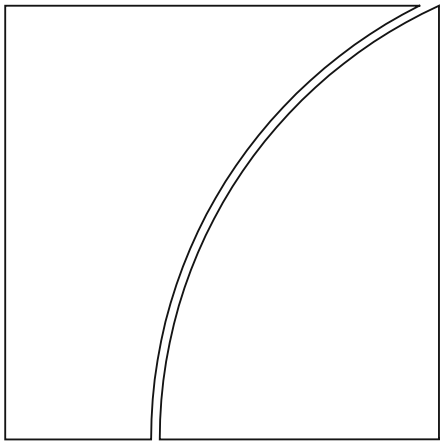
Basel Committee
on Banking Supervision

Implementation



Range of practices in implementing the countercyclical capital buffer policy

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1. Introduction

The Basel Committee (BCBS) introduced the countercyclical capital buffer (CCyB) policy as part of a comprehensive set of reforms. These reforms are designed to promote a more resilient banking sector drawing from the lessons of the economic and financial crises of the late 2000s. The primary objective of the CCyB is to build a varying capital buffer that protects the banking sector from periods of excess credit growth that are often associated with the build-up of systemic risk. In 2010, the BCBS issued a document that detailed the key requirements for members' CCyB policies.[1] While that document also provided guidance on the principles that members should follow in designing their CCyB framework and making buffer decisions, members are left with considerable flexibility to design the particular details of their policies in a manner that best reflects specific national circumstances. In particular:

- Members are required to identify a relevant authority responsible for operating the CCyB, but are free to decide which institution this should be.
- While the aggregate private sector credit-to-GDP gap should be used as a common reference and starting point in measuring systemic risk, it is not expected to necessarily play a dominant role in guiding a particular member's assessment of excess credit conditions or its CCyB decisions. Members are encouraged to apply judgment to assess the level of systemic risk and to monitor other quantitative and qualitative indicators relevant to their national environment.
- The maximum CCyB rate a jurisdiction may use is left open, as is the length of the notification period provided to banks to implement an increase in the CCyB rate (though it should be no more than 12 months). Members deciding to activate a non-zero CCyB may take advantage of a transitional phase-in period to end-2018, but may choose to accelerate implementation.
- There is discretion in regard to the frequency and form of the public communication of CCyB decisions. Jurisdictions are encouraged to review developments in indicators of systemic risk and take a CCyB decision at least quarterly. These decisions could be publicly communicated at a less frequent periodicity but at least annually (unless there is a change in the CCyB rate). Members should provide regular public assessments of macrofinancial conditions and prospects that could affect the CCyB rate, though the exact format for this reporting is left open. Jurisditions can decide whether and how often to publish the indicators used in guiding members' CCyB decisions, though the credit-to-GDP gap should be published regularly.
- International reciprocity arrangements for internationally active banks are to be put in place to ensure a level playing field between domestic and foreign bank lending within a member jurisdiction, with the level of mandatory reciprocity capped at 2.5% and a potential phase-in period available up to end-2018. While the BCBS encourages reciprocity for all jurisdictions that have a non-zero CCyB, reciprocity is only mandatory between BCBS members. Banks should disclose their CCyB rates with at least the same frequency as they do their minimum capital requirements.

This document examines how jurisdictions have used this flexibility in designing their CCyB policies, drawing on information from an internal survey completed by Committee members[2] as well as

[1] See BCBS, *Guidance for national authorities operating the countercyclical capital buffer*, 2010.

[2] Relative to the BCBS membership, the survey includes Denmark and Norway but excludes Argentina, India, Indonesia and South Africa. China has not completed its CCyB policy and hence is not discussed here. Some other jurisdictions are still finalising a few parts of their CCyB framework and operational practices. The information is current as of April 2017.

the website of CCyB decisions maintained by the BCBS. It details the various national CCyB policy frameworks and operational aspects, highlighting the varying discretionary elements of BCBS members' CCyB policy frameworks and practices.[3] The study shows, in particular, that CCyB policy frameworks differ markedly with respect to:

- their governance structures;
- the number of indicators used to identify periods of excess credit and systemic risk;
- the degree of reliance on formal versus judgmental approaches in making CCyB decisions; and
- their communication and reciprocity practices.

A final section outlines some issues in the context of the cross-jurisdiction comparisons, which could be further discussed over the medium term as experience with the CCyB policy is gained.

Given the lack of experience to date, the document does not examine how jurisdictions view the interaction of their CCyB with monetary and other policies, or why they chose to use a CCyB instead of other macroprudential tools to address emerging financial risks. Structural features such as the setting of monetary policy by supranational entities and the type of exchange rate regime may explain why different economies have chosen different approaches to their CCyB frameworks and decisions. Furthermore, this document is not intended to be an examination of a jurisdiction's conformance with the Basel III policy requirements.

2. The CCyB policy framework

In line with the BCBS policy guidance, all members state that the primary objective of their CCyB policy is to strengthen the resilience of the banking system by increasing banks' capital buffers during periods of rising systemic risk, thereby supporting the flow of credit during periods of financial stress. Most members also note a secondary purpose in leaning against the build-up of excess credit.

To date, no jurisdiction takes a mechanical approach to triggering a non-zero CCyB rate. Instead, assessments are informed by monitoring developments in a range of key quantitative and qualitative indicators of excess credit and systemic risk combined with expert judgment, in a manner often characterised as "guided discretion." Nonetheless, jurisdictions vary considerably in the degree of structure around their CCyB processes and the indicators examined to guide these decisions.

