HONG KONG MONETARY AUTHORITY 香港金融管理局		
Supervisory Policy Manual		
CA-B-1	**Countercyclical Capital Buffer (CCyB) – Approach to its Implementation**	V.3 – 01.04.24

This module should be read in conjunction with the Introduction and with the Glossary, which contains an explanation of abbreviations and other terms used in this Manual. If reading on-line, click on blue underlined headings to activate hyperlinks to the relevant module.

Purpose

To explain the MA's approach towards implementing the Basel III Countercyclical Capital Buffer (CCyB) as part of the capital adequacy framework for AIs incorporated in Hong Kong.

Classification

A non-statutory guideline issued by the MA as a guidance note.

Previous guidelines superseded

CA-B-1 "Countercyclical Capital Buffer (CCyB) – Approach to its Implementation" (V.2) dated 07.04.17

Application

To all locally incorporated AIs

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1 Introduction

1.1 Terminology

1.1.1 Unless otherwise specified, abbreviations and terms used in this module follow those used in the Banking (Capital) Rules ("BCR") and in the Banking (Disclosure) Rules ("BDR"). In this module, "AI" means "locally incorporated AI" and "BO" means "Banking Ordinance". "AI-specific CCyB" means "CCyB ratio", "JCCyB" means "JCCyB ratio", and "applicable JCCyB" means "applicable JCCyB ratio" as defined respectively in the BCR. See Annex 1 for a list of some important abbreviations used in this module.

1.2 Background

1.2.1 As the Basel Committee has observed, one of the most destabilising elements of a financial crisis is the procyclical amplification of shocks throughout the banking system, financial markets and the broader economy. The losses incurred in the banking sector during a downturn, which has been preceded by a period of excess credit growth, can be extremely large. These losses can destabilise the banking sector and effectively spark a vicious circle, whereby problems in the financial system can contribute to a downturn in the real economy that then feeds back in to the banking sector. In an endeavour to address these issues, the Basel Committee has developed a series of measures to help ensure that the banking sector serves as a "shock absorber", instead of a transmitter or amplifier of risk to the financial system and the broader economy. One of these measures is the Basel III Countercyclical Capital Buffer (CCyB).[1]

1.2.2 As confirmed by the experience since the implementation of CCyB in 2016, however, it has become evident that system-wide risks may not only

[1] See Basel Committee, *The Basel Framework (Standard RBC30 – Buffers above the regulatory minimum),* available at https://www.bis.org/basel_framework/index.htm.

arise from excessive credit growth but could also result from an exogenous shock.

1.2.3 The BO provides for the MA to make rules prescribing capital requirements for AIs incorporated in Hong Kong (see BO §97C(1)). In doing so, the MA may give effect to banking supervisory standards relating to capital issued by the Basel Committee, subject to such modifications as the MA sees fit in light of local circumstances (see BO §97C(3)(b)).

1.2.4 The MA has made the BCR under BO §97C and the BDR under BO §60A and has, by the Banking (Capital) (Amendment) Rules 2014 and the Banking (Disclosure) (Amendment) Rules 2014, incorporated provisions for the imposition of capital requirements arising from the operation of the CCyB into the BCR and for corresponding disclosures into the BDR respectively. The MA has, by the Banking (Capital) (Amendment) Rules 2023, amended some provisions to modify the condition for setting the applicable jurisdictional CCyB ratio (i.e. applicable JCCyB).

1.2.5 This module provides an overview of the CCyB framework in Hong Kong and describes the MA's approach to taking decisions with regard to the setting of the CCyB applicable to AIs. This module is intended to complement AIs' understanding of the BCR and BDR but should not be read as in any sense substituting or amending the text of the BCR or BDR.

2 Overview of the CCyB framework

2.1 Objectives

2.1.1 In the context of its local implementation, the primary aim of the CCyB is to provide a measure of protection to the banking sector against the build-up of system-wide risks. The CCyB seeks to achieve this by ensuring that AIs, and the banking sector in aggregate, accumulate additional capital in boom times, which can be released later to absorb any losses or meet capital requirements when any system-wide risk crystallises and the financial

system enters a phase of stress and contraction. This should, in turn, help to maintain the flow of credit to corporates and individuals and thereby lessen the impact of the stress on the real economy.

2.1.2 As a secondary benefit, the CCyB may also tend to lean against the build-up of excessive exuberance in the credit cycle in the first place, potentially containing credit growth to some degree and perhaps thereby helping to moderate swings in asset prices and/or the economy. However, this potential moderating effect is not the primary objective envisaged for the CCyB.

2.2 The CCyB as an extension of the capital conservation buffer

2.2.1 The CCyB is an additional "layer" of Common Equity Tier 1 (CET1) capital which takes effect as an extension of the Basel III capital conservation buffer (CB) (see BCR §3G). Like the CB requirement, the CCyB requirement is expressed as a percentage of an AI's total risk-weighted amount (RWA). An AI's CET1 capital must first be used to meet all of its minimum capital requirements (including any Pillar 2 (BO §97F) add-on), before the remainder can contribute to the extended buffer range (see BCR §§3E and 3H). This is illustrated in the "capital stack" below (assuming that the AI is not designated as a G-SIB or D-SIB and hence not subject to any additional Higher Loss Absorbency capital requirement generally associated with such designation):

Countercyclical Capital Buffer (0% → 2.5% of RWA)	Buffer capital
Capital Conservation Buffer (2.5% of RWA)	
Pillar 2 CET1 capital ratio add-on (if any)	Minimum regulatory capital
Minimum CET1 capital ratio (4.5% of RWA)	

2.2.2 As an extension of the CB, the CCyB is not regarded as a "hard" minimum capital requirement. If an AI's CET1

capital ratio falls within the CB zone (as extended by the CCyB when applicable), restrictions will be imposed on discretionary profit distributions (see BCR §3H).

2.3 AI-specific CCyB

2.3.1 An AI's "AI-specific CCyB" is essentially the additional buffer (expressed as a percentage of the AI's RWA) by which the AI's CB is extended by CCyB requirements applicable to the AI.[2]

2.3.2 An AI must determine its own AI-specific CCyB as the weighted average of the applicable JCCyB (see subsection 2.4 below), effective at the date for which the determination is made, in respect of the jurisdictions (including Hong Kong) where the AI has private sector credit exposures.[3] The weight to be attributed to a given jurisdiction's applicable JCCyB is the ratio of the AI's aggregate RWA_j for its private sector credit exposures (in both the banking book and the trading book) in that jurisdiction (where the location of the exposures is determined as far as possible on an ultimate risk basis[4]) to the sum of the AI's aggregate RWA_j across all jurisdictions in which the AI has private sector credit exposure (see BCR §3O(1)).

2.4 Jurisdictional CCyB (JCCyB)

2.4.1 ***The applicable JCCyB:*** It is the CCyB which an AI should use in respect of a particular jurisdiction (which could be Hong Kong or a jurisdiction outside Hong Kong) for calculating its AI-specific CCyB as described in paragraph 2.3.2 above. The applicable JCCyB is determined in each case as follows:

[2] This corresponds to the "CCyB ratio" as defined in Formula 1A in BCR §3O(1).

[3] As defined in BCR §3N, "private sector credit exposures" exclude exposures to banks regardless of whether the latter are under public sector or private sector ownership.

[4] See SPM module CA-B-3 for further details on the determination of the jurisdictional allocation of private sector credit exposures on an ultimate risk basis.

- *Where the jurisdiction is Hong Kong* – The MA's approach to determining and announcing the applicable JCCyB for Hong Kong is described in section 3 below (see also BCR §3Q).

- *Where the jurisdiction is outside Hong Kong* – The MA's approach to recognising JCCyB for other jurisdictions is described in section 4 below. The applicable JCCyB in respect of a given jurisdiction outside Hong Kong may differ from the JCCyB as determined (explicitly or tacitly) by the relevant authority in that jurisdiction if the MA has determined and announced the application of a higher or lower applicable JCCyB in the circumstances described in subsection 4.3 below (see also BCR §3P).

