Special Feature B: Third country monitoring for the purpose of the CCyB[7]

Overview of third country monitoring by the ESRB

This special feature provides an overview of some of the approaches taken by the ESRB to monitor the financial stability vulnerabilities of third countries identified as material from a European Economic Area (EEA) perspective.[8] The annual monitoring exercise identifies financial stability risks in third countries which could affect the resilience of the EU banking system due to potential losses on its exposures. The monitoring exercise may result in the ESRB issuing warnings and recommendations for the EU to take macroprudential measures, such as the activation of a countercyclical capital buffer (CCyB) for third country exposures, or other similar measures. The ESRB collaborates closely with the ECB and EU supervisory authorities to avoid a double-counting of risks should the vulnerabilities identified be of a non-systemic nature, and therefore fall under the remit of microprudential supervisors.

B.1 Regulatory framework and basis for monitoring

The ESRB assesses macroprudential risks stemming from developments within the Union as well as in third countries. It is responsible for the macroprudential oversight of the financial system within the Union in order to contribute to the prevention or mitigation of systemic risks to the financial system[9]. Such risks could arise from cross-border exposures of the Union's banking system to third countries, which might act as a channel for contagion. For example, if not addressed through macroprudential policies implemented by the country in question, excessive credit growth in a third country could lead to large losses for the banking sector within the Union and ultimately pose a threat to its financial stability[10].

The EU capital rules for banks provide for the possibility of setting capital buffer rates for exposures to third countries. National legislation implementing Article 139 of the CRD gives national authorities the right to set a CCyB rate for third countries that domestic banks must apply when calculating their institution-specific CCyB. This right may be exercised when the third country has not set and published a CCyB or the CCyB is deemed insufficient to protect their banks from the risk of excessive credit growth in said country.

A CCyB on third country exposures is intended to protect EU Member States' domestic banks from the losses that can arise from said exposures. Under the Basel III framework, bank-specific capital buffer requirements are calculated based on the geographic location of their

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7 Prepared by Piotr Kornel Kusmierczyk and Juliet-Nil Uraz (ESRB Secretariat); comments by Silviu Oprică (ECB). Based on the work of the Analysis Working Group/Macroprudential Analysis Group (AWG/MPAG) Project Team on Third Country Monitoring. .

8 The CRD IV has been incorporated into the EEA Agreement with effect from 1 January 2020, so from then on a third country is defined as a non-EEA country for the purpose of setting a third-country CCyB. However, **Recommendation ESRB/2015/1** already recommended interpreting a "third country" as any jurisdiction outside the EEA (in Section 2(1)(g)).

9 See **Regulation (EU) No 1092/2010** establishing a European Systemic Risk Board (Articles 3(1) and 3(2)).

10 See Decision **ESRB/2015/3**.

exposures. Setting a CCyB for third countries therefore aims to strengthen the resilience of domestic banks with international exposures.

Articles 138 and 139 of the CRD provide the ESRB with a specific mandate to address risks arising from excessive credit growth in third countries and to ensure a coherent approach for the buffer settings for third countries. Specifically, when actions taken by authorities in a third country are deemed insufficient, the ESRB can act to protect the EU's banking sector from risks stemming from excessive credit growth in that third country. In particular, the ESRB may, by way of a recommendation, provide guidance to designated authorities within the Union on the appropriate CCyB rate for exposures to a third country[11] where a CCyB rate has not been set or where one has been set but it is not sufficient to protect Union institutions. The ESRB is therefore monitoring credit development in third countries and ensuring the coordination of the potential macroprudential EU policy actions.