2.1 Identifying indicators of systemic risk

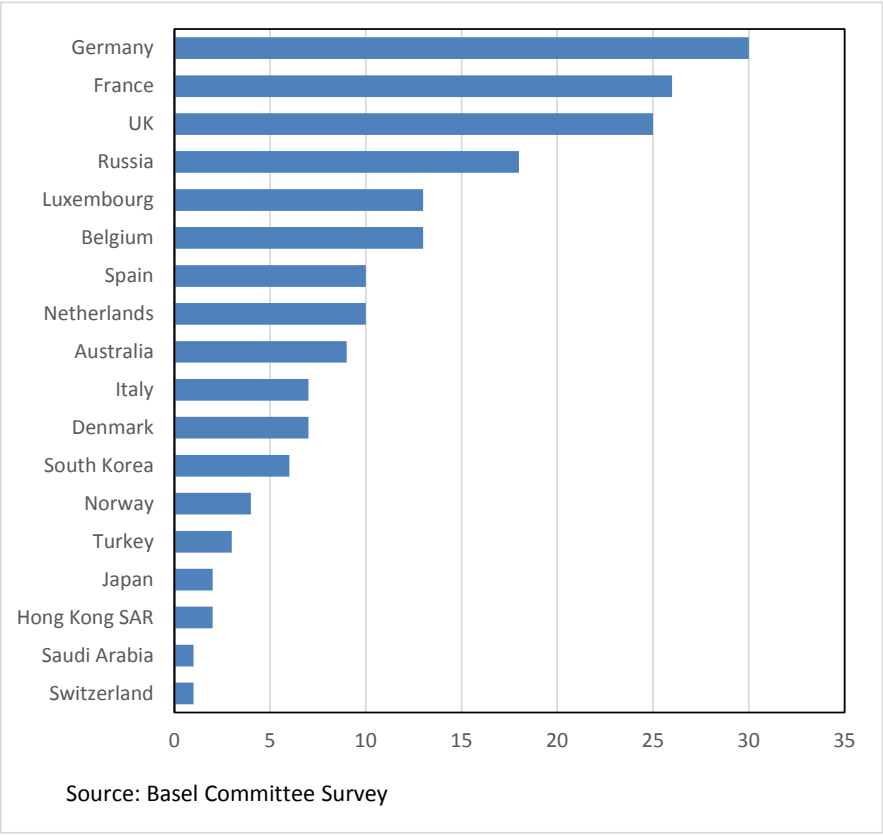
Members have taken different approaches to identify and summarise the specific indicators used to detect periods of systemic risk build-up. Most – though not all – jurisdictions have a list of indicators they use to assess systemic risk, though the link between the indicators selected and how they contribute to assessments of "excess" credit giving rise to systemic risk is not always clearly spelled out. The number of such indicators identified ranges from as low as one to as high as 30 (Graph 1; Annex A). In particular:

- Almost all EU members have a pre-identified list of indicators. The number of indicators that are regularly monitored varies across the area, with, for instance, fewer than 10 indicators in some jurisdictions and 25 indicators or more in others.

[3] The information assembled here includes jurisdictions that are members of the European Union, which are required to follow requirements set by the relevant Capital Requirements Directive and the recommendations of the European Systemic Risk Board (ESRB) in the establishment of their CCyB policies and reciprocity practices. Designated authorities can implement different methods based on national specificities; see the box.

- There is a mix of approaches taken by other advanced economies. Australia and Singapore use pre-identified indicators that are supplemented with other quantitative and qualitative information. Switzerland has one core indicator but monitors a broad range of additional indicators. Similarly, Hong Kong SAR uses two key indicators in its buffer guide but relies on a range of additional indicators to inform CCyB decisions. Japan has proposed to consult on a range of key indicators, which was finalised in March 2017. In contrast, Canada and the United States do not specify a set of indicators in advance, instead noting that they will consider a wide range of quantitative and qualitative information in forming their view of systemic risk.
- The same diversity in approaches is evident in emerging market and other economies. Some use a list of pre-identified indicators, ranging from just one in Saudi Arabia to almost 20 in Russia; Mexico is still formalising its approach. In contrast, Brazil does not have a fixed set of indicators.
- Of those members with a pre-identified list, more than half publicly disclose which indicators they use, with no particular geographical pattern in the jurisdictions that have chosen to do so. The jurisdictions that chose not to publish their list generally note that they want to maintain maximum discretion in their assessment of systemic risk and to avoid any impression that their assessment is limited to a set of (published) indicators.

Graph 1 – Number of core systemic risk indicators



Source: Basel Committee Survey

2.2 The credit-to-GDP gap buffer guide

In line with BCBS guidance, all jurisdictions use the private sector credit-to-GDP gap as one of the indicators underpinning national CCyB decisions. However, jurisdictions rely on this measure to differing extents and many use credit-to-GDP gaps that vary from that outlined by the BCBS.

Measure of credit

The BCBS guidance recommends that in calculating the credit-to-GDP gap, jurisdictions use a broad measure of nominal credit that captures all sources of debt funding to the private non-financial sector, including from the bank and non-bank sectors and from domestic and foreign sources. While jurisdictions have generally followed this guidance for at least one of the credit-to-GDP gap measures calculated, and usually note that this measure plays a role in their CCyB considerations, many rely more on a narrower measure of the private sector credit-to-GDP that they feel generally better captures local conditions, and/or has better data coverage and timeliness. In particular:

- Australia, Belgium, Hong Kong SAR, Korea and Switzerland primarily use a measure of domestic banking system credit to assess the credit-to-GDP gap for policy decisions.
- France uses a measure of banking system credit to the private non-financial sector as a key additional credit-to-GDP gap indicator, which excludes non-financial corporations' intragroup credit. The motivation has been that intragroup credit has grown rapidly, which increases the indicator value, but this may simply reflect changes in the groups' internal organisation rather than changes in financial vulnerability.
- In addition to the BCBS credit-to-GDP gap measure, Denmark, Germany and Italy focus on domestic gap measures. Luxembourg uses five definitions of credit, including both broad and narrow measures, while Russia uses the BCBS broad measure and narrower credit measures.
- In addition to an aggregate measure, many members focus on a disaggregation of the credit-to-GDP gap, calculating separately a household and a business credit gap.