2.4.2 ***Advance announcement periods:*** A different treatment applies to increases and decreases of applicable JCCyB in respect of the time period between their announcement and their effective date ("advance announcement period" – defined in BCR §3N):

- *Applicable JCCyB increases*: The advance announcement period for an increase (including an increase above 0% – i.e. buffer activation) in the applicable JCCyB for Hong Kong will usually be 12 months, unless the MA announces a shorter period of not less than 6 months (see BCR §3Q(8) and a description of the circumstances which might lead the MA to adopt such a shorter advance announcement period in paragraph 3.6.4 below).

  Similarly, unless otherwise determined by the MA in the circumstances described in subsection 4.3 below, an increase in another jurisdiction's JCCyB (including from zero or when first activated) will become effective in respect of AIs in accordance with the advance announcement period set by the relevant authority in that jurisdiction (in other words, the "applicable" JCCyB will follow the timing of the underlying JCCyB), but:

(a) if the advance announcement period is less than 6 months, AIs may instead adopt 6 months; or

(b) if the advance announcement period is more than 12 months, AIs must instead adopt 12 months.

See also BCR §3P(5) to (9) and (11).

- *Applicable JCCyB decreases*: A decrease in the applicable JCCyB for Hong Kong will become effective immediately upon being announced. A decrease in another jurisdiction's applicable JCCyB will become effective in respect of AIs as announced by the relevant authority in that jurisdiction, unless the MA determines a different effective date in respect of AIs in the circumstances described in subsection 4.3 below.

2.5 Reporting and disclosure requirements

2.5.1 ***Quarterly reporting to the MA:*** An AI is required to report to the MA its AI-specific CCyB and related information on a quarterly basis through Returns MA(BS)3 "Capital Adequacy Ratio of an Authorized Institution Incorporated in Hong Kong" and MA(BS)25 "Quarterly Reporting on the Countercyclical Capital Buffer (CCyB)". The quarterly reports cover both point-in-time and forward-looking information as discussed below:

Point-in-time information: This refers to data as of the report's quarter-end date and includes the following items:

- The AI-specific CCyB calculated on the basis of the latest applicable JCCyB in effect at the quarter-end date (see paragraph 2.3.2 above).
- The RWA_j for private sector credit exposures as of the quarter-end date, corresponding to each

jurisdiction in which the AI has private sector credit exposure, used in the above calculation.

- The applicable JCCyB, in respect of each jurisdiction in which the AI has private sector credit exposure, used in the above calculation.

Forward-looking information: This refers to information as of the end of each of the subsequent four quarters following the report's quarter-end date and includes:

- The AI-specific CCyB calculated on the basis of (i) any applicable JCCyB that are currently in effect or pre-announced and are expected to be in effect on any of the subsequent four quarter-end dates (including for Hong Kong and for other jurisdictions), and (ii) the same risk-weighted amounts used for the calculation of the point-in-time AI-specific CCyB as of the report's quarter-end date (as described above).

- The JCCyB in respect of each jurisdiction in which the AI has private sector credit exposure, which have been used in the above calculation (i.e. incorporating any expected pre-announced changes).

2.5.2 ***Public disclosure:*** As set out in BDR §§16AB and 16FG, AIs are required to publicly disclose the CCyB-related information as part of their Pillar 3 disclosure in the "Standard Disclosures Templates".

3. The MA's approach to determining and announcing the applicable JCCyB for Hong Kong

This section describes the MA's approach to determining the level of the applicable JCCyB for Hong Kong and the timing of its activation, increase, decrease or release. The approach takes as its starting point an "Initial Reference Calculator" (IRC) that is transparently calculated and made public. The decision process then builds upon the IRC by incorporating the analysis of information from a broader set of "Comprehensive Reference Indicators" and other appropriate sources. The final policy decision is then

taken on the basis of informed judgement and will be publicly communicated, with a reasoned justification when the decision is higher (tighter) or lower (looser) than the guide provided by the IRC.[5]

3.1 The steps in the decision process

3.1.1 ***Main issues in applicable JCCyB decisions:*** As noted in subsection 2.1 above, the primary objective of the CCyB is to make the banking sector more resilient against system-wide risks. Given this objective, decisions on whether to activate, increase, decrease or release the applicable JCCyB for Hong Kong hinge on an assessment of: (i) the system-wide risks that may be building up across the banking system – because of credit growth and/or other relevant factors; (ii) the fragility of the Hong Kong banking system vis à vis such risks; and (iii) the degree to which an excessive credit contraction may be underway or is likely imminent (and thus suggest release of applicable JCCyB for Hong Kong).

3.1.2 ***Ongoing systemic risk monitoring – the MA's systemic "dashboard":*** Making adequate and timely decisions on the applicable JCCyB for Hong Kong (and indeed on the deployment of other macroprudential policy instruments) presupposes an ongoing monitoring and analysis of relevant current and forward-looking information on the state of, and trends in, the banking system that may bear on issues such as those mentioned in paragraph 3.1.1 above. The MA's approach in this regard is to regularly monitor and analyse the following:

- ***The "Basel Common Reference Guide":*** To provide a common starting point across jurisdictions, the Basel Committee expects national authorities to calculate, regularly disclose and consider in their CCyB decisions, a non-binding common reference guide based on a methodology

[5] Except for a case that the applicable JCCyB for Hong Kong is being kept unchanged and the reasoned justification is not significantly different from the prior announcement by the MA. In such a case only the latest CCyB statistics will be provided for information.

that measures the "credit/GDP gap" (i.e. the extent to which the aggregate private sector credit/GDP ratio exceeds its long term trend). In line with the Basel Committee guidance, the MA will calculate and publish the Basel Common Reference Guide (BCRG) on a quarterly basis as set out in paragraphs 3.2.2 and 3.7.1 below and in Annex 2. However, as the Basel Committee has noted, although this guide can help signal the need for CCyB build-up, it is likely to be too slow for timely signalling of the need for CCyB release. The MA will consider the BCRG in its applicable JCCyB decisions but it will only be one of the MA's reference points.

- ***The Initial Reference Calculator:*** The MA has developed for Hong Kong a methodology, referred to as the IRC, based on which the MA will calculate and publish, on a quarterly basis, an indicative CCyB guide by combining the credit/GDP gap driving the BCRG with additional indicators on local property prices and rents, and the Positive Neutral CCyB (see further details in subsections 3.2 and 3.3, paragraph 3.7.1 and Annex 3). The MA will use the IRC as a starting point for applicable JCCyB decisions. The MA will monitor (on an ongoing basis depending on each indicator's frequency of update):

  - the current readings and (if available) forecasted short-term path of each of the two indicators ((i) credit/GDP gap, and (ii) property price/rent gap) used as inputs for the IRC;

  - the resulting IRC and its components (see subsections 3.2 and 3.3 below) based on current (and where available forecasted) inputs, without applying any caps on buffer guides for a more complete picture.[6]

[6] While the IRC with the current readings on the two indicators and the Positive Neutral CCyB as inputs will be the starting point of analysis, the IRC framework could also be used to incorporate forward-looking views on the inputs as part of the policy assessment process.

- ***A set of Comprehensive Reference Indicators:*** The MA will also monitor and analyse on an ongoing basis a broader set of indicators that can help the MA to develop a more complete view of systemic risk by covering risk factors that may not be adequately captured by the BCRG and the IRC (see subsection 3.4 below for details).

- ***Other relevant information and analyses:*** Finally, the MA will consider in its applicable JCCyB decisions any other information, be it of a quantitative or qualitative nature, that may come to light or be available at the relevant time and that may be relevant in the context of the MA's mandate of promoting the general stability and effective working of the banking system. Such information may be obtained through the MA's ongoing monitoring of events at the local, regional and global level that may carry implications for banking system risk in Hong Kong. It may also be derived from focused studies or analyses of particular issues (including the assessment of potential improvements in the IRC and/or in the set of Comprehensive Reference Indicators).

