

Special feature B: Use of the countercyclical capital buffer – a cross-country comparative analysis¹⁰⁴

This special feature makes a cross-country comparison of the main features of the policy framework for the CCyB for a sample of European countries. The set of countries considered includes those that had set a non-zero buffer rate before December 2017, as well as the four largest Member States that are not yet active CCyB users. These countries are compared along some key dimensions of their CCyB framework, such as the instrument's policy objective, the extent to which the rate-setting process relies on rules or discretion, the indicators used in the process, etc.

B.1 Importance of the CCyB

The CCyB is the main macroprudential instrument in the EU to address cyclical risks resulting from excessive credit growth to the private non-financial sector. Macroprudential authorities are confronted with a wide range of issues when using this instrument due to its relatively recent introduction. These issues include, for example, identifying the current phase of the financial cycle, selecting the indicators that signal the level of the cyclical risk, estimating the appropriate buffer level and its impact, etc. A cross-country comparison of the frameworks in place may assist national authorities in learning from each other's practices.

From its inception, the ESRB has devoted considerable efforts to supporting the national implementation of the CCyB regime. In line with its responsibilities in this area under the CRD, the ESRB issued its Recommendation 2014/1 on guidance for setting CCyB rates. This was followed by Recommendation 2015/1 on recognising and setting CCyB rates for exposures to third countries (see Section 4.2). The ESRB Handbook on Operationalising Macroprudential Policy in the Banking sector devotes a separate chapter to the CCyB. An ESRB Macroprudential Commentary gave an overview on the indicators national authorities use when deciding on the CCyB level.¹⁰⁵ Finally, the ESRB periodically publishes detailed country information on the use of this instrument.

Because of its macroprudential tasks, the ECB also has a particular interest in this instrument. The ECB assesses the national CCyB rates and can apply higher requirements for capital buffers (including the CCyB) than those applied by the authorities of Member States that joined the SSM following Article 5 of the SSM Regulation.¹⁰⁶ In doing so, the ECB has to take into account the specific economic and financial situation of the Member State concerned.

The CCyB is coming increasingly into focus as a possible policy lever to build bank resilience against future stress in the financial system. This is supported by the fact that there are indications that the financial cycle in several European countries is turning (Figure B.1). Moreover, in the course of 2017, several Member States activated this instrument or decided to

¹⁰⁴ Prepared by Domagoj Babić with input from Frank Dierick and Niamh Hallissey (all ESRB Secretariat).

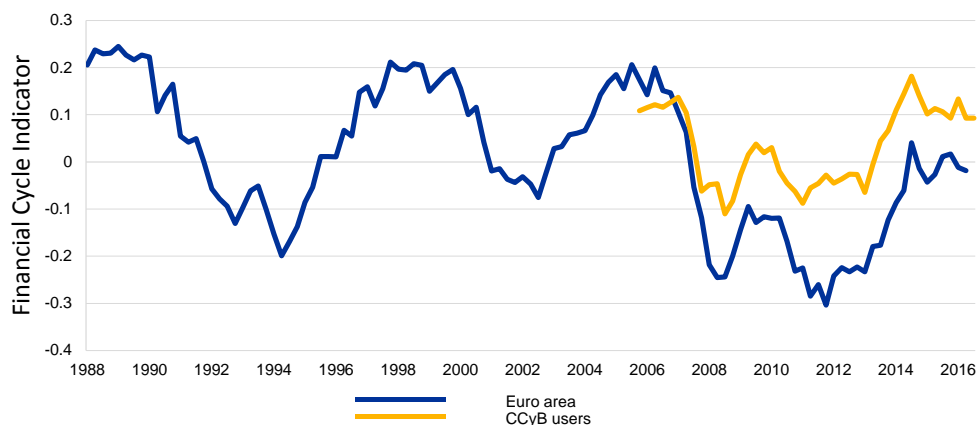
¹⁰⁵ Pekanov, A. and Dierick F., "Implementation of the countercyclical capital buffer regime in the European Union", *ESRB Macroprudential Commentaries*, No 8, ESRB, December. 2016.

¹⁰⁶ Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions.



further increase the buffer rate (see Section 4.1). The CCyB can potentially have an important impact on credit provisioning during downturns and relatively benign costs during the upswing phase.¹⁰⁷

Figure B.1
Financial cycle is turning – financial cycle indicators



Source: Schüler, Hiebert and Peltonen (2015), "Characterising the financial cycle: a multivariate and time-varying approach", *ECB Working Paper Series No 1846*, September.

Notes: Financial cycle indicators are obtained from the quoted paper. The series for the euro area and three active users of the CCyB (SE, SK, UK) for which the indicators were available are displayed in blue and yellow, respectively. The aggregation for the latter group was done on a GDP-weighted basis.

Even though the guidance available from the Basel Committee on Banking Supervision (BCBS) and ESRB for the use of this instrument is extensive, concrete implementation differs substantially across countries. Many countries have set their CCyB rate at a different level to that implied by the Basel buffer guide as suggested by Recommendation ESRB/2014/1 (see Figure B.2). This is not surprising, as the CCyB regime in the EU follows the principle of "guided discretion", i.e. a rule-based approach combined with discretion on the part of policymakers.

The CRD IV/CRR requires national authorities to publish their decision on the buffer rate and the buffer guide on a quarterly basis. The latter is a benchmark buffer rate linked to the reference indicator. The main reference indicator used is the standardised credit gap or credit-to-GDP gap, i.e. the deviation of the credit-to-GDP ratio from its long term trend. Some countries point to the inadequacy of the credit gap as a risk indicator under their (post-crisis) domestic circumstances. In addition, for most countries, the credit gap buffer guide points to inaction due to the deeply negative values of the indicator in the wake of the financial crisis (see Section 4.1). Countries using various (nationally adjusted) measures of credit gaps as well as other cyclical risk indicators as reference indicators thus have several buffer guides or benchmark buffer rates.¹⁰⁸ Under the principle of

¹⁰⁷ See Benes, J. and Kumhof, M., "Risky bank lending and countercyclical capital buffers," *Journal of Economic Dynamics and Control*, Vol. 58(C), 2015, pp. 58-80.; "The FPC's strategy for the countercyclical capital buffer", in *The framework of capital requirements for UK banks - Supplement to the December 2015 Financial Stability Report*, Bank of England, Uluc, A. and Wieladek, T.; "Capital requirements, risk shifting and the mortgage market," *Working Paper Series No 2061*, European Central Bank, 2015; "A policy-induced one-percentage point (pp) increase in capital buffers extends credit to firms by 9 pp, increasing firm employment (6 pp) and survival (1 pp)" during times of duress; Jiménez, G., S. Ongena, J. L. Peydró and J. Saurina; "Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments", *Journal of Political Economy*, 125 (6), pp. 2126-2177, 2017.