B.2 The monitoring framework

Identifying third countries that are material for the EU's banking system

The ESRB does not monitor all third countries but only those identified annually as material for the EU's banking system. The ESRB identifies these material third countries on the basis of three exposure metrics: risk weighted assets, original exposure and defaulted exposures in relation to third countries. The main purpose of using a number of metrics is to provide a comprehensive overview of the nature of the exposures to third countries. The ESRB defines a third country as material when exposures of the Union's banking system to that third country are at least 1% for at least one of the above three metrics for a set period of time.[12] The final list of the material countries is subject to the discretionary decision of the ESRB Advisory Technical Committee, which may amend the list, e.g. by adding countries deemed necessary to monitor.

Since 2015, the ESRB has annually revised the list of third countries identified as material for the EU banking sector, based on the size and nature of the exposures of banks which have their head offices in the Union towards these third countries (see Table B.1).[13] As of 2019, the list includes (in alphabetical order) China, Hong Kong, Russia, Singapore, Switzerland, Turkey and the United States of America.[14]

11 See **Recommendation ESRB/2015/1**.

12 Article 4(1) of **Decision ESRB/2015/3** sets out that for either risk weighted assets, original exposure or defaulted exposures "(a) the arithmetic mean of exposures to the third country in the eight quarters preceding the reference date was at least 1% (…) and (b) the exposures in each of the two quarters preceding the reference date were at least 1% (…)"

13 Please see **Decision ESRB/2015/3** and **A Review of Macroprudential Policy in the EU in 2018**, ESRB, April 2019.

14 Please see **List of material third countries**, ESRB, Frankfurt am Main, 25 June 2019.

Table B.1

List of third countries identified as material for the EU banking sector since 2015

Date	Brazil	China	Hong Kong	Russia	Turkey	United States	Singapore	Switzer-land
December 2015	•	•	•	•	•	•		
June 2017	•	•	•	•	•	•	•	•
June 2018	•	•	•	•	•	•	•	•
June 2019	•	•	•	•	•	•	•	•

Source: ESRB

Obtaining a quantitative picture of macro-financial vulnerabilities and excessive credit growth

The third country risk monitoring framework has been developed by the ESRB and the ECB in collaboration with EU national authorities working within a project team under the auspices of the ESRB's Analysis Working Group (AWG) and the ECB's Macroprudential Analysis Group (MPAG)[15]. The framework consists of a quantitative and a qualitative assessment of each third country identified as material. The quantitative assessment provides the initial input for an expert's qualitative analysis and aims to structure the key sources of macro-financial vulnerabilities in relation to a peer group comparison of countries, which may warrant the involvement of the ESRB Assessment Team[16].

The analysis is centred on, while not limited to, credit developments in material third countries. The monitoring aims to analyse the selected countries from a macroprudential perspective to ensure the European Union makes informed decisions when deciding on the potential macroprudential measures it will introduce, such as warnings, recommendations or the activation of CCyB for third country exposures. Following the Basel III guidance for operating the CCyB, the deviation of the credit-to-GDP ratio from its long-term trend (commonly referred to as credit-to-GDP gap or the Basel gap) is one of the lead indicators for assessing the sufficiency of the CCyB rate set by the relevant third country authority. The appropriateness of the CCyB rate is assessed for the purpose of protecting EU institutions from the risks of excessive credit growth in any one third country. Several excess credit metrics and indicators of credit growth levels within the third country are included in the analysis to offset the statistical shortcomings of the Basel gap indicator. In addition, the indicators taken into consideration for the activation of the CCyB by the relevant third country authorities themselves when implementing the CCyB framework in their jurisdictions are also valuable information when available. Any additional indicator used when deciding on the CCyB rate at the domestic level is informative to assess the credit cycle in the relevant third country.

For each third country monitored, a set of relevant macro-financial indicators and their latest developments are also taken into consideration. Informed by the broader ESRB systemic risk monitoring framework, the ESRB Risk Dashboard[17], and the wide range of available literature, the indicators were selected on the basis of three main criteria: (i) the theoretical rationale for their use

[15] Project Team on Third Country Monitoring (3CM): co-chairs Carsten Detken (ECB) and Tuomas Peltonen (ESRB Secretariat); Members: Jorge Galán (Banco de España), Domenic Kellner (ECB), Piotr Kusmierczyk (ESRB Secretariat), Silviu Oprică (ECB), James Owen (Bank of England), Virgilijus Rutkauskas (Bank of Lithuania), Riika Nuutilainen (Bank of Finland) and Juliet-Nil Uraz (ESRB Secretariat).