3.1.3 ***Determining the "macroprudential policy stance":*** Based on the analysis of the available information as described in paragraph 3.1.2 above, and before considering a decision on the applicable JCCyB for Hong Kong, the MA will first focus on deciding whether the broad systemic picture – including not only the current situation but also foreseeable short- to medium-term trends – suggests that the appropriate macroprudential policy stance, relative to that indicated by the IRC, should be "baseline", "tighter" or "looser". Given the quarterly calculation and publication of the BCRG and the IRC, the MA will review the macroprudential policy stance on at least a quarterly basis (see further discussion in subsection 3.5 below).

3.1.4 ***Deciding on the applicable JCCyB for Hong Kong:*** Once a macroprudential policy stance has been determined, the MA will consider and assess the

available policy options (including possible combinations of applicable JCCyB levels with other complementary or alternative macroprudential policy instruments designed to bolster the resilience of the banking sector). Before reaching a decision, the MA may also consult any other parties as the MA may deem appropriate in order to arrive at an informed judgement based on all relevant information (see further discussion in subsection 3.6 below).

The public announcement of the decision will include a reasoned justification where there is any deviation from the IRC, except for a situation that the applicable JCCyB for Hong Kong is kept unchanged and the reasoned justification is similar to what has been communicated in the previous public announcement (see subsection 3.7 below).

3.1.5 ***Performance review:*** The MA intends to undertake periodic reviews of the performance of the IRC, the Positive Neutral CCyB level and the applicable JCCyB decision making process more broadly, with a view to enhancing them wherever deemed appropriate. Accordingly, this module may be updated from time to time following the usual consultation.

3.2 The MA's Initial Reference Calculator

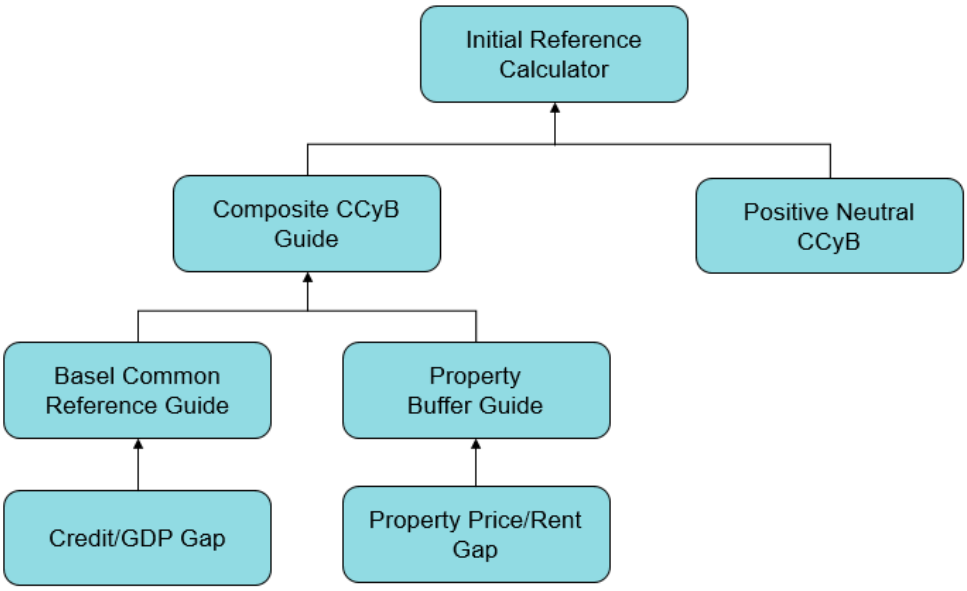
3.2.1 ***Determination of the IRC:*** The IRC produces quarterly an initial guide between 0% and 2.5% of total RWA for the level of the applicable JCCyB for Hong Kong. The IRC will be the higher of the following two constituent components (see Diagram 1):

- ***A Composite CCyB Guide based on two "primary gap indicators":*** a credit/GDP gap and a property price/rent gap (see details in paragraph 3.2.2 below). This guide would signal the changes in the applicable JCCyB for Hong Kong in response to increasing or decreasing signs of excessive credit growth and/or property prices.

- ***A Positive Neutral CCyB:*** This sets a floor for the IRC and helps ensure the availability of sufficient buffer against possible exogenous system-wide shocks (see subsection 3.3 below).

Since the IRC selects the higher of the Composite CCyB Guide and the Positive Neutral CCyB, it may happen that, if both primary gap indicators driving the Composite CCyB Guide decrease to sufficiently low levels, the Positive Neutral CCyB could dominate and cause the IRC to be at the same level as the Positive Neutral CCyB.

Diagram 1: The Initial Reference Calculator (IRC)



3.2.2 ***Composite CCyB Guide based on primary gap indicators:*** The Basel Committee in its "Guidance for national authorities operating the countercyclical capital buffer" and related studies published by the Bank for International Settlements (BIS) present cross-country evidence supporting both the use of the credit/GDP gap as a predictor of banking crises and the Basel III calibration of the BCRG for signalling an indicative buffer

level, driven by the credit/GDP gap (see Box 1).[7] Other empirical research by BIS staff based on global data[8] shows that the combination of sustained rapid credit growth and large increases in asset prices appears to heighten the probability of an episode of financial instability. Finally, the MA's own analysis of local Hong Kong data suggest that combining information on property market valuation with the credit/GDP gap can improve predictive power in terms of identifying systemic risk in Hong Kong in comparison to relying on the credit/GDP gap alone.

The MA will calculate an indicative "Composite CCyB Guide" based on the two primary gap indicators identified (namely the credit/GDP gap and the property price/rent gap). This Composite CCyB Guide will thus combine information on the degree to which credit growth and property market valuations are deviating from their respective long-term trends. The Composite CCyB Guide will be calculated as the geometric average of the compound rate of the following two buffer guides and be capped at 2.5%:

- ***The Basel Common Reference Guide:*** The MA will calculate the BCRG in line with the methodology devised by the Basel Committee for both calculating the credit/GDP gap and mapping that credit/GDP gap into an indicative jurisdictional CCyB guide (see Box 1). The measure of credit to be used in the calculation of the credit/GDP gap for Hong Kong is the stock of total loans and advances outstanding at the Hong Kong Offices of AIs as reported in the HKMA's Monthly Statistical Bulletin, excluding "other loans for use outside Hong Kong", as at the end of the quarter corresponding to the

[7] See e.g. M. Drehmann, C. Borio, and K. Tsatsaronis, "Anchoring Countercyclical Capital Buffers: The Role of Credit Aggregates", BIS Working Papers No. 355, November 2011 and A.M. Taylor (https://www.bis.org/publ/work355.pdf), "The Great Leveraging", BIS Working Papers No. 398, December 2012 (https://www.bis.org/publ/work398.pdf).

[8] See C. Borio and P. Lowe, "Asset prices, financial and monetary stability: exploring the nexus", BIS Working Papers No. 114, July 2002.

(annualised) quarterly GDP data point (see Annex 2 for further details).

- ***The Property Buffer Guide (PBG):*** The PBG, as described in Box 2, is constructed and calculated in a similar manner to the BCRG but based on the residential property price/rent gap in Hong Kong (i.e. the deviation of the ratio of the residential property price index to the rental index from the ratio's long-term trend where the deviation is expressed as a percentage of the trend).

A more detailed discussion of the methodology for determining the PBG and the Composite CCyB Guide is included in Annex 3.

3.2.3 ***Release of CCyB:*** A key principle underlying the CCyB is that the buffer should be released promptly once significant stress is observed within the banking sector in order to minimise any credit constraint which might amplify the adverse effects of a financial cycle downturn. Swiftly releasing a buffer, which has been accumulated on top of credibly robust "hard" minimum capital requirements, should allow the banking system in aggregate to absorb losses that materialise or to meet capital requirements, and thus permit the banking system to continue lending to support the economy.