Trend filtering method

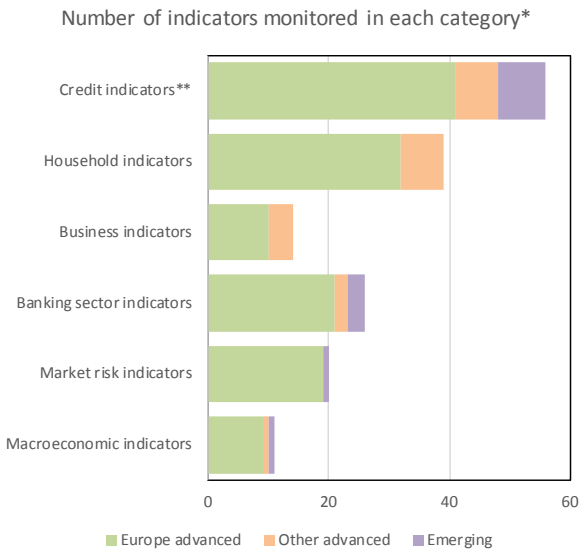
The BCBS recommends that the trend of the credit-to-GDP ratio be calculated using a one-sided HP filter with a smoothing parameter of 400,000. All jurisdictions follow this guidance, though a few also use additional methods and variations, partly to test sensitivity of the results to the technical specification.

- Italy adjusts the value of the trend obtained with the one-sided HP filter based on the historical differences observed between the estimates produced with the one-sided and two-sided HP filters. This produces real-time estimates that are closer to those obtained with the two-sided filter, which reduces the estimated volatility of the credit cycle in Italy.
- Spain uses alternative estimates for the credit-to-GDP gap internally, where the trend is estimated using econometric models rather than a statistical filter.
- Germany's national buffer guide (used in addition to the BCBS measure) is adjusted so that a decrease in the level of GDP in a quarter will not cause the buffer guide to increase, to avoid raising the CCyB during an economic downturn.
- Norway uses three filtering methods to calculate the trend. In addition to the standard one-sided HP filter, it examines trends that are calculated with HP filters estimated on data augmented with simple projections.
- Denmark performs internal sensitivity calculations, including different smoothing parameters, HP filters estimated on forecasts of credit and a moving average instead of an HP filter.
- Japan publishes a two-sided HP filter gap alongside the one-sided gap. Korea uses a rolling one-sided HP filter.
- Brazil regularly monitors a credit-to-GDP gap adjusted for currency fluctuations. Currency fluctuations are also important for Russia's measure.

2.3 Other core indicators of systemic risk

In addition to the various credit-to-GDP gap measures, many members focus on other measures of credit, such as the growth of private-sector credit in aggregate and the growth of household and business credit separately. However, while credit-based measures are the most commonly used indicators of the build-up of potential vulnerabilities, most members monitor a range of other indicators as well to detect emerging risks to financial stability. (Graph 2 and 3; Annex A).

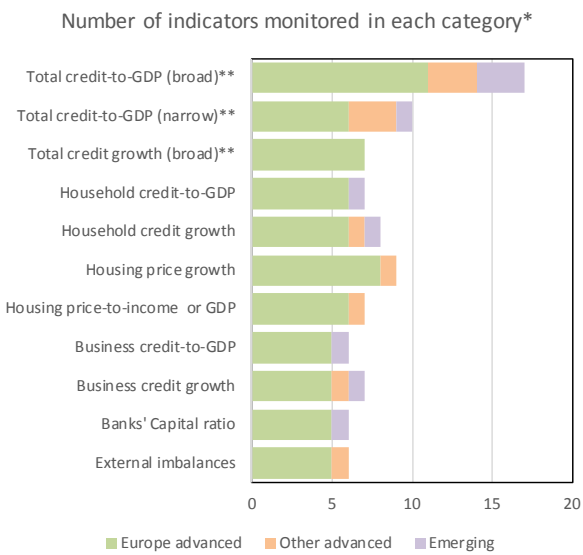
Graph 2 – CCyB indicators by category



* 24 Countries Included
** If a jurisdiction monitors both broad and narrow credit-to-GDP gaps or ratios (or both broad and narrow credit growth measures), this is counted as only one indicator

Source: Basel Committee Survey

Graph 3 – Top systemic risk indicators



* 24 Countries Included
** Total private sector credit measure

Source: Basel Committee Survey

In regard to the non-credit indicators, members use broadly similar types of indicators in their assessments, but select and define these indicators guided by their own historical experiences concerning financial cycle and stress episodes. A range of household indicators is commonly used across members, especially housing price growth and gaps and the level of household debt. Housing loan-to-valuation ratios and the housing lending rate also receive attention in some jurisdictions. In contrast, equivalent indicators for the business sector feature less frequently in the set of identified indicators examined, with fewer jurisdictions monitoring a business indicator and fewer business indicators in general monitored relative to the number of housing indicators within each jurisdiction. EU jurisdictions generally monitor at least one indicator of banking sector resilience, but this is less common outside that region. Some jurisdictions monitor market risk, commodity prices and macroeconomic variables, particularly indicators that may signal external imbalances. Many jurisdictions state that they supplement the quantitative indicators with information gathered from their microprudential supervision of financial institutions. Interestingly, relatively few members explicitly include indicators of economic and financial conditions in other jurisdictions that are important to their own economy.

There is comparatively little formalisation in members' policies of the indicators to be used in a decision to release a non-zero CCyB. In practice, there are likely to be two sorts of circumstances warranting a release: periods where there is a sharp negative shock and the system-wide risk materialises with a need to release bank capital to absorb losses and encourage ongoing lending, and periods where the risks simply recede gradually. Some jurisdictions note that they will use a range of financial market and system stress indicators to identify the first of these circumstances. However, very few jurisdictions indicate

how they will address the second of these circumstances in their policy frameworks; whereas Hong Kong SAR is an exception noting that it will be guided by its Initial Reference Calculator (see below for a description).

2.4 Aggregation of indicators of systemic risk

As noted, all jurisdictions apply a degree of judgment in assessing the build-up of national systemic risk rather than using a mechanistic link between developments in quantitative indicators and their CCyB decisions. A few EU jurisdictions use heat maps, including Denmark, France, Italy and Spain, while others use a traffic light system (red/amber/green) based on thresholds. However, most jurisdictions do not try to weight the various indicators into a cyclical indicator of systemic risk, at least in a formal sense, nor have they tried to develop a mapping between the indicators and a particular level of the CCyB. However, some jurisdictions are exploring ways to use relatively formal structured methods to aggregate their indicator information set and guide their CCyB policy rate decisions.