¹⁰⁸ *Buffer guide* refers to a guide that connects a level of an indicator (e.g. the credit gap) with a level of the buffer rate.



guided discretion, national authorities are encouraged to exercise judgement in heeding signals from different references.

B.2 Key features of the CCyB frameworks

All Member States have so far published their CCyB frameworks, thus allowing an insight into the decision-making process and the indicators informing the rate-setting. Authorities that had decided on a positive CCyB rate before December 2017 (CZ, IS, NO, SE, SK, and UK) as well as the four largest EU Member States which have not yet done so (DE, ES, FR and IT) provide a relevant sample of countries for gaining insight into the national approaches regarding this tool. Table B.2 at the end compares these ten countries in terms of some key characteristics of their CCyB frameworks. Different practices present an opportunity to analyse in greater detail the implementation of the regime across countries.

a) Designated authorities

Of the countries examined, it is mainly the central bank or the financial supervisory authority (if different from the central bank) which is the designated authority. The designated authority refers to the authority responsible for the setting of the CCyB rate. In three out of the six countries that have set the CCyB at a positive rate, this is the central bank (CZ, SK, UK). Of the remaining three, Sweden and Iceland have assigned this task to the financial supervisory authority (Finansinspektionen or FI and Fjármálaeftirlitið or FME, respectively). In Norway, the Ministry of Finance sets the rate following the advice of the central bank, which is responsible for preparing a decision basis and advising the Ministry. In two of the four largest Member States which have not set it at a positive rate yet, the CCyB rate setting is also in the purview of the central bank (IT, ES). As in Sweden and Iceland, the financial supervisory authority sets the buffer rate in Germany (BaFin), while in France this task is performed by HCSF, the macroprudential authority.

The financial supervisory authorities that set the buffer rates also consult with other authorities. In Iceland, following the analysis by the Systemic Risk Committee (SRC), the Financial Stability Council (FSC)¹⁰⁹ issues a recommendation on the appropriate buffer rate to the FME which has responsibility for setting the rate. In Germany BaFin prepared the CCyB framework together with the Bundesbank.

Designated authorities other than the central bank usually rely on the central bank to provide analysis and data. As mentioned above, this is the case in Norway. The French HCSF¹¹⁰ also relies on the central bank's expertise for conducting research and identifying and monitoring key systemic risk indicators, especially based on its early warning system. In Germany, the Bundesbank contributes to the decision-making by providing data and analytical input to BaFin. The Financial Stability Committee may issue a recommendation on the CCyB rate to BaFin.

b) Publication of the policy framework

¹⁰⁹ The FSC is comprised of the Minister of Finance and Economic Affairs (chairman), the Central Bank Governor, and the Director General of the Financial Supervisory Authority. The SRC, which is composed of two representatives from the central bank, two from the FME and one independent expert appointed by the Minister of Finance, is tasked with assessing the current state and outlook for the financial system, systemic risk, and financial stability. The SRC provides recommendations to the FSC.

¹¹⁰ The HCSF is comprised of high ex officio members (Minister of Finance, Governor of the Banque de France, as well as the representatives of the Prudential Supervisory and Resolution, Financial Markets, and Accounting Standards authorities), but with an addition of three qualified members, usually academics.



All Member States have developed a methodological framework for their rate-setting decisions, but they differ in their approach to the publication of the framework and communication strategy.

The most important difference stems from the framework's transparency regarding buffer guides and indicators informing national authorities' rate decisions. None of the countries examined have a mechanical rule linking the CCyB rate to some indicator level. However, national authorities communicate their key indicators, buffer guides, target variables' levels, etc. For instance, while some countries publish a buffer guide connecting an indicator value with the buffer rate (CZ, SK), and some publish a less explicit guide with the rate range (UK), others imply that they will increase the rate if their key indicators reach historically observed pre-crisis levels (IS, NO). Frameworks and separate studies published by the authorities also examine the usefulness of certain indicators (especially the credit-to-GDP gap) for measuring and indicating the level of the cyclical risk in their country.

CNB has published a comprehensive framework outlining its approach for setting the CCyB rate in the Czech Republic¹¹¹. It further presents the main indicators used and their calibration (such as in the case of the aggregate financial cycle indicator or FCI and the nationally adjusted credit gap). Four buffer guides are presented and discussed. The Bank of England's Financial Policy Committee (FPC) has also published a detailed CCyB framework¹¹² which implicitly points to bank stress test results as an important buffer guide. The FPC further discusses phases in the financial cycle and an appropriate buffer rate range in each phase. It also considers the trade-off between the cost of additional capital requirements and their benefit during the downturn.

Most of the other countries have published frameworks which predominantly analyse key indicators used to inform the buffer rate decision, although without an explicit or implicit buffer guide. Norges Bank and the Icelandic Financial Stability Council analysed their four key indicators in detail, while NBS focused on its composite cyclical risk indicator (so-called cyclogram). Most frameworks test the appropriateness of using the standardised and adjusted (domestic) credit-to-GDP gap for assessing cyclical risks nationally. The credit gap buffer guide is usually shown as the only guide in national frameworks (DE, ES, FR, IT, SE, SK).

c) Policy objectives

The CCyB is tasked with two policy objectives: (i) building resilience during the upswing of the financial cycle; and (ii) dampening the financial cycle. In their frameworks and analyses, active users of the CCyB differ on the weight they put on these two objectives.

Many countries view the potential moderating effect on the build-up phase of the financial cycle as a positive side effect, rather than the CCyB's primary aim. This position is in line with the BCBS guidance.¹¹³ The justification behind such an approach, besides the lack of consensus in the relevant literature,¹¹⁴ is the rather small projected impact that CCyB rates between 0% and 2.5% might have on credit growth during the financial upswing.¹¹⁵

¹¹¹ Hájek, J., J. Frait, and M. Plasil, "The countercyclical capital buffer in the Czech Republic", *Czech National Bank/Financial Stability Report, 2016/2017*.