The Basel Committee has not provided any common reference guide for triggering the release of the CCyB. The MA considers that reliance can neither reasonably be placed upon the credit/GDP gap nor the property price/rent gap as timely indicators for the release of the CCyB when the banking system encounters significant stress. Both indicators will likely be "lagging" in the sense that they may move down too late for a buffer release to be sufficiently prompt to prevent a credit contraction.

Box 1. Basel III: The Credit/GDP Gap and the Basel Common Reference Guide

Buffer driver: As a reference point for formulating and explaining buffer decisions, the jurisdictional authority first calculates the Basel Common Reference Guide (BCRG). This involves three steps:

1) calculate the aggregate private sector credit-to-GDP ratio as a percentage;

2) calculate the credit/GDP gap expressed as the difference between the current ratio and its long term trend (GAP_{CREDIT}); and

3) map the credit/GDP gap into the indicative buffer level guide, expressed as a percentage of RWA.

As far as available data allows, aggregate private sector credit is to be measured in the broadest possible terms, from all possible sources, to the domestic non-bank private sector (including non-bank financial sector) in a jurisdiction.

To calculate the trend of the private sector credit/GDP ratio, a one-sided Hodrick-Prescott filter with a high smoothing parameter (λ = 400,000) is to be used.

Buffer level guide: The indicative buffer level guide for the jurisdiction for which the credit/GDP gap has been calculated should be determined as follows:

Credit/GDP gap	Indicative Buffer Level Guide
Less than 2%	0%
Equal or more than 2%	Formula: $BCRG = 0.3125 \cdot (GAP_{CREDIT} - 2\%)$ Level of buffer varies linearly in proportion to the excess of the credit/GDP gap above 2%. (The 2.5% cap on the buffer level guide is not applied in Hong Kong to calculate proportionately higher buffer level guides beyond 2.5% as the credit/GDP gap exceeds 10%.)

Source: Annex 1 of Basel Committee *Guidance for national authorities operating the countercyclical capital buffer*, December 2010.

See Annex 2 of this module for further details.

Box 2 – The Property Price/Rent Gap and the Property Buffer Guide for the CCyB

Property price/rent gap: The indices used for computing the residential property price/rent ratio for Hong Kong are the private domestic property price index and the private domestic property rental index produced by the Rating and Valuation Department of the Government of the HKSAR. The "property price/rent gap" ($GAP_{PROPERTY}$) is defined as the difference between the current price/rent ratio and the long-term trend of this ratio, where the difference is expressed as a percentage of the trend. To calculate the trend of the price/rent ratio, a one-sided Hodrick-Prescott filter with a high smoothing parameter (λ = 400,000) is used.

Property buffer guide: The corresponding Property Buffer Guide (PBG) is calculated in a similar way to the BCRG (see Box 1), using the same thresholds on the basis that rental adjustment has been observed to be significantly more flexible in Hong Kong than in most other jurisdictions and, as a result, the price/rent ratio time series is not much more volatile than the credit/GDP ratio:

Property Price/Rent Gap	Property Buffer Guide (PBG)
Less than 2%	0%
Equal or more than 2%	Formula: $PBG = 0.3125 \cdot (GAP_{PROPERTY} - 2\%)$ Level of buffer varies linearly in proportion to the excess of the property price/rent gap above 2%. (The 2.5% cap on the buffer level guide is not applied to calculate proportionately higher buffer level guides beyond 2.5% as the property price/rent gap exceeds 10%.)

See Annex 3 for further details.

The MA will therefore make reference to a broader set of indicators (referred to as Comprehensive Reference Indicators, see description in subsection 3.4) and all relevant information available to assess if there is or will be any significant stress within the banking system to inform whether a partial or full release of the buffer by adopting a "looser" macroprudential stance is warranted (see paragraph 3.6.5).

3.2.4 ***Expression of the CCyB in multiples of 25 basis points*:** The IRC as well as the announced applicable JCCyB will be rounded to the nearest, and expressed in, multiples of 25 basis points.

3.3 Positive Neutral CCyB

3.3.1 System-wide risks may not only arise from excessive credit growth and/or imbalances in residential property markets but also from exogenous shocks. Maintaining a Positive Neutral CCyB of 1% when the two primary gap indicators signal a lower applicable JCCyB for Hong Kong can help ensure the availability of sufficient capital buffer to be released when needed to absorb shocks for the banking system and the real economy.

3.3.2 The Positive Neutral CCyB will take into account all relevant factors, including but not limited to the financial positions of AIs, the economic conditions and outlook in Hong Kong, the global financial and economic environment as well as the competitiveness of the Hong Kong banking sector.

3.3.3 Setting the Positive Neutral CCyB is not a mechanical or one-off exercise. The level of the Positive Neutral CCyB will generally be reviewed every three years, or it can also be updated if required by special circumstances.

3.3.4 The MA will publicly communicate if there is any change to the Positive Neutral CCyB. In case a change in the Positive Neutral CCyB also results in the MA's decision to increase the applicable JCCyB for Hong Kong, the advance announcement period applies (see paragraph 2.4.2 and subsection 3.7).

3.4 The Comprehensive Reference indicators

3.4.1 The Comprehensive Reference Indicators which the MA will monitor on an ongoing basis (see paragraph 3.1.2 above) include a broad set of aggregate indicators of

systemic conditions covering items as illustrated in Table 2 below (as far as data is available).

3.4.2 The indicators included in Table 2 and their suggested interpretation should be regarded as illustrative and not exhaustive or restrictive. The appropriate set of Comprehensive Reference Indicators may evolve over time, as further data is collected or the relevance of the indicators is reassessed based on experience. Hence, rather than fix definitely the set of Comprehensive Reference Indicators to be reviewed, the MA will make use of the current list and will make it available on the HKMA website.

3.5 Determining the macroprudential policy stance

3.5.1 ***Macro-prudential analysis:*** The MA will determine, based on the broad systemic picture – including not only the current situation but also foreseeable short- to medium-term trends – provided by the analysis of the available information, whether the macroprudential policy stance should be, broadly speaking, characterised as "baseline", "tighter" or "looser" relative to the signal generated by the IRC:

- "baseline", meaning that no reasons have been identified to justify a deviation from the IRC;
- "tighter", meaning that there may be justification for electing to implement a higher applicable JCCyB for Hong Kong than that otherwise signalled by the IRC where the MA considers that, in the prevailing circumstances, such a course of action is appropriate for the purposes of bolstering or securing banking sector stability; or

Table 2. Illustrative list of Comprehensive Reference Indicators

	Tending to support –	
	Tighter bias	**Looser bias**
Aggregate / average banking indicators		
Credit growth (total/sectoral)	Fast/Accelerating	Slow/Negative
Loan quality deterioration (classified loan ratio)	Low/None	High/Rising
Bank leverage (Basel III Leverage Ratio, CET1/RWA)	High/Rising	Low
Bank maturity mismatch (Net Stable Funding Ratio, core funding ratio, loan/deposit ratio)	Large/Increasing	Small
Currency mismatch (net FX position / equity)	Large/Increasing	Small
Average risk weight (total and IRB)	Low/Falling	High/Rising
Liquidity (LCR, LMR, other Basel III metrics)	Context dependent	Context dependent
Profitability (ROA, ROE)	Context dependent	Context dependent
Interbank market spreads in HKD	Small/Falling	Large/Rising
Interbank market spreads in non-HKD currencies	Small/Falling	Large/Rising
Hong Kong property sector		
Property price growth	Fast/Accelerating	Slow/Negative
(Real) mortgage interest rate	Low	High
Average DSR	Rising from low base	Decreasing from high base
Average LTV ratio	High/Rising	Low
Commercial property price / rent ratios	High/Rising	Low
Non-financial sector leverage		
Household debt / GDP ratio	High/Rising	Low
Financial leverage of listed local corporations (debt/equity, debt/EBITDA[9])	High/Rising	Low
Imputed private sector DSR[10]	High/Rising	Low
Macroeconomic imbalances		
Current account deficit / GDP	High/Rising	Low/Surplus
Gross or net external liabilities / GDP	High/Rising	Low
Fiscal deficit / GDP	High/Rising	Low/Surplus
External factors (indirect impact on HK economy)		
Credit/GDP gap in globally/regionally important economies	High/Rising	Low
Property valuation indicators (price/rent, price/income, average LTV ratios, etc.) in globally/regionally important economies	High/Rising	Low

[9] Earnings before interest, taxes, depreciation and amortisation.