- In addition to an examination of general economic and financial developments and information from its microprudential supervision, Belgium uses a model-based framework involving regular monitoring of a financial conditions index, which weights by importance indicators relating to credit trends, the banking sector, the level of debt, the property market and current developments in financial markets. An early warning framework complements the index, with signalling thresholds calibrated based on historical occurrences of banking crisis.
- France and Luxembourg also monitor the output from an early warning model that establishes risk thresholds and estimates the probability of a financial crisis.
- The United Kingdom analyses domestic and global economic and financial imbalances to assess the potential for adverse economic shocks, and monitors households' and companies' balance sheets to identify how shocks could translate to defaults and losses. It undertakes an assessment of the sensitivity of banks' balance sheets to losses, informed by annual stress tests, though these are not mechanically linked. If the test results indicate that stress would affect capital ratios by more than the capital conservation buffer and the prevailing CCyB rate, it may increase the CCyB rate, and vice versa. Like others, the United Kingdom is examining an approach to synthesise core indicators and map them to an indicative guide for the CCyB rate.
- Canada supplements the available information with early warning models and stress tests. The authorities have also considered composite indicators that aggregate the credit gap, housing price gap and equity value gap.
- The United States may consult empirical models that combine and translate quantitative indicators of financial and economic performance into potential settings for the CCyB.
- Hong Kong SAR's CCyB decisions are guided by its Initial Reference Calculator (IRC). The "composite CCyB guide" is calculated as 1.1 times the simple geometric mean of the credit-to-GDP gap and the residential property price-to-rent gap. The "indicative CCyB ceiling" sets thresholds of stress based on the interbank market spread and average loan quality that are mapped to a maximum CCyB rate. The IRC rate is then taken as the lower of the composite CCyB guide and the indicative CCyB ceiling, though the authorities can choose to diverge from the IRC buffer guide.

3. Decision process and notification

Most jurisdictions assign the banking system supervisor the primary responsibility for deciding the national CCyB rate (Table 1). While this is often the central bank, no jurisdiction has assigned authority for CCyB decisions to a central bank that is not the bank supervisor, though the central bank is often expected to play a role in monitoring macro-financial conditions. In practice, most designated national authorities also consult other relevant institutions for input into CCyB decisions. The government is the decision-maker in only a few member jurisdictions, in all cases in consultation with expert authorities. In the euro area, the ECB may apply higher CCyB requirements than those set by national authorities if deemed necessary.

Table 1: Designated authorities primarily responsible for operating the CCyB

Central bank (with banking supervision responsibility)	Banking system regulator or supervisor	Special committee of agencies	Government
Belgium	Australia	France	Denmark (recommended by the Systemic Risk Council)
Brazil	Canada	United Kingdom	Norway (with supervisory authority and central bank)
Hong Kong SAR	Germany		Switzerland (with supervisory authority and central bank)
Italy	Japan		
Netherlands	Korea		
Russia	Luxembourg		
Saudi Arabia	Mexico		
Singapore	Sweden		
Spain	Turkey		
United States[(a)]	United States[(a)]		

(a) Central bank or banking regulator or supervisor, depending on the specific type of banking institution.

More than half the EU and other advanced economies indicate they would set a CCyB rate above 2.5% of risk-weighted assets if necessary; others would be willing to do so (Table 2). The United Kingdom expects that when risks are considered to be neither subdued nor elevated, its CCyB rate will be in the region of 1%. Although too early to know, other jurisdictions appear to expect 0% to be the modal point over time.

Jurisdictions have taken different approaches on how frequently indicators of systemic risk are examined and a CCyB decision is formally made. All EU members are required to make a CCyB decision quarterly. Outside the EU, however, while most jurisdictions monitor indicators of systemic risk quarterly, several review their CCyB decision less frequently, though they are generally prepared to make decisions more regularly if required.

Similarly, the CCyB decisions of EU members are publicly communicated each quarter, regardless of whether there is a change in the policy rate. Most other jurisdictions, however, communicate CCyB decisions only when there is a change in the CCyB rate, or otherwise annually (whichever comes first). The most common form of communication is a media release from the relevant decision-making authority, though most jurisdictions also routinely discuss the macro-financial risk environment in their regular financial stability reviews. In accordance with BCBS guidance, national authorities expect to provide domestic banks with a notification period of up to 12 months for increases in the CCyB rate, though jurisdictions retain the right to shorten this period. Many economies intend to make use of the phase-in period through to end-2018 for non-zero national CCyB decisions, though only a few have introduced a non-zero rate to date.

Table 2: Policy decision and communication processes

	Advanced economies in Europe												Other advanced economies							Emerging economies				
	Belgium	Denmark	France	Germany	Italy	Luxembourg	Netherlands	Norway	Spain	Sweden	Switzerland	UK	Australia	Canada	Hong Kong SAR	Japan	Korea	Singapore	US	Brazil	Mexico	Russia	Saudi Arabia	Turkey
National authority has indicated that it will set CCyBs above 2.5% if needed	x	x	x	x		x		x		x		x			x	x		x						
Frequency of CCyB policy setting review	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	At least annually	Qtrly	Qtrly	Analysis conducted qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Twice a year	Qtrly	Yearly	Qtrly	Yearly	Qtrly
Frequency of CCyB policy communication to public	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	At least annually	Qtrly	At least annually	Only if policy change	Qtrly	Only if policy change	Only if policy change	Only if policy change but at least annually	At least annually	Qtrly	Only if policy change	Qtrly	Only if policy change	Only if policy change
Decisions of unchanged CCyBs are publicly communicated	x	x	x	x	x	x	x	x	x	x	x	x			x			x	x	x		x		
CCyB environment routinely discussed in FSRs	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	
Expected length of notification period to banks	Up to 12 mths	12 mths	12 mths	Up to 12 mths	Up to 12 mths	Up to 12 mths	Up to 12 mths	12 mths	12 mths but can change	Up to 12 mths	3-12 mths	12 mths but can change	Up to 12 mths	From 6-12 mths	6-12 mths	Up to 12 mths	Up to 12 mths	Up to 12 mths	12 mths but can change	12 mths	12 mths	6-12 mths	12 mths	Up to 9 mths
National authority intends to make use of the phase-in period		x	x	x			x		x					x	x	x	x	x	x		x	x	x	