¹¹² Bank of England, 2015., "The Financial Policy Committee's approach to setting the countercyclical capital buffer - A Policy Statement", April 2016.

¹¹³ Basel Committee on Banking Supervision, "Guidance for national authorities operating the countercyclical capital buffer", 2010.

¹¹⁴ See, for instance, Drehmann, M. and L. Gambacorta, "The effects of countercyclical capital buffers on bank lending", *Applied Economics Letters*, 19(7), pp. 603-608, May 2012, Jiménez et al. (2012), Bank of England (2016). etc.

¹¹⁵ See, for instance, Jiménez et al. (2017), Bank of England (2015), "Criteria for an appropriate countercyclical capital buffer", *Norges Bank Papers* No 1/2013, etc.



Similarly, Norway, while outlining the relatively small (projected) impact of the CCyB on credit growth, notes that the CCyB may also curb high credit growth.¹¹⁶ CNB also notes the possibility of the CCyB's usefulness in achieving the second objective, but does not view it as the main purpose. Accordingly, some countries – such as the United Kingdom, Sweden, Iceland and Germany – primarily use the instrument to build resilience. The FPC emphasises the use of the CCyB as a resilience-building tool in its strategy paper of December 2015 and policy statement of April 2016. Restraining credit growth is not the primary objective for this instrument and should usually not be expected to guide its setting.¹¹⁷

Others place equal weight on both objectives. The Banca d'Italia intends to use the instrument to target them both. Spain, perhaps due to its experience with countercyclical provisions (2000-16),¹¹⁸ recognises the possibility of the CCyB dampening the build-up of excessive credit growth (“containing exuberance”) and views taming the cycle as a very important goal.¹¹⁹ French authorities identify the second objective – “limiting procyclicality” – as an indirect objective. Accordingly, HCSF uses two slightly different sets of indicators concerning the direct and indirect objectives in order to inform its decision on the buffer rate.

d) Rules vs. discretion

While all countries follow the principle of guided discretion in the rate-setting process, there are considerable differences in its practical implementation. The credit gap buffer guide is not mechanically implemented (see Figure B.2). For instance, CNB uses the aforementioned four buffer guides that inform the decision on rate-setting. Even though these buffer guides might be considered to be more or less formal rules, there is still a considerable degree of discretion involved as CNB may decide to put different weights on the implied rates from different buffer guides.¹²⁰ For instance, the CCyB rates implied by the additional credit gap, the conditional distribution of future credit losses, the financial cycle indicator, and the duration of the expansionary phase of the financial cycle, respectively, were all different from each other in the third quarter of 2017, save for the last two.

¹¹⁶ Norges Bank, 2013.

¹¹⁷ “[restraining credit growth]...is not its primary objective and will not usually be expected to guide its setting.” (Bank of England, 2015, p. 15).

¹¹⁸ See Saurina, Jesús and Carlos Trucharte, *Countercyclical provisions of the Banco de España 2000-2016*. Banco de España, 2017.

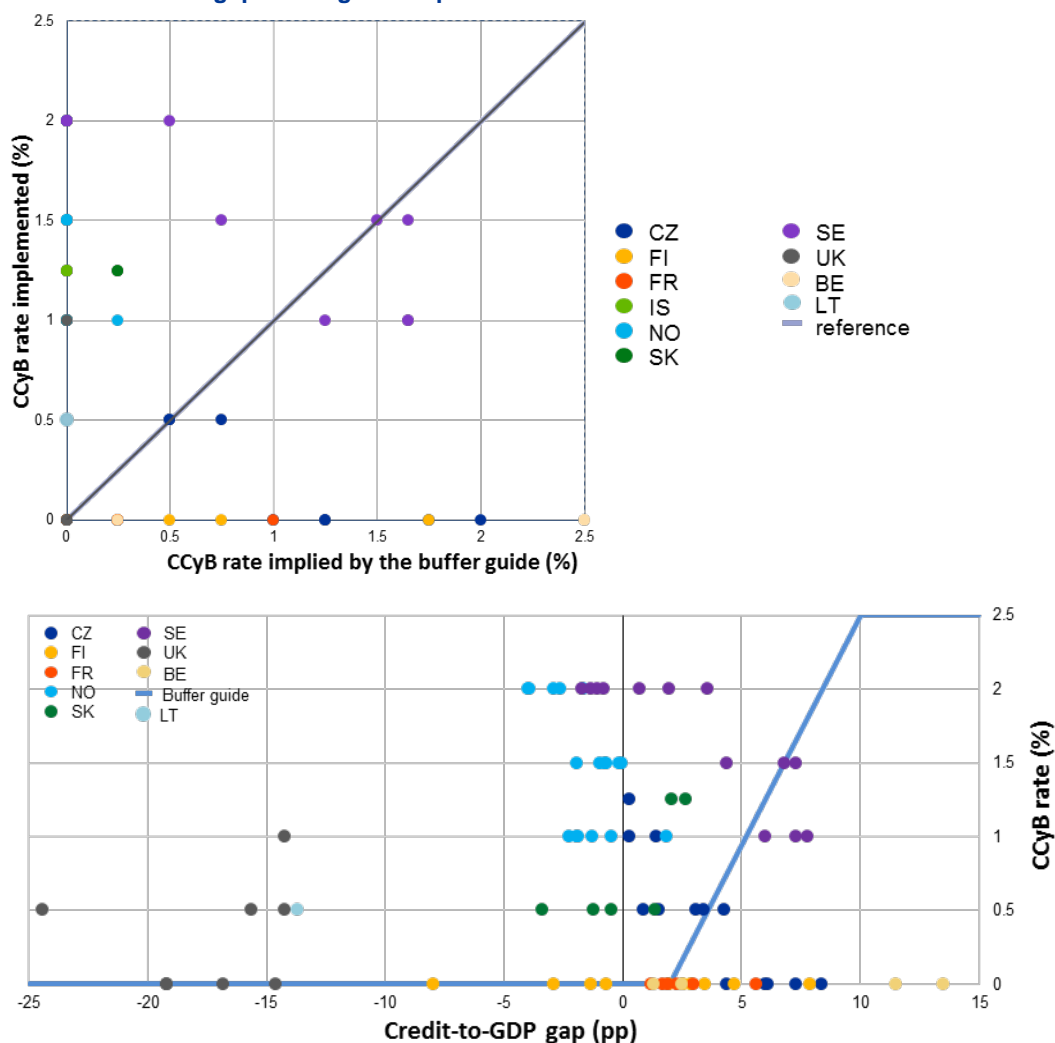
¹¹⁹ Banco de España Report on banking supervision in Spain, 2016, pp. 59-60; see also Castro, Christian, Ángel Estrada and Jorge Martínez, “The countercyclical capital buffer in Spain: an analysis of key guiding indicators”, *Working Papers* 1601, Banco de España, 2016, p.7., f1.