[10] E.g. as defined in M. Drehmann and M. Juselius, "Do debt service costs affect macroeconomic and financial stability?" BIS Quarterly Review, September 2012.

- "looser", meaning that there may be justification for electing to implement a lower applicable JCCyB for Hong Kong than that otherwise signalled by the IRC or, release the buffer fully, where the MA considers that the prevailing circumstances are such that this course of action is appropriate for the purposes of mitigating anticipated adverse effects of system-wide stress on the banking sector (including where any resulting contractionary effects on credit supply might threaten the health of the real economy).

3.5.2 ***Interpreting the Comprehensive Reference Indicators:*** In the context of the macroprudential analysis, the Comprehensive Reference Indicators will need to be interpreted (and selected) in terms of the light that they may shed on:

- the build-up of latent systemic risk within the banking system and the economy more broadly (tending towards supporting buffer build-up), e.g.: credit growth; leverage in the balance sheets of banks and nonbanks in collateralized lending, in derivatives etc.; liquidity; maturity and currency mismatches; levels of interest rate risk and exchange rate risk within banks and nonbanks; asset valuation gaps; and macroeconomic imbalances;

- the industry's need and capacity to raise capital at the relevant time in an orderly fashion, while considering, e.g.: the capacity for retained earnings to be used for building up buffers; the capacity for raising fresh capital from the market; and the degree to which extraordinarily fast credit growth may require a sharper and/or faster CCyB buffer build-up, even if some individual AIs may need to rein in credit (i.e. reducing the denominator instead of increasing the numerator in the CET1/RWA ratio) in order to meet the buffer.

- the prospects for significant deleveraging by the banking sector due to crystallising systemic risk (tending towards supporting buffer release), e.g.:

rising delinquencies, loan loss provisions, asset impairments, model-based risk weights and/or banking sector losses; as well as any corresponding credit and/or economic slowdown or contraction; and

- loss of liquidity or other stresses in the financial markets due to heightened uncertainties about counterparty solvency (limiting the scope for counteracting deleveraging through buffer release), e.g.: spiking risk spreads; collapsing "market-allowed" leverage (e.g. rising haircuts or margins on collateral) and/or funding outflows.

3.5.3 ***Mapping the indicators to a policy stance:*** Table 2 suggests some possible links between the Comprehensive Reference Indicators and the policy stance. However, the interpretation of the different indicators will vary depending on the specific circumstances – including how indicators in the set behave and interact. Hence, it is not possible to establish in any reliable way an unambiguous link between an indicator and an appropriate macroprudential policy stance, and therefore any analysis supporting policy recommendations will necessarily involve the use of judgement.

The "default setting" will be a baseline stance (i.e. of following the signal provided by the IRC) unless strong evidence across the set of indicators, in the direction of either tighter or looser, suggests otherwise.

The decision on the appropriate macroprudential policy stance will also be based on a consideration of the comparative risks attached to erring on one side or the other.

3.6 Deciding on the applicable JCCyB for Hong Kong

3.6.1 ***Guided discretion:*** As discussed above, whilst the IRC is intended to provide a degree of guidance to the MA and to the market, the MA will retain full discretion to set

the applicable JCCyB for Hong Kong different from the IRC if the MA considers that there is strong evidence to support an alternative course of action for the purpose of mitigating system-wide risks or instability within the banking system in Hong Kong. In other words, discretion will be retained to cater for volatile, fast moving and hitherto unforeseen circumstances affecting the local economy, as well as any potential for the quantitative indicators incorporated within the IRC to miss important system-wide risk factors.

3.6.2 ***Preliminary considerations:*** Once a macro-prudential policy stance has been adopted, the MA will consider:

- whether evidence in support of a "tighter" or "looser" stance is sufficiently strong as to warrant deviation from the IRC (by determining a different course of action with regard to the activation, increase, decrease or release of the applicable JCCyB for Hong Kong);
- what additional tools (if any) could or should appropriately be deployed to support or complement the effects of the applicable JCCyB (see paragraph 3.6.6 below); and
- whether, given the circumstances, the MA should elect not to take any immediate action but to wait upon which updated information is available for review to decide whether action is warranted.[11]

3.6.3 ***Decision when adopting a "baseline" macroprudential policy stance:*** If a "baseline" macroprudential policy stance is adopted, then the CCyB decision will be in line with the policy signalled by the IRC as noted in paragraph 3.2.1 above.

3.6.4 ***Decisions when adopting a "tighter" policy stance:*** If a "tighter" macroprudential policy stance is adopted:

[11] In so far as they may help obtain a more complete or accurate view of relevant circumstances, the above considerations and related discussions could also lead to a revision of the previously determined macroprudential policy stance.

- ***In usual circumstances:*** A "tighter" stance may warrant a higher applicable JCCyB level, a faster build-up or a slower decrease relative to the indicative level signalled by the IRC; and/or an advance announcement period for the applicable JCCyB increase shorter than 12 months (but not shorter than 6 months).

- ***Setting an applicable JCCyB higher than 2.5% in extraordinary circumstances:*** As set out in BCR §3Q(7) and (10), the MA may, following consultation with the Banking Advisory Committee, the Deposit-taking Companies Advisory Committee, The Hong Kong Association of Banks and The DTC Association, announce an applicable JCCyB for Hong Kong at a level in excess of 2.5% if (i) the applicable JCCyB for Hong Kong at a level of 2.5% has been in effect for a period of not less than 6 months; (ii) the MA is satisfied on reasonable grounds that the system-wide risks have not receded to any material extent during that period; and (iii) the MA considers it necessary to set the applicable JCCyB for Hong Kong in excess of 2.5% to protect AIs from the expected consequences of the build-up of system-wide risks in Hong Kong. Without limiting the discretion provided by BCR §3Q(7), the MA intends to use the following guidelines in determining whether conditions (ii) and (iii) above are fulfilled, before considering whether the use of that discretion is necessary:

  - The BCRG and PBG (see paragraph 3.2.2 above) both indicate a CCyB higher than 3.5% or either of them indicates a CCyB higher than 4.5%, after both have been above 2.5% for at least two quarters since a 2.5% applicable JCCyB for Hong Kong last became effective; and

  - The Comprehensive Reference Indicators unambiguously confirm the picture provided by the Guides and the need to additionally bolster AIs' resilience for the purpose of protecting AIs and the Hong Kong banking system from the

expected consequences of the build-up of system-wide risks in Hong Kong. In this context, the MA will consider the pace of aggregate credit growth (as one of the proxy measures for the system-wide risks) to be excessive if the most recent year-on-year rate of growth of the aggregate credit measure used to calculate the credit/GDP gap still exceeds 15%.

3.6.5 ***Decisions when adopting a "looser" macro-prudential policy stance:*** If a "looser" macro-prudential policy stance is adopted, it may warrant a lower applicable JCCyB level, a slower build-up[12] or a faster decrease relative to the indicate level signalled by the IRC, or conceivably if other indicators convincingly show that the banking system is in fact encountering, or is about to encounter, significant stress (in spite of the IRC signals), announcing an applicable JCCyB for Hong Kong lower than the IRC, or at the extreme, a complete release of the applicable JCCyB for Hong Kong, while explaining the MA's views on the system-wide risks.