4. Reciprocity

4.1 Notification of other jurisdictions' CCyB rates

It is generally left to the internationally active banks located in BCBS member jurisdictions to ensure they are aware of the CCyB requirements in all jurisdictions in which they operate. Most jurisdictions rely on their banks consulting the list of CCyB rates published on the BCBS website (for the CCyBs of both BCBS and non-BCBS jurisdictions). In the EU, the ESRB maintains a list of CCyB rates for all EU jurisdictions, as well as details on buffer levels and justifications for policy decisions. Almost all jurisdictions require individual banks to disclose the geographical breakdown of their private sector credit exposures.

4.2 General reciprocity practices

Within the EU, reciprocity of CCyBs for all other EU jurisdictions (whether a BCBS or non-BCBS member) is automatic and mandatory up to a rate of 2.5% of risk-weighted assets. Reciprocity for national rates set above 2.5% is at the discretion of the individual EU jurisdiction. EU members are also required to recognise the CCyB rates of "third jurisdictions" (defined as jurisdictions outside the European Economic Area) regardless of their membership in the BCBS for rates up to 2.5%. However, outside the EU, members differ with respect to their reciprocity practices:[4]

- Australia, Brazil, Hong Kong SAR, Korea and Russia require reciprocation of all jurisdictions.
- Japan, Switzerland and Turkey reciprocate the CCyBs of BCBS member jurisdictions only. Turkey requires reciprocation only up to 2.5%. In addition to the BCBS member jurisdictions, Canada reciprocates non-BCBS members (eg Norway) that are listed in the website of CCyB decisions maintained by the BCBS.
- Singapore uses discretion as to whether it reciprocates non-BCBS member jurisdictions, depending on the degree of materiality.
- The United States is still finalising its policy in this regard.

Most jurisdictions do not specify a threshold based on the size of their banks' exposures to foreign jurisdictions before reciprocity is required. There are some exceptions, however, namely:

- Italy and the Netherlands expect that the 1% threshold used to identify material "third jurisdictions" by the ESRB will be used in deciding whether to reciprocate such CCyBs (see the box).
- Switzerland uses thresholds based on the size of banks' balance sheets and foreign exposures.
- Brazil uses a threshold set at 5% of credit risk exposures by a bank before reciprocity is required.

4.3 Transitional arrangements

The BCBS guidelines allow the reciprocity of a non-zero CCyB rate to be phased-in in parallel with the capital conservation buffer between January 2016 and end-2018. Around half of BCBS members indicate that they do not intend to accelerate the phase-in of mandatory reciprocity arrangements.

[4] Reciprocity is not yet required in Norway; the technical guidelines for reciprocity are still being drafted in Switzerland.

5. Jurisdictions that have activated the CCyB

To date, four members have activated their CCyB policies: Hong Kong SAR, Norway, Sweden and the United Kingdom. While it is too early to comprehensively outline the subsequent effectiveness of these efforts – including the behaviour of these economies' national banks in response to these CCyB decisions – some details are available (summarised in Annex B). In particular, in the case of Hong Kong SAR, Norway and Sweden, the decisions to activate the CCyB were motivated by concerns in regard to household debt and housing prices, though corporate debt trends – especially for commercial property – were also noted. Since the initial announcement, Norway and Sweden have made subsequent decisions to further increase the CCyB rate. Hong Kong SAR initially noted in 2015 that a 2.5% buffer was warranted but decided to follow the BCBS phase-in approach over a four-year period. In contrast, the UK's CCyB was motivated by a desire to have an "average" CCyB rate of around 1%, and to raise capital gradually, though this initial step was reversed following the EU referendum decision.

6. Issues posed by the differences in national CCyB frameworks

This document has reviewed the framework and operational practices of different national CCyB policies. It finds that there are many common elements in the broad policy approaches adopted by jurisdictions when making CCyB decisions and that national authorities appear to have adhered to the principles outlined by the BCBS framework and guidance. Nonetheless, the document indicates that there is also a significant degree of variability across members in the way they have approached the areas that were left to member discretion. While this document is not a comprehensive assessment, overall none of these differences appears to significantly compromise the level playing field. Nonetheless, these differences do raise a range of issues to be discussed and examined over the medium term as economies gain more experience in using the CCyB, and further theoretical and empirical research is undertaken. Some open issues in this regard that come from this study include the following.

6.1 Governance structures

As noted above, while the formal decision-maker varies across the membership – from the central bank, supervisory authority and government – in almost all cases the decision is made with input from relevant specialised agencies. This most likely reflects the challenge in assessing financial stability considerations and the consequent advantages of receiving a wide range of perspectives. Nonetheless, it could create difficulties if the decision-maker has a view at variance with other expert contributors. More generally, there is very little discussion in members' frameworks as to how the CCyB is understood to interact with other macroprudential tools as well as national monetary, fiscal and exchange rate policies, and hence how and whether the CCyB decision-makers take these other aspects into consideration.

6.2 Rules versus guidance

Identifying periods of emerging systemic risk that could lead to banking system stress is challenging, because the current level and/or change in the degree of financial stability are hard to observe and because financial crises come in many forms, with different indicators raising concerns at one point or another. Given these difficulties, for most jurisdictions there is a heavy reliance on "guided discretion" and examining a wide range of quantitative indicators and qualitative information in their CCyB frameworks.