¹²⁰ “The final decision on the CCyB rate is not based on mechanical application of the said approaches and always takes into account the results of a comprehensive assessment of systemic risks”, see CNB, *Financial Stability Report, 2016/2017*, p. 83.



Figure B.2

The credit-to-GDP gap buffer guide in practice



Source: ESRB (2014-2017).
 Notes: Iceland is not shown due to spacing constraints, as its credit gap is in excess of -90pp. Despite not having activated the CCyB, Belgium, Finland and France are included as at different points in time their buffer guides pointed to a positive buffer rate. Many data points overlap and are thus not visible.

The Czech practice is very similar to the one of NBS, which also uses its own composite financial cycle indicator (cyclogram), but does not necessarily take its implied buffer rates as a guide. Discretion is also used when considering the buffer rates implied by different credit gap measures.¹²¹ A principle the Slovak authorities explicitly follow is to use the CCyB only in the face of excessive credit growth. The FPC, as discussed below, starts in the rate-setting process from the premise that the size of the CCyB should ensure that total capital buffers correspond to the banking sector's potential losses (as measured in the annual stress test). Since other factors and indicators play an important role too, there is still room for some discretion. The FPC's CCyB strategy also includes a rule of thumb linking the financial cycle stage to the buffer rate range (see Table B.1).

¹²¹ Commentary to Decision No 11/2017 of Národná banka Slovenska of 24 October 2017 on the setting of the countercyclical capital buffer rate, Table 3, p. 15.



Table B.1
FPC's rule of thumb for setting the CCyB

Stage	Risk environment	CCyB rate
1	Risks very subdued (e.g. post-crisis)	0%
2	Standard risk environment	≈1%
3	Risks become elevated	>1%
4	Risks crystallise	[0%, 1%)

Source: Bank of England (2016).

In the majority of countries investigated, the CCyB rate-setting process tends to involve more discretion. Other countries considered (DE, ES, FR, IS, IT, NO, SE) did not explicitly publish rules for rate-setting or buffer guides other than a buffer guide based on the standardised credit gap, thus complying with Recommendation ESRB/2014/1.

e) Neutral rate

Very few countries explicitly discuss the CCyB rate in the standard risk environment. When risk is at a tolerable, pre-determined level, the CCyB rate set in that environment could be thought of as being neutral. Since in many countries risks are re-emerging from their post-crisis subdued environment, the setting of the CCyB rate in the standard risk environment – in which risks are neither elevated nor subdued – is becoming more important. Despite this, very few countries discuss it in their frameworks.

Although higher CCyB rates always imply tighter policies, it is unclear if there is a positive rate that should be considered neutral in the sense of merely allowing the policymaker to reach a predetermined target in the future (and not automatically reflecting tight policy amidst the build-up of systemic risk).¹²² The CCyB's neutral rate could be such that the costs for banks (and through its effects for lending to the real economy) are deemed appropriate in terms of having resilient and well-capitalised banks in a crisis.¹²³ In this trade-off, there is a certain level of risk in the “standard risk environment” which defines the size of the counterfactual benefit.

In the United Kingdom, the FPC's calibration of the neutral rate reflects its overall risk tolerance. The neutral rate is to be set in the region of 1% in a standard risk environment and kept under review. A standard risk environment for the United Kingdom is defined as one in which borrowers tend not to be unusually extended or fragile, asset prices would be unlikely to

¹²² “The countercyclical capital buffer should be built up when aggregate growth in credit and other asset classes with a significant impact [...] are judged to be associated with a build-up of system-wide risk”, CRD IV (e.g. recital 80), (1) OJ L 331, 15.12.2010, p. 1.

¹²³ See Akram, F., “Macro effects of capital requirements and macroprudential policy”, *Economic Modelling*, No 42 (2014), pp. 77-93.



consistently show signs of over/under-valuation, and “risk appetite” measures are in line with historical averages.¹²⁴

The FPC’s calibration of the neutral rate at 1% reflects its overall risk tolerance. The stress test results inform this judgement, given the FPC’s guiding strategy for the CCyB to match the total capital buffer to predicted losses under stress. Both the 2016 and 2017 stress test scenarios resulted in a reduction in banks’ capital by around 3.5% of domestic risk-weighted assets. As a fully phased in capital conservation buffer would be equal to 2.5% of risk-weighted assets, the FPC concluded that a CCyB rate in the region of 1% would be consistent with the banking system having the capacity to absorb a macroeconomic downturn of the severity embodied in these stress tests (i.e. of a greater magnitude than those observed on average in post-war UK recessions).¹²⁵

The CCyB will be set to ensure resilience to the annual stress test, underscoring bank resilience as the primary goal of the UK framework. The severity of that stress test will be increased as cyclical risks grow and reduced as they abate, resulting in a countercyclical strategy. The FPC also explicitly expressed the intention of changing the neutral buffer level if the structure of banks’ balance sheets were to change. The estimated neutral CCyB rate thus depends on the sensitivity of banks’ equity to a standard risk level.¹²⁶ The stress test is also supplemented with quarterly risk assessments across a range of indicators (see below) and an analysis of the costs of moving the CCyB at any given time.