3.6.6 ***Deployment of other macroprudential policy instruments:*** The use of the CCyB is only one of a variety of macroprudential measures which may be deployed with a view to enhancing banking sector resilience and containing systemic risk. The MA may at the same time deploy other alternative or complementary measures designed to achieve the MA's objectives in promoting the general stability and effective working of the local banking system. Examples of such complementary measures might include caps on the loan-to-value ("LTV") ratio and the debt servicing ratio ("DSR") in respect of residential mortgage loans as well as sectoral risk weight floors.

3.7 Public communication regarding the applicable JCCyB for Hong Kong

[12] However, the advance announcement period for an applicable JCCyB increase cannot be extended beyond 12 months.

3.7.1 ***Publication of information relating to the applicable JCCyB for Hong Kong:*** The MA will post on the HKMA website the following information in respect of the applicable JCCyB for Hong Kong:

- The latest extant and announced applicable JCCyB
- Historical time series of:
  - The applicable JCCyB in effect as of the respective quarter end
  - The applicable JCCyB announced in each quarter, if any (level and date effective)
  - The IRC calculated for the purpose of the CCyB decision in each quarter
  - The BCRG and the PBG (idem)
  - The Composite CCyB Guide (idem)
  - The Positive Neutral CCyB
  - The "primary gap indicators" used as inputs for the BCRG and the PBG
- The current list of Comprehensive Reference Indicators
- The announcements referred to in paragraphs 3.7.2 and 3.7.3 below

3.7.2 ***Announcement of CCyB decisions in line with the IRC:*** If a decision by the MA to change the applicable JCCyB for Hong Kong is consistent with the IRC, the MA will include in the announcement of the applicable JCCyB for Hong Kong the following information:

- The announced applicable JCCyB.
- In the case of any decision to increase the applicable JCCyB, the period of time for the decision to take effect, which would normally be 12 months in cases where the buffer decision follows the IRC;

- In the case of any decision to reduce the applicable JCCyB, any minimum period during which it would be the MA's intention not to raise the applicable JCCyB.

- A summary description of how the signals provided by the IRC framework influenced the CCyB decision.

- If the MA considers it useful or appropriate, a brief explanation of why the Comprehensive Reference Indicators (discussed in subsection 3.4 above) or other available information considered by the MA do not, in the view of the MA, warrant any deviation from the IRC.

3.7.3 ***Announcement of CCyB decisions deviating from the IRC:*** If the MA's decision regarding the CCyB deviates from that signalled by the IRC (except in the case that the applicable JCCyB for Hong Kong remains unchanged and reasoned justification for the deviation from the IRC is similar with that of the prior CCyB announcement), the MA will make an announcement regarding the applicable JCCyB for Hong Kong including the following information:

- The announced applicable JCCyB.

- In the case of any decision to increase the level of the applicable JCCyB, the period of time for the decision to take effect, which may be a period between 6 and 12 months. It would normally be 12 months unless there are serious concerns about system-wide risks over the shorter-term, in which case an advance announcement period of less than 12 months (but not less than 6 months) may be set.

- In the case of any decision to reduce the applicable JCCyB to a level different from that indicated by the IRC, any the minimum period during which it would be the MA's general intention not to raise the applicable JCCyB.

- Where relevant, a description of any additional macroprudential policy measures that are being adopted jointly with the decision on applicable JCCyB currently being announced.
- A summary description of the signals provided by the IRC framework.
- An outline of the factors considered by the MA in reaching the MA's decision to deviate from the IRC and the rationale for that decision.
- In the case of any decision to raise the applicable JCCyB above 2.5%, an analysis demonstrating that the conditions specified in BCR §3Q(7) are fulfilled (see also paragraph 3.6.4 above).

3.7.4 ***The Half-Yearly Monetary and Financial Stability Report:*** The Half-Yearly Monetary and Financial Stability Report may contain a discussion of decisions relating to the applicable JCCyB for Hong Kong in the broader context of the MA's analysis of financial stability issues and corresponding policies. The report can thus provide a background that can help the industry understand the MA's macroprudential policies more broadly.

3.7.5 ***Provision of information on the applicable JCCyB for Hong Kong to other jurisdictions through the BIS:*** As and when the MA makes any decision to change the applicable JCCyB for Hong Kong, the MA will promptly inform the BIS of the MA's decision so that the BIS can publish the applicable JCCyB for Hong Kong on its website and the home supervisory authorities of AIs and other banks incorporated outside Hong Kong can take the necessary steps to ensure that their financial institutions take the applicable JCCyB for Hong Kong set by the MA into account in calculating their firm-specific CCyB in line with the Basel Committee standard of jurisdictional reciprocity (see subsection 4.1 below).

4. The MA's approach to recognising overseas JCCyB

4.1 The Basel Committee standard of jurisdictional reciprocity

4.1.1 ***Purpose:*** The objectives of the CCyB could be significantly undermined if, on the one hand, an AI's own specific CCyB did not take into account the AI's overseas exposures and, on the other hand, the applicable JCCyB for Hong Kong only applied to locally-incorporated AIs whilst overseas incorporated banks were free to continue lending in or into Hong Kong without being subject to the restrictions attached to the local CCyB.

4.1.2 ***Basic principles:*** The MA will apply the standards for jurisdictional reciprocity set by the Basel Committee in the expectation that authorities in other jurisdictions[13] will do the same. According to these standards:

- Home authorities should not apply to the banks they supervise a lower jurisdictional CCyB in respect of a foreign jurisdiction than that set by the national authority in that jurisdiction. However, this required reciprocity only extends up to a jurisdictional CCyB of 2.5%.
- Conversely, a home authority could require its banks to observe a higher jurisdictional CCyB in respect of a foreign jurisdiction than the jurisdictional CCyB set by the relevant authority in that foreign jurisdiction if it considers the level of the latter CCyB to be too low. This includes the case where a given jurisdiction does not operate and publish CCyB requirements; in such circumstances the Basel Committee standard provides that home authorities should be free to set their own CCyB requirements in respect of such jurisdiction.

The following subsections describe the MA's approach to implementing the above principles.

[13] This includes mainly Basel Committee member jurisdictions, but it is also the case that most other jurisdictions around the world tend to apply Basel Committee standards.

4.2 Recognition of other jurisdictions' CCyB decisions

4.2.1 ***Tacit recognition as the normal case:*** Absent extraordinary circumstances (see paragraph 4.2.2 and subsection 4.3 below) the MA is unlikely to consider himself/herself to be in a better position than the relevant authority in an overseas jurisdiction to assess system-wide risks in that jurisdiction. Therefore, absent any notification by the MA indicating otherwise, AIs should adopt, for the purposes of determining the applicable JCCyB in respect of a jurisdiction outside Hong Kong, the level of the JCCyB and the date for its becoming effective as announced by the relevant authority of the respective jurisdiction, subject to the following (see BCR §3P(3)):

- If the JCCyB as announced by the relevant authority is above 2.5%, AIs shall adopt an applicable JCCyB of 2.5%;
- If the advance announcement period in respect of any increase (including an increase from 0%) is less than 6 months, AIs may instead adopt an effective date falling 6 months after the date of the announcement by the relevant authority concerned; and
- If the advance announcement period in respect of any increase (including an increase from 0%) is more than 12 months, AIs must instead adopt an effective date falling not more than 12 months after the date of the announcement by the relevant authority concerned.

4.2.2 ***Recognition of JCCyB in excess of 2.5%:*** As set out in BCR §3P(3)(c) and (4)(b), if the JCCyB as announced by the relevant authority in an overseas jurisdiction is in excess of 2.5%, the MA, may by notice in writing, given to all AIs require them to adopt the ratio announced by the relevant authority. The MA may take this route if the MA reasonably considers that a JCCyB in excess of 2.5% is necessary to adequately bolster AIs' resilience in view of the risks posed to the AIs by reason of the system-wide risks in that jurisdiction. Without limiting the discretion provided by BCR §3P(4), the MA intends to

apply the following criteria to guide the use of this discretion:

- The MA will need to be satisfied that analysis (provided by the relevant authority in that jurisdiction or conducted by the MA himself/herself) of the system-wide risks in that jurisdiction strongly supports such an applicable JCCyB; and
- The MA's assessment of AIs' exposures in the relevant overseas jurisdiction supports the conclusion that failing to require AIs to comply with that applicable JCCyB would subject AIs, and ultimately the Hong Kong banking system, to significant additional risk by reason of the system-wide risks in that jurisdiction.