[16] See Article 6(2)(f) of **Decision ESRB/2015/4**.

[17] See **Risk Dashboard**, ESRB.

as early warning indicators of credit vulnerabilities; (ii) the empirical evidence for their usefulness as early warning indicators of credit vulnerabilities; and (iii) the robustness and availability of data for the countries monitored by the ESRB Secretariat.

The indicators taken into consideration can be classified into five broader categories: (i) the real economy; (ii) market-based; (iii) real estate; (iv) balance sheet; and (v) private sector indebtedness. (i) An overview of the broad macroeconomic environment is obtained by looking at changes to GDP, inflation and the unemployment rate. Information about external sustainability is also given due consideration since exchange rate movements and current account imbalances have been well-documented crisis triggers in the past. (ii) Furthermore, equity price indices and interest rate dynamics are some of the financial market environment indicators that are of interest. (iii) Particular attention is paid to real estate market developments given the importance of this sector in triggering the 2007-08 financial crisis. The analysis is complemented by (iv) several banking sector indicators (v) and indicators relating to private sector indebtedness designed to identify any build-up in vulnerabilities.

The analysis involves the consultation of various data sources. Supervisory data provides information on the nature and the concentration of EU banks' exposures towards third countries. In particular, the ESRB asks for access to the supervisory data collected by the European Banking Authority (EBA) in accordance with Decision EBA/DC/2015/130, aggregated to country level, for the purpose of identifying material third countries in accordance with Decision ESRB/2015/3. As regards macro-financial indicators, national sources are consulted first if and when available. International organisations (e.g. Bank for International Settlements (BIS), International Monetary Fund (IMF) and World Bank) act as additional significant data sources, while market intelligence providers provide valuable data on volatile indices.

Macro-financial and credit indicators used for the quantitative assessment

- Credit dynamics: year-on-year (y-o-y) nominal broad credit growth, the Basel gap, broad credit to private sector as a percentage of GDP(1Y change), bank credit to private sector as a percentage of GDP (1Y change), credit to non-financial corporations as a percentage of GDP (1Y change), household credit as a percentage of GDP (1Y change);
- Macroeconomic environment: real GDP (y-o-y growth), inflation rate, unemployment rate, real effective exchange rate (REER) (y-o-y growth);
- Financial markets data: nominal equity price index (y-o-y growth), nominal long-term interest rate;
- Real estate market: nominal residential real estate price (y-o-y growth), nominal commercial real estate price (y-o-y growth);
- Banking sector: leverage ratio, CET1 ratio, liquid assets to short term liabilities, return on assets, deposit-to-loan ratio;
- Private sector indebtedness: household debt as a percentage of GDP, non-financial corporate debt as a percentage of GDP, public sector debt as a percentage of GDP.

Putting the latest developments observed into historical perspective

The analysis is extended by a standardised risk assessment methodology based on two key components: (i) an excess credit growth metric; and (ii) a composite indicator aiming to capture macroeconomic imbalances which may be linked to unsustainable developments. The split is justified by the need to account for substitution effects that may otherwise occur in linear aggregation models. This makes it possible to identify financial stability risks more precisely and to obtain an insight into the appropriate policy action required in accordance with the legal texts. The design of the composite indicator has been informed by the ECB's newly-developed domestic systemic risk indicator (d-SRI)[18]. The sub-components of the composite indicator have been selected on the basis of their signalling power as assessed in the literature, their availability and the frequency and timeliness of their reporting.