However, there is some risk that this framework provides, in some particular cases[5], too much discretion in assessments of rising systemic risk and in decisions to adjust the CCyB rate accordingly. While all crises have some degree of idiosyncrasy, empirical evidence suggests that just a few measures identify many of the historical periods of financial crises – for instance, the credit-to-GDP gap, real credit growth and rapid asset price increases. On the one hand, this may suggest that a narrow range of indicators could be fairly robust predictors (though this will probably vary among members), which could favour a more quantitative structured and narrow approach to CCyB considerations, at least in determining a starting point for policy discussion. In this regard, it will be useful to track the efforts under way in several jurisdictions to aggregate and weight a relatively small number of quantitative indicators of financial system risk, especially if the aggregate indicator can then be mapped into increments within the CCyB rate range.[6] Furthermore, relying exclusively on quantitative rules-based approaches can lead to a false sense of security – given that their signalling ability may not persist over time. On the other hand, given the inherent uncertainty in this sort of exercise, the backward-looking perspectives of indicator-based assessments and limited availability of crisis periods may justify a mixture of rules-based components and discretion in setting CCyB rates. More generally, more theory and research still need to be undertaken on how to comprehensively estimate and link indicators and the appropriate CCyB level to the phases of the financial cycle.

6.3 Indicators to guide policy decision-making

As was intended, the credit-to-GDP gap has proven useful in shaping CCyB decisions. However, many members have found that variants of the BCBS standardised gap measure – eg focusing on domestic bank credit and technical variations of the one-sided HP filter – have been more relevant for identifying historical periods of rising systemic risk for their own national circumstances. Therefore, studies that attempt to gauge the relative levels of systemic risk across multiple jurisdictions using just the standardised credit-to-GDP gap measure may need to keep these jurisdiction-specific practices in mind. In any case, historical episodes may not reflect the current depth and characteristics of a jurisdiction's financial system well, including, for instance, the availability of funding from non-bank sources. This suggests that there is a role for monitoring a range of credit-to-GDP gap measures.

Since strong growth in credit does not necessarily reflect a period of "excess" growth and rising systemic risk, many jurisdictions have turned to other indicators to make their CCyB assessments. Much of the focus has been on indictors for the household sector rather than on those for the business sector. Nonetheless, bank exposures to the business sector, especially commercial real estate, have historically been one of the main sources of loan losses during periods of banking stress.[7] Further, Switzerland is the

[5] In the European Union, the ECB can (acting as the national designated authority) top-up national buffers, thereby limiting the scope for inaction bias at the national level

[6] A more formal structured quantitative approach may also prove helpful in outlining a common starting point in situations where a CCyB decision is made by a collection of policymakers – bearing in mind that the credit-to-GDP gap already constitutes a formalised common starting point for the CCyB decision making.

[7] See L Ellis and C Naughtin, "Commercial property and financial stability – an international perspective", *RBA Bulletin*, 2010, pp 25–30.

only jurisdiction that has activated a housing sectoral CCyB. This might reflect perceived challenges in drawing a clear boundary around what constitutes housing credit activities, and/or availability of well-targeted housing-related macroprudential tools, such as limits on loan-to-valuation ratios and changes to risk weights for mortgage lending.

6.4 Activating and releasing the buffer

To date, only the United Kingdom explicitly envisages that it will have a non-zero CCyB rate in normal times. It will be interesting to monitor this approach over time, given that not all periods of excess credit and impending financial crises can be well detected up front no matter how closely indicators are monitored (or for crises that arise from other jurisdictions). In particular, a non-zero "average" buffer rate could provide a way to release capital to banks during shocks without risking the stigma effect that might be associated with banks' dipping into their capital conservation buffers.

As noted, there is little information in jurisdiction frameworks on how decisions to reduce the CCyB rate will be taken. While these decisions are likely to be fairly straightforward in the case of a sudden shock (eg the recent decision by the UK authorities to release the CCyB following the UK vote to leave the EU), they will be more difficult in situations where the threatened risks do not materialise but recede in a benign manner. In these circumstances, most jurisdictions refer to developments in the same indicators used to increase the CCyB rate. Nevertheless, this might be hard to manage in a timely manner if there is a general bias towards smoothing behaviour in setting the CCyB rate and the challenge to estimate well changes in the degree of financial (in)stability and phases of the financial cycle more broadly. This risk of an asymmetric policy response may be heightened in the context of political economy considerations if these favour maintaining the current level of "policy resilience" to any perceived risk of financial crises. A more structured quantitative-driven approach to the initial starting point for CCyB decisions may assist.

Of the four economies that have activated the CCyB, three have subsequently adjusted the rate upwards from the initial announced level.[8] This might reflect challenges in estimating the magnitude of the CCyB necessary to manage excess credit conditions, caution in calibration by national authorities in using this new tool, interactions with other national policies or macroprudential tools, or other factors. Of course, subsequent upward adjustments to the CCyB may also reflect authorities' efforts in gradually building up resilience as assessments of systemic risk continue to increase.

6.5 Communication strategies

Jurisdictions have taken different approaches to their communication strategies. While ultimately intended to shore up financial resilience during periods of excess credit growth, the decision to consider activating the CCyB (or more broadly to use other macroprudential tools) can serve as a strong public signal of the degree of policymakers' concerns, which might help to quickly change private sector behaviour. However, since in reality the CCyB rate is generally expected to be changed infrequently, it seems an open question whether CCyB decisions should be communicated often as part of the ongoing risk dialogue with the private sector as a means to affect its expectations, or whether these decisions would have more impact if they were communicated less frequently.

[8] Although Hong Kong SAR has also adjusted its CCyB rate upwards from the initial announced level, this followed the BCBS phase-in caps.

6.6 Reciprocity arrangements

Reciprocity is important to limit cross-border leakages and ensure a level playing field. It is particularly important for those jurisdictions that are closely connected, whether due to banking size, geography or history. However, reciprocity adds a degree of administration and complexity across members, especially if non-zero CCyB rates become more commonly used and changed across the membership over time. This might suggest the use of materiality thresholds, though there can be a range of complexities to administer a materiality threshold as well. Like other issues, this will be a useful question to turn to as more experience in the use of the CCyB among members is gained over time.