In any case where the JCCyB recognised by the MA is higher than 2.5%, the MA will publicly announce this decision, with the justification for it.

4.2.3 ***Information on other jurisdictions' JCCyB:*** AIs are primarily responsible for monitoring JCCyB and their effective dates in the jurisdictions to which they have private sector credit exposure in order to ensure correct calculation of their AI-specific CCyB. For this purpose, AIs can source the information from the dedicated page on the BIS website listing all extant and announced JCCyB and their effective dates in Basel Committee member jurisdictions. The HKMA will publish, on its website, information on the JCCyB in overseas jurisdictions that has been specifically communicated by the relevant authorities in those jurisdictions to the HKMA.

4.3 Application of exceptional treatment in extraordinary circumstances

4.3.1 ***Applying a higher JCCyB and/or shorter advance announcement period:*** The MA may by notice in writing given to all AIs (see BCR §3P(11)) require AIs to adopt in respect of an overseas jurisdiction:

1. where the JCCyB as announced by the relevant authority in that jurisdiction is lower than 2.5%, a higher applicable JCCyB (of not more than 2.5% of RWA) than the JCCyB set by the said relevant authority (see BCR §3P(3)(b) and (4)(a));[14] and/or

2. a shorter advance announcement period (of not less than 6 months) for an announced applicable JCCyB increase to become effective than the period determined by the relevant authority in that jurisdiction (see BCR §3P(5)(b) and (9)),

where the MA reasonably considers that:

i. the JCCyB has been set by the relevant authority at a level (including where the rate is zero because no JCCyB has been set) which is insufficient to adequately bolster AIs' resilience in view of the risks posed to AIs by reason of the system-wide risks in that jurisdiction; and/or

ii. with a view to ensuring adequate resilience of AIs, or the effective working of the banking system in Hong Kong, the effective date of the applicable JCCyB should be different from that of the JCCyB as announced by the relevant authority of the jurisdiction concerned.

Without limiting the discretion provided by BCR §3P(4) and (5)(b), the above might be the case e.g. if:

A. with respect to i, the relevant authority in the respective jurisdiction has set a JCCyB that is lower than that corresponding to the BCRG calculated for that jurisdiction, and the MA does not see sufficient justification for the relevant authority doing so. In such a case, the MA could decide to apply an applicable JCCyB in respect of the respective jurisdiction that corresponds to the Basel Committee Common Reference Guide calculated for that jurisdiction; or

[14] See paragraph 4.2.2 for the case where the MA may recognise a JCCyB above 2.5%.

B. with respect to i and/or ii, the relevant authority in the respective jurisdiction has set a JCCyB that is not lower than that corresponding to the BCRG calculated for that jurisdiction and an advance announcement period that is not longer than 12 months, but the MA's analysis of available relevant information strongly suggests that the system-wide risks affecting AIs' exposures in the respective jurisdiction is higher than suggested by the indicators and/or analysis used by the relevant authority in that jurisdiction in setting its JCCyB and/or the date for its becoming effective.[15]

The MA will consider on a case-by-case basis whether to consult with the industry Associations in respect of CCyB decisions under this paragraph, depending on factors such as the insights the industry could offer based on business/exposure levels in the jurisdiction concerned, the magnitude of the difference between the MA's proposed buffer and that prevailing in the jurisdiction and the concerns underlying the consideration by the MA of the need for a higher applicable JCCyB for the relevant jurisdiction.

4.3.2 ***Applying a longer advance announcement period.*** The MA may, in respect of an overseas jurisdiction, by notice in writing given to all AIs (see BCR §3P(11)), determine for application by AIs a longer advance announcement period (of not more than 12 months and, in the case of an applicable JCCyB increase, not less than 6 months) for an announced applicable JCCyB to become effective than the period determined by the relevant authority in that jurisdiction, where the MA reasonably considers that, with a view to ensuring adequate resilience of AIs, or the effective working of the banking system in Hong Kong, the effective date of the applicable JCCyB should be different from that of the

[15] The likelihood of the actual application of the course of action described in case B is very remote. It would only be in rare circumstances that the MA would likely consider that he/she had a sufficiently strong case for overriding CCyB decisions in overseas jurisdictions in the circumstances described in paragraph B, given that the information available to the national authorities in the relevant jurisdictions is likely to be greater than that available to the MA.

JCCyB as announced by the relevant authority of the jurisdiction concerned (see BCR §3P(5)(b) and (9)).

Without limiting the discretion provided by BCR §3P(5)(b), the above might be the case e.g. if:

A. the relevant authority in the respective jurisdiction has set a date for an announced JCCyB to become effective that is less than 12 months after the announcement, and the MA does not see sufficient justification for the relevant authority doing so; and/or

B. the MA's analysis of available relevant information suggests that systemic conditions in Hong Kong (e.g. AIs' capacity to adjust without unduly impairing credit provision in Hong Kong) call for a longer advance announcement period.

Annex 1 – List of Some Important Abbreviations

applicable JCCyB	applicable JCCyB ratio as defined in the BCR
AI	locally incorporated Authorized Institution
AI-specific CCyB	CCyB ratio as defined in the BCR
BCRG	Basel Common Reference Guide
Basel Committee	Basel Committee on Banking Supervision
BCR	Banking (Capital) Rules
BDR	Banking (Disclosure) Rules
BIS	Bank for International Settlements
BO	Banking Ordinance
CB	Capital Conservation Buffer
CCyB	Countercyclical Capital Buffer
$CCyB_{COMPOSITE}$	Composite CCyB Guide
CET1	Common Equity Tier 1
DSR	debt servicing ratio
D-SIB	domestic Systemically Important Authorized Institution
GAP_{CREDIT}	credit/GDP Gap
$GAP_{PROPERTY}$	property price/rent Gap
GDP	gross domestic product
G-SIB	global Systemically Important Authorized Institution
HKSAR	the Hong Kong Special Administrative Region
IRC	Initial Reference Calculator
JCCyB	JCCyB ratio as defined in the BCR
LTV	loan-to-value
MA	Monetary Authority
PBG	Property Buffer Guide
RWA	risk-weighted amount

Annex 2 – Calculating the Basel Common Reference Guide for Hong Kong

The MA will follow the Basel Committee guidance to calculate the Basel Common Reference Guide (BCRG) for Hong Kong except that the 2.5% cap is applied to the Composite CCyB Guide instead. The calculation of BCRG involves two steps: (i) calculating the credit/GDP gap with Hong Kong data; and (ii) mapping the credit/GDP gap into the BCRG.

Credit/GDP Gap (GAP_{CREDIT})

A gap indicator measures the difference between a variable and its long-term trend. The usefulness of a gap indicator is based on the historical observation that a rapid and significant deviation from the long-term trend tends to be unsustainable.

The "credit/GDP gap" is defined as the absolute difference between the credit/GDP ratio and its long-term trend at a certain point in time.

Measuring "credit"

The Basel Committee recommends a broad definition of credit that will capture all sources of debt funding to the non-financial private sector. This definition includes credit provided by the non-bank financial sector and funding raised abroad but excludes public sector debt and interbank debt.

In implementing the BCRG in Hong Kong, "credit" is defined as the aggregate stock of "total loans and advances" at the Hong Kong offices of AIs (which excludes credit to banks), after deducting the item "other loans for use outside Hong Kong" as published monthly in the Monthly Statistical Bulletin on the HKMA website.

Trade finance loans are not excluded from the above definition although some of them are used to finance merchandise trades that do not touch Hong Kong. Even in such cases where the underlying trade does not physically touch Hong Kong, it is practically not possible to ascertain that the proceeds of a trade finance loan are indeed used outside Hong Kong. As the Basel Committee recommends using the broadest measure possible when in doubt, trade finance loans will not be excluded from the definition of "total loans and advances". This contrasts with the deduction of "other loans for use outside Hong Kong", for which the location of "use" is more clearly defined.