The Czech authorities are sympathetic in their communication to setting the neutral CCyB rate at a level greater than zero. CNB also considered another approach to setting the CCyB rate that focuses on historical performance and patterns as experienced by the Czech banking sector. CNB recognises the average length of an expansion phase in the financial cycle to be five years. During this period sufficient resilience should be built up in the domestic banking sector. Therefore, a rough rule of thumb implies that the rate should be increased by at least 0.5 pp in each year of the expansion phase.¹²⁷ CNB’s increase of the CCyB to 1% in June 2017 – while noting that the “domestic financial sector remains stable and resilient” – is also consistent with this rule. Very recently, Lietuvos bankas also explicitly defined the neutral CCyB rate at 1%.¹²⁸

f) Indicators used in the rate-setting process

Indicators for the activation or increase of the CCyB

Member States rely on a number of different indicators to assess cyclical and systemic risks.¹²⁹ This is encouraged by the BCBS and required by Recommendation ESRB/2014/1 due to the difficulties in measuring the financial cycle and the risks of relying on just the credit gap. National authorities explicitly list several indicators they observe and consult when deciding on the buffer rate, some as many as around 20-30 (e.g. the United Kingdom). The Czech Republic and Slovakia have developed their own composite measures of cyclical risks. Some indicators have been assigned a more prominent role in national authorities’ policy communication to the public.

¹²⁴ Bank of England (2016).

¹²⁵ Bank of England (2016), see the *Record of the Financial policy committee meetings – 23 and 29 November 2016*, p. 18, §76.

¹²⁶ Bank of England (2015).

¹²⁷ See Hájek, Frait and Plašil (2017).

¹²⁸ On 20 December, Lietuvos bankas decided to activate the CCyB at 0.5%. Lietuvos bankas has been explicit in defining the neutral CCyB rate. In its principles for the application of the CCyB, Lietuvos bankas states that if economic growth and credit growth are sustainable and no cyclical imbalances form in the economy, it will aim at holding a CCyB of at least 1% accumulated. A further rate hike decision to achieve this target level could be reached as soon as in late 2018, should the current economic trends as well as trends in the financial system prevail.

¹²⁹ See Pekanov and Dierick (2016).



These core indicators can be related to an individual national authority's stance regarding the two aforementioned objectives, as well as their relevance to the financial conditions on the national market. For instance, in Germany the CCyB's aim is linked to the type of indicators that will be closely monitored, i.e. bank credit to the private non-financial sector.¹³⁰ The adjusted credit gap accordingly includes such credit measures. BaFin is also closely monitoring the private sector debt burden, risk mispricing and the soundness of banks. NBS puts a strong emphasis on excessive credit growth, explicitly stating that even if other variables indicate an economic imbalance, the presence of excessive credit growth remains a prerequisite for increasing the CCyB.¹³¹ The characteristics of the national banking sector, mainly financed by deposits and thus more susceptible to a curbing of credit provision in the face of higher capital requirements, may play a role in such a stance.¹³²

The French authorities consult two different sets of indicators when considering the CCyB's direct (building resilience) and indirect objective (limiting cyclicality). A key indicator that guides HCSF's decisions regarding the direct objective is bank credit to the private non-financial sector – as a percentage of GDP, growth rates or the gap against its long-term trend. Indicators for the indirect objective are broader, including broad credit measures and overall risk measures related to macroeconomic, credit, market, liquidity, financing and solvency risks.

The Banca d'Italia, apart from using the adjusted credit gap, also uses indicators which reflect its concerns regarding the level of non-performing loans (NPLs). A set of indicators that have been empirically assessed as financial cycle drivers and as good predictors of the bad loans¹³³ ratio has been chosen. These include the unemployment rate, the bank credit growth rate, and the real house price gap.

The Bank of England's intention to use the CCyB as an instrument to build bank resilience is reflected in its choice of indicators informing the rate decision. The FPC's core indicators are grouped into three categories: (i) measures of non-bank balance sheet stretch, i.e. leverage in the private non-financial sector; (ii) measures of market conditions, i.e. new borrowing terms and investor risk tolerance; and (iii) measures of bank balance sheet stretch, i.e. leverage and maturity/liquidity transformation. Since its strategy for the buffer guide is to match total bank capital requirements to stress-test projected bank losses, the FPC considers the CCyB to be supplementary to the capital conservation buffer.¹³⁴ Accordingly, in its meeting records and communications, the FPC refers to the credit gap but also bank capitalisation,¹³⁵ bank share prices (incorporating investors' expectations of future profitability), and stress tests results.¹³⁶ Year-on-year growth in overall credit to the private non-financial sector is also compared to GDP growth.

Norges Bank explicitly commits to following just four key indicators informing the buffer decision. These are: (i) total credit to households and non-financial companies (NFCs) as a share of the GDP; (ii) the ratio of house prices to household disposable income; (iii) real commercial

¹³⁰ "The aim of the CCyB is to make the banking sector more resilient in the face of systemic risks associated with the credit cycle. For use of the CCyB, only the aggregate credit to the private nonfinancial sector is relevant." Tente, Stein, Silbermann, and Deckers, *The countercyclical capital buffer in Germany*, Bundesbank, 2015.

¹³¹ National Bank of Slovakia, *Financial Stability Report*, November 2016.

¹³² Norges Bank (2013), p. 7, see the *Quarterly report on the euro area*, 1/2011. See also *Economic impact of changes in capital requirements in the euro-area banking sector*, European Commission, p. 27.

¹³³ For the Banca d'Italia, "bad loans" [it. *sofferenze*], are exposures to debtors that are insolvent or in substantially similar circumstances. Bad loans are a subset of NPLs.

¹³⁴ Bank of England (2015), p. 9.

¹³⁵ The FPC's desire not to alter capital standards after the decision to exclude central bank reserves from the exposure measure of the leverage ratio was specifically referred to. See the *Record of the Financial Policy Committee*, 25 July 2016, p. 7, §12.

¹³⁶ See, for instance, the records of FPC Meetings held on 23 and 29 November 2016.



property prices; and (iv) the wholesale funding ratio of domestic credit institutions. Norges Bank explicitly dismisses a mechanical relationship between the indicators and its advice on the buffer rate. Even though the credit gap is not explicitly mentioned among the four key indicators, it is referred to in the quarterly Financial Stability Assessment. The credit gap is further decomposed into foreign and domestic debt to households and non-financial companies, respectively. Similarly, the Icelandic FSC observes a very similar set of four main indicators: (i) the credit-to-GDP ratio and its growth; (ii) credit growth; (iii) real estate prices; and (iv) the credit-to-GDP gap.