Box: ESRB guidance on setting countercyclical buffer rates for the EU

The national CCyB policy of EU members is bound by the Directive 2013/36/EU and subsequent Recommendations issued by the ESRB. These requirements aim to achieve consistent practices between EU members in setting their CCyB buffer rates and reciprocity arrangements.[9]

Policy framework

The EU CCyB policy framework follows the principle of "guided discretion", which combines a rules-based approach with discretionary judgment. Individual members are required to publish a buffer guide on a quarterly basis as a reference benchmark, but are encouraged to exercise judgment when setting their national CCyB rates. Specifically, EU members are required to:

- Measure and calculate the standardised, BCBS-recommended credit-to-GDP gap each quarter.
- Measure and calculate an additional credit-to-GDP gap if a different measurement and/or calculation is judged to more accurately reflect the national financial cycle.
- Calculate a benchmark buffer rate based on the standardised BCBS credit-to-GDP gap each quarter, and where applicable, a benchmark buffer rate based on variants of the standardised credit-to-GDP gap if that best reflects the circumstances of the national economy.

In line with BCBS guidance, EU members are required to designate a public authority or body to set the CCyB rate. Within the euro area, the ECB may apply higher CCyB requirements than those set by national authorities if deemed necessary.

Core indicators of systemic risk

The ESRB provides guidance on the set of indicators that EU members should monitor when assessing the build-up of cyclical systemic risk. Subject to data availability, these measures should include:

- Potential overvaluation of property prices
- Credit developments
- External imbalances
- Strength of bank balance sheets
- Private sector debt burdens
- Potential mispricing of risk
- Models that combine the credit-to-GDP gap and a selection of the above measures

To guide decisions on releasing the buffer, the ESRB recommends that EU members monitor measures of stress in bank funding markets and measures that indicate general systemic stress.

Reciprocity

Reciprocity of CCyB rates between EU member states is automatic up to 2.5% of risk-weighted assets. Reciprocity for rates higher than 2.5% is voluntary by each jurisdiction, though the ESRB recommends that EU members also recognise these higher buffers.

For "third jurisdictions" (jurisdictions outside the European Economic Area), the ESRB aims to ensure that the same CCyB rates for exposures to these jurisdictions would typically apply to all EU members. EU members are required to recognise CCyB rates in third jurisdictions up to 2.5%. Moreover, the ESRB has the authority to recommend an appropriate CCyB rate for exposures to third jurisdictions, including

a higher rate than the level set by the third- jurisdiction authority. Although, designated national authorities within the EU may also set higher buffer rates for exposures to third jurisdictions, they are not permitted to set lower buffers. To achieve harmonisation across the EU, the following guidelines apply:

- When a third jurisdiction sets a CCyB rate higher than 2.5%, designated national authorities in the EU should inform the ESRB to seek guidance on uniform recognition across the EU.
- Designated authorities should notify the ESRB if they consider that a relevant third- jurisdiction authority should set and publish a CCyB for that jurisdiction, or if the level of the CCyB set and published by a relevant third- jurisdiction authority is not sufficient to protect domestic financial institutions from the risks of excessive credit growth in that jurisdictions.
- Additional monitoring arrangements are in place for "material" third jurisdictions: the ESRB typically defines a third jurisdiction as material when exposures of the EU's banking system to that third jurisdiction are at least 1% of at least one of three exposure metrics: risk-weighted assets, original exposures and defaulted exposures. The ESRB Secretariat will monitor material third-jurisdictions. In addition, designated national authorities are recommended to identify material third jurisdictions on an annual basis and monitor risks from excessive credit growth in these jurisdictions at least annually, unless the jurisdictions are already being monitored by the ESRB. The initial list of material third jurisdictions identified by the ESRB based on data in 2014 comprises Brazil, Hong Kong SAR, China, Turkey, Russia and the United States.
- The European Banking Authority (EBA) allows banks with less than 2% of foreign exposures to allocate those exposures to their home jurisdiction for the purposes of calculating institution-specific CCyB rates.
- EU members can phase in a CCyB under the same transitional arrangements outlined by the BCBS, though member states may choose to impose a shorter transitional period.

Public communication

Each designated authority is required to publish its quarterly CCyB setting on its website. This announcement should include:

- The CCyB rate and justifications for the level
- The credit-to-GDP ratio and its deviation from the long-term trend
- The calculated buffer guide
- Details on implementation timings when there is a change in policy

Designated authorities are expected to take reasonable steps to coordinate the timing of their quarterly announcements and are required to notify the ESRB of each decision. If a designated authority recognises a buffer rate in excess of 2.5%, or sets a higher buffer rate for a third jurisdiction, it is required to publicly announce that recognition on its website.

[9] In particular, macroprudential power regarding banks in jurisdictions participating in the Single Supervisory Mechanism (SSM) is shared between national authorities and the ECB. The SSM Regulation (SSMR) assigns macroprudential powers to the ECB, which is therefore co-responsible with national authorities for macroprudential policies (Article 5). The SSMR assigns to the ECB the power to tighten macroprudential measures implemented by national authorities. The set of instruments that can be used in a harmonised fashion for macroprudential policies across the EU is defined in the Capital Requirements Directive (CRD IV) and the Capital Requirements Regulation (CRR). This also defines both the perimeter of a common, EU-wide macroprudential toolkit, and the extent to which more stringent requirements may be applied by the ECB. The European Commission is currently reviewing the macroprudential provisions in the CRR/CRDIV with legislative proposals to be expected by mid-2017.

