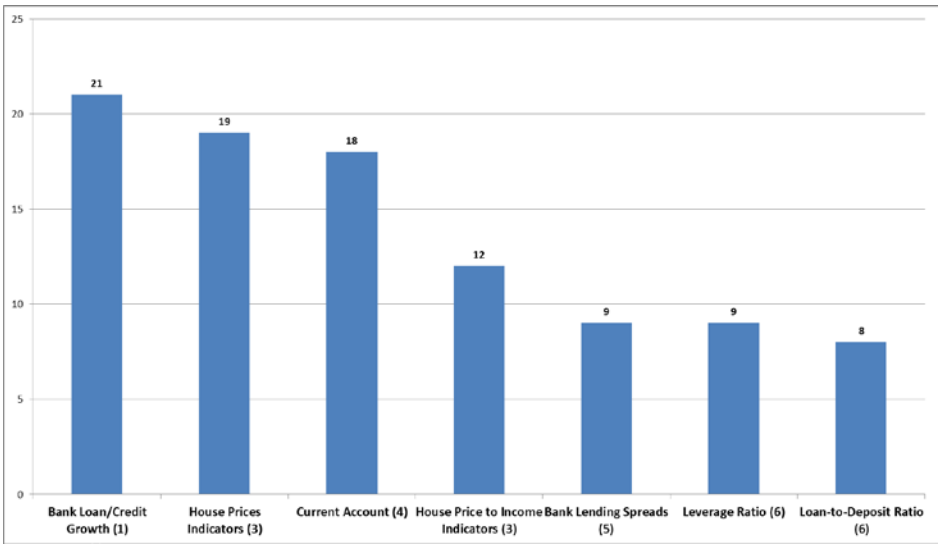
Figure 1: Number of additional indicators published by countries



Source: Own calculations based on documentation published or provided by national authorities.
Notes: Additional indicators include all indicators other than the reference indicator (the credit-to-GDP gap in all its transformations and sectoral break-downs, the additional credit-to-GDP gap or the cyclogram for Slovakia). Different transformations (gap/level/growth rate) and different sector indicators (households/corporates) are considered to be separate indicators insofar they do not relate to the reference indicator. In addition to the additional indicators that are published, authorities may also use a wide range of quantitative and qualitative information.

Figure 2: Frequency of use of additional indicators (number of countries)



Source: Own calculations based on documentation published by the national authorities.
Note: The number next to the particular indicator points to which category of additional indicators (as set out in Section 4) it belongs.

Another set of indicators is used for assessing the need to maintain, decrease or fully release the CCyB. This decision has different dynamics compared with the activation decision. The former decision might be based either on the fact that risks in the system have receded (pointing to a gradual release) or that they have already materialised and that the CCyB needs to be released to help banks to absorb losses (prompt release). Only a small number of countries have already clearly outlined in public the approach they will take when deciding on the maintenance, decrease or full release of the CCyB. The ESRB Recommendation identifies two groups of additional indicators for the release phase – measures of stress in bank funding markets (such as various spreads and premia, for example the LIBOR-OIS spread) and measures that indicate general systemic stress (such as the ECB's Composite Indicator of Systemic Stress; CISS).

Some EU Member States have decided to adopt different approaches for identifying a reduction in cyclical risk and for identifying a financial downturn. In order to identify a reduction of risk in the system, which points to the need for a a lower level of CCyB, the countries monitor the same set of indicators as they do for the build-up phase. In order to identify a financial or economic downturn, which requires the instantaneous release of the buffer, the assessment should be based on indicators with a higher frequency and a shorter lag, ideally real-time financial market indicators. Indeed, market-based or near-coincident indicators tend to perform better when signalling a prompt release of the buffer.[11] Different stress indices would also be suitable, but they are mostly available for countries with large financial sectors. Examples of "instant release" indicators are the Swedish financial stress index, consisting of money market and bond market spreads, and volatility estimates for equity and foreign-exchange markets[12], and the Danish and Hungarian financial stress indices. For financial systems characterised by a strong presence of foreign banks (such as Estonia), it might be more appropriate to use European-level stress indices such as the CISS.[13] These indicators of financial stress could be combined with CDS premiums of parent banking groups, EURIBOR-OIS spreads, potential mispricing of risk (given by the volatility of main stock indices), indicators on the quality of credits (e.g. the level of non-performing loans), or the nominal credit growth.[14] The documents published by national authorities clearly indicate that a much greater degree of discretion, and much less reliance on rules, is needed when the buffer has to be released owing to the complexity of that decision.