This two-dimensional approach is represented in the form of a colour-coded risk matrix. The heat map generated identifies four zones based on whether excessive credit and/or abnormal macro-financial vulnerabilities are detected (see Chart B.1). The thresholds delimiting each zone are calibrated using percentiles of the historical cross-country distributions of the two components. In other words, for each material third country, the last available observation of the credit metric and of the composite indicator is put into perspective with the distribution of these two components over time and across similar countries. A threshold defined as the X^{th} percentile of the historical distribution of the variable Y means that X% of the historical observations of this variable are below or equal to this threshold. Crossing such a threshold can therefore be interpreted as reflecting "abnormal" times or "higher than usual" vulnerabilities.

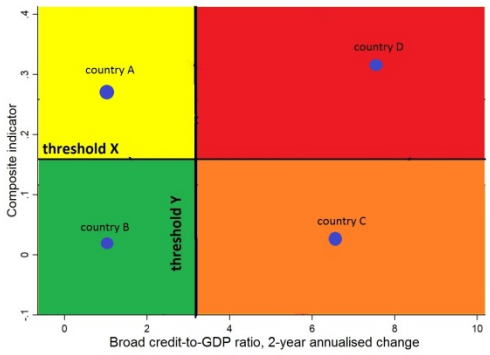
- The **green area** reflects situations where no significant excess credit or macro-financial imbalances have been detected;
- The **yellow area** reflects situations where credit is not seen as excessive but other imbalances captured by the composite indicator are flagged as significant. This scenario warrants closer qualitative investigation into whether the detected macro-financial vulnerabilities are a risk to the EU;
- The **orange area** reflects situations where credit growth is seen as excessive while other macro-financial imbalances are not at a significant level. This scenario, together with input from the qualitative analysis, would support the decision to activate the Assessment Team;
- The **red area** reflects situations where both excess credit and macro-financial imbalances have been identified. This scenario provides stronger evidence than the orange area of the existing imbalances in the material third country and of the risk to exposed EU banking sectors; together with input from the qualitative analysis, this would support the decision to activate the Assessment Team.

[18] Developed in line with insights from Detken, C., Fahr, S. and Lang, J.H., (2018) in "**Predicting the likelihood and severity of financial crises over the medium term with a Cyclical Systemic Risk Indicator**", Special Feature B, *Financial Stability Review*, May.

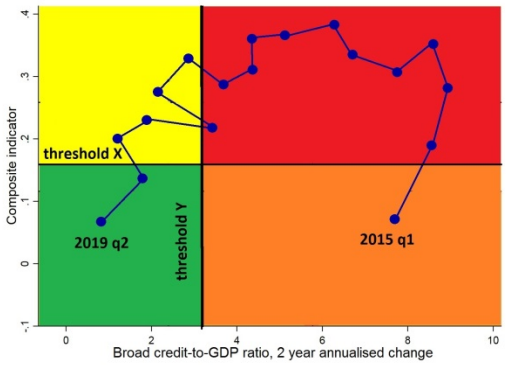
Chart B.1

Methodology for colour-coded risk matrices and hypothetical examples

Overview of several third countries at a given point in time



Change over time for one country



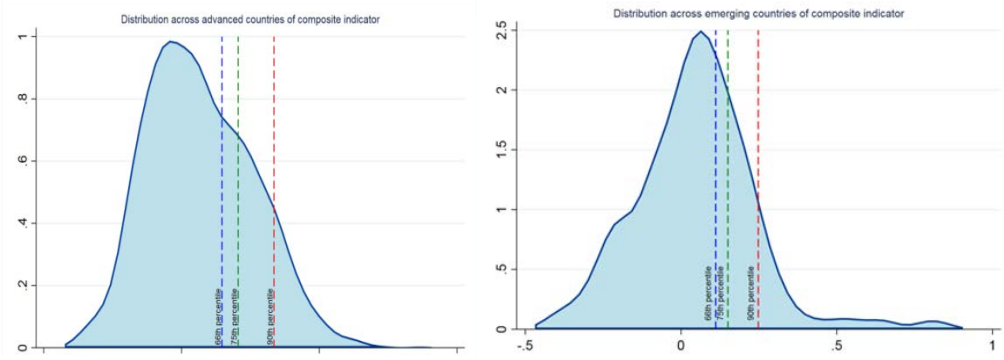
Source: ESRB Secretariat.