Countries that have recently undergone structural changes tend to use markedly different indicators. Short data series, a low base effect and financial deepening render some of the aforementioned indicators less useful for smaller and especially central and eastern European countries.

NBS created its own aggregate indicator of the financial cycle (cyclogram) to help set the CCyB rate.¹³⁷ It is composed of measures covering three categories expected to be linked to an excessive lending pattern: cycles, banks, and customers. To this aim, six core and seven supplementary variables assessing the developments in the three aforementioned categories are used.¹³⁸ The domestic credit-to-GDP and credit-to-GDP trend gap is one of them as a measure of the cycle.¹³⁹

Similarly, CNB uses its composite financial cycle indicator (FCI), created to measure the accumulation of financial risks and to provide an early warning of their materialisation (six to eight quarters). The FCI consists of a wide range of indicators¹⁴⁰ and their weights are calibrated so that the FCI would best predict loan losses of banks. The FCI reflects the cross-correlation of indicators whose increase indicates falling financial risk aversion. The higher the indicator, the higher the risk tolerance and the cyclical risk are. If the correlation of inputs is perfect and the values of all sub-indicators are at the maximum, the FCI attains its theoretical maximum. Additionally, CNB closely monitors bank loans stock and flow and property overvaluation measures. CNB also uses three additional buffer guides: (i) a rule of thumb regarding the length of the upswing phase of the financial cycle (five years); (ii) the credit gap buffer guide; and (iii) the bank stress test results.

Implied losses from adverse stress-test scenarios also provide guidance for the CCyB. An adverse scenario is designed to test banking sector resilience to exceptionally large and implausible stress. However, the probability of such situations varies across the phases of the financial cycle. Against this backdrop, CNB estimates a conditional credit loss probability distribution where the potential size of the losses differs depending on the current phase of the cycle. The same idea of calibrating the buffer rate to cover potential banking sector losses contributed to the recent rate increase.

¹³⁷ Kupkovič, P. and Martin Šuster, "Identifying the financial cycle in Slovakia", 2nd Policy Research Conference, Ljubljana, 2016.

¹³⁸ Core variables include the credit gap, the GDP gap (measures of the cycle), credit growth, NPL dynamics (measures of bank risk), and the debt burden for households and enterprises, respectively (measures of customer risk). Supplementary variables include the unemployment rate, real estate prices (cycle), enterprises' default rates, LTV ratios, lending conditions (banks), the housing affordability index, and consumer confidence (customers).

¹³⁹ Rychtárik, S., "Analytical background for the counter-cyclical capital buffer decisions in Slovakia", *Biatec*, 22(4), Národná banka Slovenska, Bratislava, p. 15-6.

¹⁴⁰ These include new loans, property prices, lending conditions, sustainability of the debt of NFC and households, asset prices and the adjusted current account deficit-to-GDP ratio. See Plašil, M., Seidler, J., Hlaváč, P. and Konečný T., "An Indicator of the Financial Cycle for the Czech Republic", Thematic Article, *Financial Stability Report, 2013/2014*, Czech National Bank, pp. 118-127.



Spain, due to its recent experience of a pronounced credit boom and bust, uses a set of indicators of credit “intensity” (the ratio of changes in credit to GDP), private sector debt sustainability, real estate prices and external imbalances which are judged to usefully complement the credit gap.¹⁴¹

A first step in the calibration of the CCyB is to assess the current (and possibly forecast the next) stage in the financial cycle. One of the challenges is setting a clear nominal threshold that would signal that a particular variable’s trend is unsustainable or moving away from its equilibrium.¹⁴² The equilibrium levels of some indicators (e.g. the credit-to-GDP ratio) and sustainable asset price growth rates are unlikely to be constant over time.¹⁴³ This is particularly the problem for countries with structural changes in their economies or experiencing convergence (e.g. CZ, SK).¹⁴⁴

One way authorities approach this is by comparing the indicators with their observed historical values. Long-term averages and historical values from periods that are ex-post assessed as risky are used as benchmarks for signalling excessive credit growth.¹⁴⁵ The Slovak cyclogram, for example, is composed of a set of variables assessed against the distribution of their historical values. In the cyclogram, a number is assigned to each of the six core and seven supplementary variables¹⁴⁶ depending on its position in respective percentiles of its historical distribution since 2005. These 13 values are further aggregated by averaging. Cyclogram values are then used as the CCyB buffer guide by assigning the highest rate (2.5%) to the highest values. Similarly, the Czech FCI is assessed against its historical values before the crisis. CNB uses information on the value of the FCI’s highest peak in the previous cycle and assigns to it the highest rate of 2.5%. Furthermore, the median of the sub-indicators included in the FCI is assumed to correspond to an equilibrium in which the cycle is neither subdued nor overheating. All this is reflected in the calibration of the buffer guide based on the FCI values.¹⁴⁷ Other countries observe long-term historic trends of their main indicators (e.g., NO, SE). Some authorities also choose their indicators based on their hypothetical ex-post usefulness in signalling the risk build-up before crises in the past (e.g. CZ, ES, FR, IS, IT).

Indicators for the release of the CCyB

Most countries use measures of market and bank-funding stress to inform the decision to release the CCyB. Bank CDS spreads, LIBOR, OIS premia and the composite indicator of systemic risks (CISS)¹⁴⁸ are the most often mentioned indicators in national authorities’ frameworks (e.g. DE, ES, FR, UK). This is in part due to the fact that they are explicitly mentioned in Recommendation ESRB/2014/1. Market stress indicators are used in Sweden and stress test results are used in the United Kingdom, though, given that stress test results are generally annual, they may be less informative in the release phase of the CCyB than in the build-up phase.

¹⁴¹ Castro, Estrada and Martínez-Pages (2016); Mencía, Javier and Jesús Saurina, “Macroprudential policy: objectives, instruments and indicators”, *Occasional Papers* 1601, Banco de España, 2016.

¹⁴² Rychtarik, p. 13.

¹⁴³ Bank of England (2015), p. 17.

¹⁴⁴ Gersl, Adam, and Jakub Seidler, “Excessive credit growth as an indicator of financial (in)stability and its use in macroprudential policy”, *Financial stability report, 2011 (2010)*: pp.112-122., p. 119.