At this stage other forms of private credit such as direct cross-border bank lending, corporate bonds and commercial paper are not included in the private sector credit measure, because: (i) the sizes of these markets are much smaller

relative to the amount of private credit intermediated by Hong Kong's banking sector; and (ii) the MA considers that the small incremental benefit of including them is outweighed by the benefit of keeping the definition simple and stable. However, the MA will monitor non-bank sources of credit to the private sector, so as to determine whether they might become sufficiently important at some future point to be included in the definition of credit for CCyB purposes.

Measuring GDP

GDP is defined as the nominal quarterly GDP figure, seasonally-adjusted (based on the X-12 ARIMA method, as used by the Census and Statistics Department of the Government of the HKSAR) and then annualised. The sum of quarterly GDP figures in the trailing four quarters is monitored as well, to identify any potential anomalies that may introduce "noise" into the annualised GDP estimate based on the most recent quarter.

Although the credit measure could be updated on a monthly basis, the quarter-end (March, June, September, December) credit figures will be matched with the corresponding quarterly GDP figures to calculate the credit/GDP ratio.

The long term trend of the credit/GDP ratio

The long-term trend of the credit/GDP ratio is identified strictly following the Basel guidance, i.e., using a one-sided Hodrick–Prescott filter with λ=400,000, which has been shown to work reasonably well across jurisdictions in timing credit cycles.

Using the credit/GDP gap, i.e., the difference of the ratio from its long-term trend, to measure excess credit growth, has the benefit of largely removing the influence of any secular financial deepening that is not associated with excessive credit growth, as the deepening should be captured by an upward-sloping trend.

The Basel Common Reference Guide

The BCRG is determined by the credit/GDP gap using the following formula, bounded by a minimum of 0%.

$$BCRG = 0.3125 \cdot (GAP_{CREDIT} - 2\%)$$

The Basel Committee has chosen the parameters of the formula so that BCRG is 0% when GAP_{CREDIT} is 2%, the BCRG is 2.5% when GAP_{CREDIT} is 10%, and the BCRG increases linearly with GAP_{CREDIT}. [16]

[16] The HKMA consider it more appropriate not to cap the BCRG but to apply the cap of 2.5% to the Composite CCyB Guide given that the BCRG is only one of the two primary gap indicators used in Hong Kong (see Annex 3).

Annex 3 – Calculating the Composite CCyB Guide

Unlike the BCRG (see Annex 2), which is determined solely by the credit/GDP gap, the Composite CCyB Guide developed for Hong Kong will be determined by the property price/rent gap and the credit/GDP gap. Once the BCRG has been calculated, the remaining calculation involves three steps, namely (i) calculating the property price/rent gap; (ii) mapping the property price/rent gap into a PBG; and (iii) calculating the Composite CCyB Guide.

Property Price/Rent Gap ($GAP_{PROPERTY}$)

The "property price/rent gap" is the relative difference between the residential price/rent ratio and its long-term trend, i.e. the absolute difference expressed as a percentage of the trend.[17]

The price/rent ratio is defined as the ratio of the private domestic property index over the private domestic property rental index, published by the Rating and Valuation Department of the Government of the HKSAR. The two index series are available on a monthly frequency, but the price/rent gap is calculated with quarter-end data points (March, June, September and December) only, consistent with the credit/GDP ratio time series.

The long-term trend of the price/rent ratio is identified based on the same method as that used for the credit/GDP ratio (see Annex 2). The same Hodrick-Prescott filter parameter of λ=400,000 is chosen because it is observed that in Hong Kong the average length of the property price cycle is similar to that of the credit cycle, and both are substantially longer than the business cycle.

Although both prices and rents can be cyclical, they respond to different demand/supply dynamics, with prices having significantly more room for deviating from fundamentals over sustained periods. Therefore, the property price/rent gap is considered to be an arguably better indicator of property price bubbles than the property price gap alone.

Property Buffer Guide

Similar to the Basel Common Reference Guide, the Property Buffer Guide (PBG) is determined by the price/rent gap using the following formula, bounded by a minimum of 0%.

[17] This approach of normalising the property price gap by the trend is followed also e.g. in M. Drehmann, C. Borio, L. Gambacorta, G. Jiménez and C. Trucharte, "Countercyclical capital buffers: exploring options", *BIS Working Papers* No. 317, July 2010.

$$PBG = 0.3125 \cdot (GAP_{PROPERTY} - 2\%)$$

The parameters of the formula are chosen such that PBG is 0% when $GAP_{PROPERTY}$ is 2%, PBG is 2.5% when $GAP_{PROPERTY}$ is 10%, and PBG increases linearly with $GAP_{PROPERTY}$.[18]

The Composite CCyB Guide ($CCyB_{COMPOSITE}$)

The Composite CCyB Guide (bounded by an upper limit of 2.5%), as described by the formula below, is the geometric average compound rate of (i) the Basel Common Reference Guide (BCRG) computed according to Annex 2; and (ii) the Property Buffer Guide (PBG) computed according to this Annex.

$$CCyB_{COMPOSITE} = \text{Min}\left[\, 2.5\% \,,\, \sqrt{(1 + BCRG) \cdot (1 + PBG)} - 1\right]$$

The formula is designed and calibrated in such a way that the buffer will be signalled by either or both guides. By combining information on the degree to which both credit growth and property market valuations deviate from their respective long-term trends, the Composite CCyB Guide reflects both credit/GDP and property price/rent gaps in signalling the build-up of systemic risk and the probability of a banking crisis as compared with the credit/GDP gap alone.[19] This feature makes the Composite CCyB Guide particularly useful for signalling the need for CCyB build-up during most of the expansive phase of the credit cycle in an economy like Hong Kong's, which has been prone to pronounced property price cycles. However, evidence across most developed European countries shows that property prices have historically tended to peak around 2 years before a crisis.[20] The MA will therefore interpret the Composite CCyB Guide with special caution when it signals the reduction of the applicable JCCyB for Hong Kong in a

[18] The HKMA consider it more appropriate not to cap the PBG but to apply the cap of 2.5% to the Composite CCyB Guide given that the PBG is only one of the two primary gap indicators used in Hong Kong.

[19] See e.g. C. Borio and P. Lowe, "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers* No. 114, July 2002.

[20] See e.g. M. Drehmann, C. Borio, and K. Tsatsaronis, "Anchoring Countercyclical Capital Buffers: The Role of Credit Aggregates," *BIS Working Papers* No. 355, November 2011 and M. Drehmann and M. Juselius, "Evaluating early warning indicators of banking crises: Satisfying policy requirements", *BIS Working Papers* No. 421, August 2013. However, even if property prices peak early, they tend to start falling from so high a level that it will likely take them some time before they fall deep enough for the Composite CCyB Guide (driven by both the credit/GDP gap and the property price/rent gap) to signal a significant reduction in the CCyB. Moreover, to the extent that in Hong Kong rents are more flexible than in most other countries, the price/rent ratio in Hong Kong will tend to fall more slowly than if rent levels were rigid. Therefore, the use of a property price/rent gap in the PBG (in addition to the latter's combination with the BCRG driven by the credit/GDP gap in the Composite CCyB Guide) could reduce the likelihood of too early a signal for CCyB reduction.

situation where property prices turn downwards while the credit/GDP gap remains large and there are no indications of banking system stress.

The Composite CCyB Guide formula is sufficiently flexible to be modified in the future to incorporate "richer" information. For example:

i. the equal weights used in calculating the geometric average of the compound rate may be adjusted based on a better understanding of the interaction between the two guides; and

ii. the inclusion of the price/rent ratios of non-residential properties (e.g. private office, retail, and flatted factory) and the setting of weights for these property types according to their relative importance in Hong Kong may be considered.

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