Thresholds and their calibration

The thresholds added to each scatter plot are calibrated using the empirical cross-country distributions specific to each of the two categories. Baseline calibrations are done using the 75th percentile. The 66th and 90th percentile thresholds are also added, however, to provide a measure of statistical certainty of the standardised risk identification. For emerging countries, taking into account the more volatile series and potential data quality issues, the coloured regions for the composite indicator are determined by the 66th percentile instead of the 75th.The 75th and 90th percentile dashed lines are nevertheless also presented as confidence intervals (see Chart B.2).

Chart B.2

Cross-country empirical distribution and calibration of the thresholds



Source: ESRB Secretariat

A broad set of countries has been taken into consideration to obtain the pooled cross-country distribution on which the thresholds are calibrated (see Table B.2). For the advanced economies pool, the countries have been selected using the IMF's advanced country classification[19] by excluding EEA Member States and applying a constraint that their 2018 share in world GDP at purchasing power parity (PPP) is above 0.05%. Similarly, for emerging market

[19] Advanced economies are defined on the basis of the advanced country classification in **"Groups and Aggregates information"**, *World Economic Outlook*, International Monetary Fund, October 2018.

economies, a non-advanced and non-low income developing countries group[20] has been defined on the basis of the IMF's classification. Further constraints have been implemented to exclude countries that are experiencing armed conflicts or war,[21] and countries whose 2018 share of world GDP at PPP is below 0.05%.

Table B.2
Sets of countries used for pooled cross-country distribution calibration

Set of advanced countries	Set of emerging countries
Australia, Canada, Hong Kong, Israel, Japan, Korea, Macao, New Zealand, Singapore, Switzerland, Taiwan and the United States	Algeria, Angola, Argentina, Azerbaijan, Bahrain, Belarus, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, Guatemala, India, Indonesia, Iran, Jordan, Kazakhstan, Kuwait, Malaysia, Mexico, Morocco, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Qatar, Russia, Saudi Arabia, Serbia, South Africa, Sri Lanka, Thailand, Tunisia, Turkey, Turkmenistan, Ukraine, United Arab Emirates, Uruguay and Venezuela

Source: ESRB Secretariat.

Differentiating the monitoring methodology between advanced and emerging third countries

The indicators, which are taken into consideration on the basis of their respective degree of importance in the risk assessment, differ between advanced and emerging economies to take into account the potential differences of the risk channels at play. The differentiation of the resulting analysis makes it possible to examine the distinct economic and financial developments of the two groups. Past experience and the literature have shown that while emerging market economies (EMEs) typically exhibit fiscal, balance of payment or macroeconomic imbalance issues, advanced economies tend to be less volatile but nevertheless build-up financial imbalances over a longer time period. For instance, the specific EME risk assessment would pay greater attention to vulnerabilities resulting from exchange rate misalignments, since the sudden stop of capital inflows has historically been a major threat to financial stability in emerging countries. An early warning model specific for emerging countries which takes into account different types of crisis (e.g. currency, sovereign or systemic banking crisis) is therefore integrated in the monitoring framework. Lastly, the composite indicator of the standardised risk assessment methodology as well as the thresholds delimiting the colour-coded heat maps are also specific to both advanced and EMEs.

Design of the composite indicator

Composite scores for both advanced and emerging countries are calculated as weighted averages of the components at a given point in time. In both cases, the components (see Table B.3) are standardised by subtracting the sample mean and dividing by the sample standard deviation. For the current account to GDP ratio, the mean is set at zero to make it possible to obtain a clear economic interpretation of the surplus/deficit concept. Both the sample mean and the sample deviation are calculated for a broad set of advanced and emerging economies.