¹⁴⁵ Rychtarik, pp. 13-4; Hájek, Frait and Plasil, pp. 110-1.

¹⁴⁶ Core variables include the credit gap, the GDP gap, credit growth, NPL dynamics, and the debt burden for households and enterprises, respectively. Supplementary variables include the unemployment rate, real estate prices, enterprises’ default rates, LTV ratios, lending conditions, housing affordability index, and consumer confidence.

¹⁴⁷ Hájek, Frait and Plasil, p. 112.

¹⁴⁸ Holló, Dániel, Kremer, M. and Lo Duca, M., “CISS – A composite indicator of systemic stress in the financial system”, *ECB Working paper series, No 1426*, March 2012.



Norges Bank finds that its aforementioned four main CCyB indicators are not well suited for signalling the need to reduce the buffer. Instead, market turbulence and bank loss prospect measures are used to assess a rate cut. Norges Bank also emphasises that the buffer rate should not be reduced automatically, even if there are signs that financial imbalances are receding. In addition to measures of bank-funding stress, CNB uses mostly the FCI for its signalling properties when forming a decision on the release of the CCyB. Despite having devised a national cyclical risk measure (cyclogram), NBS tends not to use market measures. This is due to the fact that the banking sector is predominantly funded by customer deposits. NBS notes that CISS-like indicators are not relevant in Slovakia, as there is virtually no financial market. Therefore, balance sheet indicators rather than financial market data are used to assess a potential buffer release.

Some countries have not yet finalised their choice of indicators for the release of the buffer.

This is also indicative of their “forward guidance” in terms of their belief and intention not to release it (or not to build it up in the first place). The Banca d'Italia expects the CCyB rate to remain at zero for some time and has therefore not yet finalised its methodology for releasing the buffer. While the central bank mentions variables that it might monitor (such as bank CDS spreads, the net liquidity position, indicators of systemic liquidity risk in the Italian financial markets), it has not stated how these variables might be used. Nor has it yet published the measures of funding stress and indicators for general systemic stress in the decision on the CCyB rate, though it plans to do so in the future. Similarly, the Icelandic authorities also explicitly state that they have not yet developed release indicators or a specific methodology.

g) Forward guidance

As there is a 12-month implementation lag following a decision to increase the CCyB rate, authorities have some room to shape expectations. The UK's FPC is committed to move the CCyB rate early and gradually in order to reduce its economic cost, for example relating to: (i) the uncertainty about its impact on credit conditions and the real economy; and (ii) any transaction costs. The FPC expects the CCyB to play an important role in shaping banks' expectations, which could further multiply the CCyB's impact¹⁴⁹. If banks adjust their expectations and thus anticipate that a buffer rate increase will be followed by further increases if excessive risk-taking continues, they may collectively reduce their risky lending. Similarly, the Banca d'Italia uses its analyses of the current and prospective conditions of the financial system to define its macroprudential policy stance and help build expectations on the future level of the CCyB rate. On the other hand, in Slovakia, Rychtárik (2014) commented that the forward guidance regarding the CCyB rate would be neither appropriate nor possible, but at the same time surprises should be avoided.¹⁵⁰

All countries use their rate decisions to communicate expectations and financial stability analysis to the public. By supplementing the decision with analytical commentary and supporting key indicators, most authorities exercise forward guidance regarding the future buffer rate. Despite the considerable amount of discretion, the authorities that use and have published buffer guides (CZ, SK) still have a stronger case for anchoring expectations, as the predictive power of the CCyB rates implied by the buffer guides could be assessed against the authority's track record. For instance, hypothetically speaking, if the buffer rates implied by the FCI values happen to be the closest to the CCyB rates implemented by CNB, the public could use the current FCI value to predict the next-quarter CCyB rate with a higher degree of certainty. Similarly, the FPC's expected buffer rate ranges for four stages of the financial cycle also serve to anchor market expectations.

¹⁴⁹ Bank of England (2015), p. 19.

¹⁵⁰ Rychtárik, p. 15.



Some countries refer to their expected decision in the forthcoming period (e.g. CZ, IS, SK, UK). The UK's FPC has on occasion published its expectations regarding its rate decision in the next meeting as a part of its policy meeting statement. If it decides to reduce the CCyB rate, its decision takes immediate effect and, as with all designated authorities under CRD IV, the FPC is required to indicate the period in which the rate will not be increased and its rationale for that. Similarly, in their commentary to the CCyB decisions, the Slovak authorities have a chapter on the potential application of macroprudential policy instruments over the medium-term horizon. They assess the expected developments in the CCyB rate in the next quarter with regard to the current indicator trends, explicitly stating whether they imply a need to increase or decrease the buffer rate in the next quarter.¹⁵¹

Some countries that rely on the credit gap as the key indicator (FR, IT) and observe its deeply negative values tend to signal their expectation to keep the CCyB rate at zero for some time. The UK's FPC in its CCyB strategy noted that in a post-crisis recovery phase it expects to set the rate at zero for a prolonged period. However, it also committed to setting the rate in the region of 1% in the standard risk environment, while most of the other countries – perhaps due to their different financial cycle phase – have not yet signalled their neutral rate for the standard risk environment this far ahead. On the other hand, countries that have built up the CCyB (IS, NO, SE) expect not to release it for the time being.

B.3 Conclusions

The differences in the implementation of the CCyB regime described above point to many mutually dependent decisions policymakers have to take when using the CCyB. One of the most important decisions relates to the emphasis placed on leaning against the cycle relative to building resilience in setting the objectives of the CCyB, as well as the macroprudential instrument's cost-benefit trade-off. These common issues are tackled by different approaches in the examined countries. Policymakers' risk tolerance and preferences, as well as national specificities, such as institutional and structural features of national financial systems, are important factors in these considerations. It is also revealing that substantial differences in national frameworks and their application exist for a macroprudential instrument for which much guidance from international and European bodies is already available.

Going forward, the CCyB's place in the national macroprudential policy platform might help to inform and communicate the cyclical macroprudential policy stance for a country's banking sector. The trade-offs mentioned appear in other decisions concerning macroprudential policy and examining different approaches in various European countries could lead to a more complete understanding of the stance of different macroprudential authorities. This is especially relevant due to the CCyB's general and cyclical nature as well as its increasing importance due to the shifting phases of the financial cycle.