Annex A: Core indicators of systemic risk used to guide CCyB decisions

Core indicators of systemic risk	Advanced economies in Europe												Other advanced economies							Emerging economies					Total
	Belgium	Denmark	France	Germany	Italy	Luxembourg	Netherlands	Norway	Spain	Sweden	Switzerland	UK	Australia	Canada	Hong Kong SAR	Japan	Korea	Singapore	US	Brazil	Mexico	Russia	Saudi Arabia	Turkey	
Number of core indicators[a]	13	7	26	30	7	13	10	4	10	Many	1	25	9	N/A	2	2	6	N/A	N/A	N/A	N/A	18	1	3	
Core indicators disclosed	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	N	TBD	Y	Y	N	
Credit indicators																									
Total private sector credit-to-GDP gap or ratio (broad)	x	x	x	x	x	x	x	x	x	x		x	x			x		x				x	x	x	17
Total private sector credit-to-GDP gap or ratio (narrow)		x	x	x	x	x					x		x		x		x					x			10
Household credit-to-GDP gap or ratio	x		x			x	x	x		x												x			7
Business credit-to-GDP gap or ratio	x		x				x	x		x												x			6
Total private sector credit growth (broad)			x	x	x	x			x	x		x													7
Total private sector credit growth (narrow)			x	x																					2
Household credit growth (bank credit)	x			x	x	x	x			x			x									x			8
Business credit growth (bank credit)	x			x	x		x			x			x									x			7
Currency-adjusted credit measures																						x			1
Household indicators																									
Housing price growth	x		x	x	x	x	x		x	x			x												9
Housing price-to-income or GDP ratio or gap		x			x	x		x	x	x							x								7
Housing price-to-rent ratio or gap						x			x						x										3
Household debt (or ratios to income or GDP)	x		x			x				x							x								5
Household debt serviceability			x	x						x															3
Housing loan-to-valuation or income ratio			x				x			x			x												4
Housing lending rate or spread	x						x			x		x	x												5
General housing lending standards				x												x									2
Net financial assets	x																								1
Business indicators																									
Commercial property price growth							x	x					x												3
Business debt (or ratios to income or GDP)	x		x							x															3
Business debt serviceability				x																					1
Business lending rate or spread	x											x	x												3
General business lending standards			x										x			x									3
Net financial assets	x																								1

(a) As reported by each jurisdiction in the member survey. These reported numbers may not correspond to the total number of crosses in the table because some indicators were separated into more granular categories or combined into broader categories for comparison and readability purposes.

Core indicators of systemic risk	Advanced economies in Europe												Other advanced economies							Emerging economies					Total
	Belgium	Denmark	France	Germany	Italy	Luxembourg	Netherlands	Norway	Spain	Sweden	Switzerland	UK	Australia	Canada	Hong Kong	Japan	Korea	Singapore	US	Brazil	Mexico	Russia	Saudi Arabia	Turkey	
Number of core indicators[a]	13	7	26	30	7	13	10	4	10	Many	1	25	9	N/A	2	2	6	N/A	N/A	N/A	N/A	18	1	3	
Core indicators disclosed	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	N	TBD	Y	Y	N	
Banking sector indicators																									
Capital ratio	x			x		x				x		x										x			6
Leverage ratio						x				x		x										x			4
Banks' earnings measures		x										x													2
Banks' funding measures						x		x				x					x								4
Banks' non-performing loans				x	x								x									x			4
Loan-to-deposit ratio	x											x													2
Banking system liquidity measures			x			x																			2
Other banking sector resilience indicators	x											x													2
Market risk indicators																									
Stock market prices	x			x						x														x	4
Price-to-earnings ratios	x																								1
General financial stress indicators		x	x	x		x																			4
Government bond yields	x																								1
CDS, corporate bond, or currency swap spreads			x	x		x						x													4
EURIBOR-OIS spread			x	x																					2
Real long-term interest rate				x								x													2
Volatility indicators				x								x													2
Macroeconomic indicators																									
External imbalances				x		x			x	x		x					x								6
Public sector savings										x															1
GDP growth						x				x														x	3
Unemployment rate					x																				1

(a) As reported by each jurisdiction in the member survey. These reported numbers may not correspond to the total number of crosses in the table because some indicators were separated into more granular categories or combined into broader categories for comparison and readability purposes.

Annex B: Jurisdictions that have implemented non-zero CCyB rates

	Hong Kong SAR	Norway	Sweden	United Kingdom
Recent decision	1.875% effective 1 January 2018	2.0% from Dec 2017	2.0% effective 19 March 2017	0% effective immediately
Length of notification	12 months	12 months	Up to 12 months.	Increase to 0.5%: 12 months Decrease: effective immediately
Phase-in period	Yes	No	No	No
No of decisions	Three	Three	Three	Two
Details previous non-zero announcements	- Jan 2015: 0.625% - Jan 2016: 1.25% - Jan 2017: 1.875%	- Dec 2013: 1.0% - Jun 2015: 1.5% - Dec 2016: 2.0%	- Sep 2014: 1.0% - Jun 2015: 1.5% - Mar 2016: 2.0%	- Mar 2016: 0.5% - Jul 2016: 0%
Reasons for activating or increasing the CCyB rate	Indicative buffer guide suggested a CCyB rate of 2.25% due to elevated credit and property price gaps, but the HKMA decided to set it at the Basel III phase-in cap of 1.875%.	- Continued rise in household debt and housing prices.	- High credit expansion poses risks to financial system/economy. - High house prices, low rates and strong growth could add to credit expansion. - Persistent rise in household debt linked to rapidly rising prices. Corporate lending via market funding increasing. - Household debt trend is concerning but manageable.	*Reasons for increasing to 0.5 per cent:* Gradual phase-in consistent with FPC expectation to set CCyB rate at around 1% when risks are neither subdued nor elevated, and uncertainty of effect of CCyB on credit and macroeconomy. *Reasons for reducing to zero:* Outcome of EU referendum changed risk outlook, and to reduce pressure on banks to tighten credit.
Reciprocity experiences to date	In line with BCBS standards.	Reciprocated in line with EU legislation and Basel III standards.	Reciprocated in line with EU legislation and Basel III standards.	Reciprocated in line with EU legislation and Basel III standards.
Tools to assess effectiveness	Periodic review by HKMA of performance of its buffer guide (Initial Reference Calculator).	No review completed (or planned) to date.	Analysis, assessments and supervisory evaluation.	FPC will examine effect on credit, compliance and effect on lending of the release of the CCyB.