5. Conclusions

The overall picture that emerges from the above analysis is that there are several differences across EU Member States in terms of how they implement the CCyB regime. Although many Member States have implemented the standard approach, even more have decided that adapting it would result in better outcomes. The measures to improve the effectiveness of the CCyB vary from simply taking a different definition of credit, based on the availability of credit data, to using different statistical filtering techniques to obtain the long-term trend of the ratio between credit and GDP or to using shorter samples of data to control for structural breaks. The national authority can also decide to use another reference indicator in case the credit-to-GDP gap is deemed to be inadequate. The inability of the credit-to-GDP gap to distinguish between periods of excessive credit growth and

[11] Castro, C., Estrada, A. and Martinez, J. (2016), "The Countercyclical Capital Buffer in Spain: An Analysis of Key Guiding Indicators", *Documentos de Trabajo*, Banco de España, No 1601.
[12] Juks, R. and Melander, O. (2012), Countercyclical Capital Buffers as a Macroprudential Instrument, Riksbank Studies, Sveriges Riksbank, December.
[13] Eesti Pank (2015), *Countercyclical Capital Buffer: The principles and indicators for setting the buffer rate in Estonia*, October.
[14] Bank of England (2014), *The Financial Policy Committee's powers to supplement capital requirements*, January.

periods of sudden decrease in GDP might be addressed by implementing a special rule in the framework to monitor this development. Finally, there are also significant differences across countries in terms of the use of additional indicators, with the majority of countries using at least nine or more such indicators.

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Annex: Overview of the main features of the CCyB activation regime

Country	Calculation of the reference indicator and additional country specifics	Only standard credit definition?	Additional indicators (published)
AT	**Standard**	**Yes**	**10**
BE	Standard, but using a narrow credit definition as main indicator and additional disaggregation of credit-to-GDP gap for households/corporates	No	18
BG	**Standard**	**Yes**	**N/A**
CY	Standard, but using a narrow credit definition as main indicator	No	16
CZ	Standard, but also an additional credit-to-GDP ratio (based on shorter time series)	Yes	10
DE	Standard, but with a narrow credit definition and a modification to counter the effect of a period of reduction in GDP	No	24
DK	Standard, but also an additional credit-to GDP ratio based on a narrow credit definition is reported	Yes	6
EE	Standard, but calculation based on a narrow credit definition is also reported	No	11
ES	**Standard**	**Yes**	**4**
FI	**Standard**	**Yes**	**10**
FR	Standard, but also calculation based on a narrow credit definition	No	0
GR	**Standard**	**Yes**	**11**
HR	Standard, but calculation based on specific credit gap (with a narrow credit definition, comprising only claims of domestic credit institutions) is also reported	No	5
HU	Additional credit-to-GDP gap methodology in use – narrow credit definition (outstanding lending by all domestic financial institutions, adjusted for exchange rates) and GDP measure, which is seasonally adjusted. In addition - a higher threshold for the benchmark buffer rate (4%)	No	14
IE	Standard plus an additional specific credit definition for the gap calculation that adjusts for the contribution of multinational non-financial companies	No	15
IT	Standard credit-to-GDP gap, plus an additional one based on a real-time estimate with a two-sided HP filter and only bank credit data	No	4
LT	Standard, but also calculation of an additional reference indicator based on the HP filter with a simple forecast	Yes	12
LU	Standard, but calculation based on a narrow credit definition. Additional criteria, including broad definitions of credit, are also employed.	No	17
LV	Standard, but focus on a calculation based on a narrow credit definition	No	9
MT	Standard, but credit is defined as total bank credit	No	11
NL	**Standard**	**Yes**	**11**
NO	Standard HP filter methodology, but augmented with a simple projection	Yes	3
PL	Standard and in addition: credit gap for a narrow credit definition and credit gap with lambda in HP filter adjusted to the length of the financial cycle in Poland	No	10
PT	Standard, but also an additional credit-to-GDP gap (calculated using an ARIMA model forecast)	Yes	7
RO	**Standard**	**Yes**	**13**
SE	**Standard**	**Yes**	**12**
SK	Standard and additional credit-to-GDP gap based on domestic credit, but main focus is on a country specific cyclogram	No	15
SI	**Standard**	**Yes**	**5**
UK	**Standard**	**Yes**	**22**

Source: Own calculations based on published documentation by national authorities.
Notes: The countries in bold follow exactly the standard approach as proposed by the BCBS. All other countries have decided either to complement the standard methodology with the use of a narrow/alternative credit definition or have added country-specific amendments to the activation methodology; “No” under the heading “Only standard credit definition” means that in addition to the standard credit definition in the credit-to-GDP gap, also a narrow/alternative definition of credit is used in this calculation. In addition to the additional indicators that are published mentioned in the last column, authorities may also use a wide range of quantitative and qualitative information.