¹⁵¹ See the *Quarterly commentary on macroprudential policy*, National Bank of Slovakia. July 2017, p. 10.



Table B.2

Cross-country comparison of the CCyB frameworks based on some key features

	CZ	IS	NO	SE	SK	UK	DE	ES	FR	IT
Designated authority type ¹⁵²	Czech National Bank/Česká národní banka	Financial Supervisory Authority, on Financial Stability Council's recommendation	Ministry of Finance, on Norges Bank's advice	Finansispektionen	National Bank of Slovakia / Národná banka Slovenska	Financial Policy Committee (Bank of England)	BaFin	Banco de España	Haut Conseil de stabilité financière / High Council for Financial Stability	Banca d'Italia
	1	2	3	2	1	1	2	1	4	1
Framework publication	Published strategy with buffer guides and financial cycle estimates	Published framework, no explicit or implicit buffer guide	Published framework, explicitly analysed four key indicators. No explicit buffer guide	Published framework, no explicit or implicit buffer guide	Published strategy detailing indicators and their composition, no buffer guide	Published strategy implicitly pointing to stress test results as a buffer guide; with financial cycle estimates	Published framework, explicitly analysed credit gap as a key indicator. No explicit buffer guide	Published strategy detailing indicators and their composition, no buffer guide	Published strategy detailing indicators and their composition, no buffer guide	Published strategy analysing indicators in detail. Credit gap implicit buffer guide
Building resilience vs. taming the cycle	Primarily building resilience. Taming the cycle potential side-effect	Primarily building resilience	Resilience primary objective; taming the cycle mentioned	Building resilience	Primarily building resilience, taming the cycle positive side effect	Primarily building resilience	Primarily building resilience	Both, greater importance on taming the cycle	Both; building resilience is a direct objective, taming the cycle indirect one	Both
Rules vs. discretion	Guided discretion. Financial cycle indicator, stress tests and rule of thumb as buffer guides	Mostly discretion	Mostly discretion	Guided discretion	Guided discretion. Use of the cyclogram as a rough rule/buffer guide	Guided discretion. Incurred losses from stress testing as a buffer guide; rule of thumb linking rate to financial cycle stage	Rule guided discretionary decision	Guided discretion	Mostly discretion	Mostly discretion
Neutral rate	>0% Dependent on stress test results, total buffer to cover predicted losses	0%	>0% The buffer rate should not be reduced automatically	0%	0%	1% Dependent on stress test results, total buffer to cover predicted losses	0%	0%	0%	0%

¹⁵² 1 = central bank, 2 = supervisory body, 3 = government authority, 4 = other.



			CZ	IS	NO	SE	SK	UK	DE	ES	FR	IT
Core indicators	Increase		Bank stress test results (conditional distribution of credit losses) Financial cycle indicator Developments in credit stocks and flows	Credit growth RE prices Credit/GDP ratio and its growth	Credit/GDP House prices/household disposable income CRE prices Banks' wholesale funding ratio	HH, NFC debt Credit growth House prices /disposable income Current account Credit forecasts Bank capital ratio Debt service ratio	Credit growth <i>Cyclogram</i>	HH debt Credit spreads, Bank capitalisation Bank stress test results	Private sector debt burden, RRE (credit growth & prices), soundness of banks Risk mispricing	Debt sustainability Δ Credit/GDP RE prices External imbalances	<u>Building resilience</u> : bank credit to private NFI / GDP, its growth and gap <u>Limiting procyclicality</u> : broad credit to private NFI / GDP, growth, gap, variations RRE prices	Financial cycle drivers, predictors of bad loans ratio (unemployment rate, bank credit growth rate, and real house price gap)
		Credit gap	Additional credit gap (shorter time series) is one of the main indicators	Credit-to-GDP gap one of the four key indicators; initially was misleading	Not used but occasionally referenced; gap decomposed into domestic and foreign credit	Deemed to give an inaccurate reflection of risk ¹⁵³	Standardised and domestic credit-to-GDP _{trend} gap; ¹⁵⁴ Also part of the cyclogram	Deemed to give an inaccurate reflection of risk ¹⁵⁵	Credit-to-GDP gap (adjusted, bank credit) main indicator	Credit-to-GDP gap (adjusted) main indicator	Credit-to-GDP gap (adjusted) key indicator for both objectives	Credit gap (bank and total credit), adjusted filter main indicator
	Release	Bank-funding stress Financial cycle indicator	Still under development	Market turbulence Bank losses prospects	Market stress indicators Stress test results	Banks' balance sheet indicators	Financial stress indicators	CISS-based systemic risk indicator Realised risks	CISS OIS, CDS spreads	Market stress indicators	Still under development	
Forward guidance			Forward guidance implied from the buffer guides and announcements	Expressed the intent not to release the CCyB for the foreseeable future	Expects to keep the rate elevated and not finetune it ¹⁵⁶	Due to high HH indebtedness, implicitly expects risks to remain elevated and buffer at the high level	Forward guidance implied from the key indicator (<i>cyclogram</i>) and explicitly tied to credit growth ¹⁵⁷	Forward guidance as per strategy. Signalled future CCyB neutral rate (1%). Important role shaping banks' expectations	No forward guidance	Discussing credit gap, anchored the expectations not to increase the CCyB in the near future	Discussing credit gap, anchored the expectations not to increase the CCyB in the near future	Expect the rate to be zero for quite some time. Intention to define MaP stance and help build expectations

¹⁵³ “[...leads] FI to conclude that the buffer guide currently provides an inaccurate reflection of the risks and that the buffer guide should be given minimal consideration when determining the appropriate size of CyCB.”

¹⁵⁴ “Due to the shortage of time series, the credit-to-GDP gap indicator does not actually perform as a reliable buffer guide indicator.”

¹⁵⁵ “It was required in legislation to consider this indicator but the long-run trend on which it was based gave undue weight to the rapid build-up in credit prior to the global financial crisis.”

¹⁵⁶ “The buffer rate should not be reduced automatically even if there are signs that financial imbalances are receding. The CCyB is not an instrument for fine-tuning the economy.”

¹⁵⁷ “Accelerating credit market trends are increasing the likelihood of an increase.”