[20] Please refer to the October 2018 issue of the IMF's World Economic Outlook (Groups and Aggregates information), and to the report entitled "**Macroeconomic Developments and Prospects in Low-Income Developing Countries**", IMF, March 2018.

[21] As determined by the US State Department's 2018 Level 4 risk classification: "Do not travel".

Table B.3

Components of the composite indicator

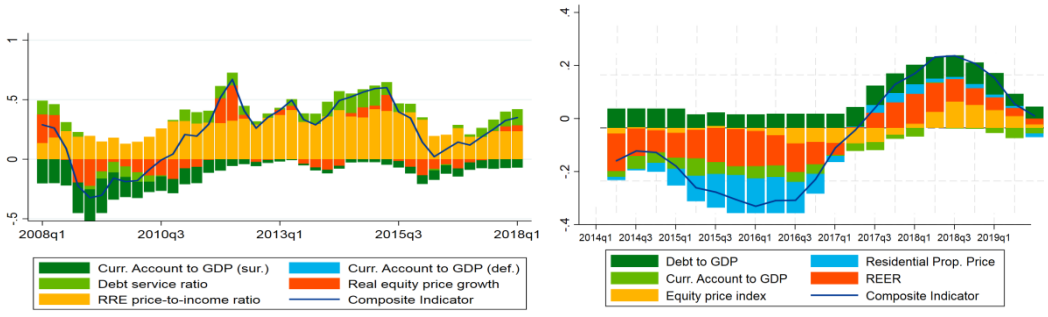
Advanced economies' composite	Emerging economies' composite
- A real equity price index - The residential real estate price to income ratio - The debt service coverage ratio - The current account to GDP ratio (split into its surplus and deficit component to account for the asymmetry between deficit and surplus in relation to financial vulnerability build-up)	- The sovereign debt-to-GDP ratio - Current account to GDP ratio - An equity price index - A residential property price index - The real effective exchange rate

Source: ESRB Secretariat.

Apart from the choice of components, the weighting schemes of composite scores for advanced and emerging countries differ to take into account the fact that the sources of risk between advanced and emerging sets may differ in amplitude owing, inter alia, to greater volatility of macro-financial series; this difference also fully incorporates the insights of the financial stability literature. For advanced economies, the weighting scheme is calibrated using an early warning exercise on a sample of euro area countries experiencing financial distress events, used as a proxy for advanced regions given the euro area's development features. For EMEs, the composite score is computed using an equal-weights approach. This choice was motivated by the inconclusive message given by the literature on this methodological aspect which was reinforced by existing data issues for those countries. In conclusion, it was decided that an overly complex weighting scheme could distort the signalling power of the composite indicator for emerging economies where greater heterogeneity exists.

Chart B.3

Change in the composite indicator over time – hypothetical examples for advanced and emerging third countries



Source: ESRB Secretariat

Including country-specific narrative

A country-specific qualitative assessment is also carried out. This provides a broader picture of the economic situation in each third country and underpins the standardised quantitative assessment. Country experts (from the European Central Bank's Directorate General International & European Relations) who monitor the macro-dynamics and latest market developments on a regular basis are consulted to obtain a more precise and up-to-date overview of the country's situation. Input from experts makes it possible to deal with data availability concerns and reporting delays, especially for emerging countries where the economic outlook can be more

subject to political uncertainty. The quantitative assessment is then put into context by considering the overall macro-financial environment as well as the macroeconomic outlook of each third country. The key financial stability risks, potential triggers, transmission channels and current vulnerabilities are also taken into consideration. Other points of interest for the purpose of monitoring include the credit development narrative together with the overview of countercyclical macroprudential actions already implemented by the respective national authorities. This information is crucial to determine whether cyclical risks in third countries are sufficiently tackled by domestic measures or whether there is a need for a coordinated EU policy response.

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