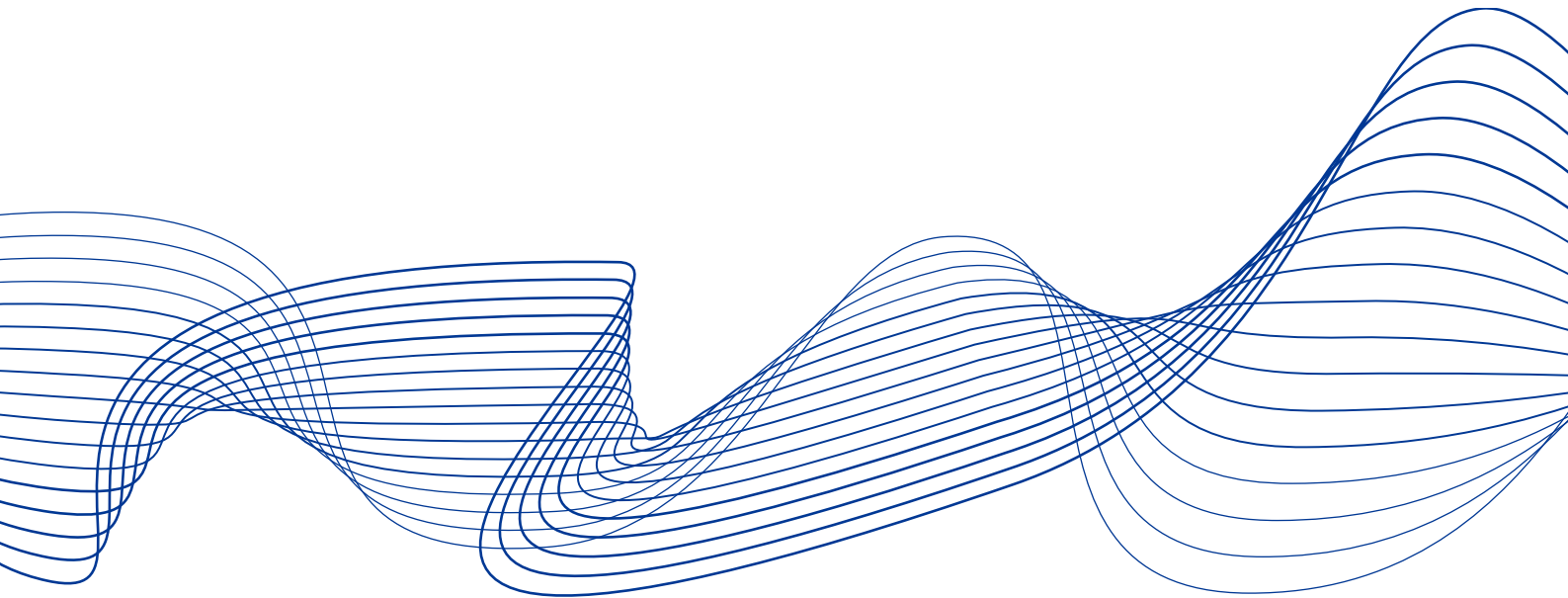


**The ESRB
Macroprudential Measures
Database**

December 2017

by
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ESRB
European Systemic Risk Board
European System of Financial Supervision

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Abstract

This paper describes the new European Systemic Risk Board (ESRB) database that contains information about the macroprudential measures applied by the authorities in the Member States of the European Union and in two countries¹ of the European Economic Area. The database currently covers mainly measures related to the banking sector, namely: i) capital buffers (i.e. CCoB, CCyB, the SRB, and G-SII and O-SII buffers); ii) reciprocation (recognition) measures; and iii) other measures. Information on how the measures have been applied dates back to the early 2000s. However, the database focuses primarily on the period since 2014, when the Capital Requirements Directive IV and the Capital Requirements Regulation came into force, setting a milestone in the development of a macroprudential policy framework in the European Union. More recently the ESRB has increasingly devoted work on macroprudential policy beyond the banking sector² and, in principle, the content of the database is expected to reflect this in future.

Keywords: macroprudential measures, macroprudential policy, macroprudential indicators, European Systemic Risk Board.

JEL classification: G210.

¹ The two countries are Norway and Iceland, which are involved (as non-voting members) in the work of the ESRB following Decision No 198/2016 of the Joint Committee of the European Economic Area of 30 September 2016.

² See ESRB (2016), **Macroprudential policy beyond banking: an ESRB strategy paper**, July.



1 Introduction

The global financial crisis highlighted the need for a macroprudential policy framework. Such a framework would equip the authorities responsible for overseeing the financial system with appropriate mandates, analytical tools and instruments to address systemic risk. In the European Union (EU), a number of important steps have been taken to address this issue. One such step was the establishment in 2010 of the European Systemic Risk Board (ESRB), which has responsibility for macroprudential oversight of the EU financial system. Since its establishment the ESRB has actively promoted the development of macroprudential policy framework. In 2011 it recommended that Member States should establish national macroprudential authorities;³ and in 2013 it recommended that Member States should identify clear intermediate macroprudential objectives and assign concrete tools to achieve these objectives.⁴

The new prudential rules for banks set out in the Capital Requirements Directive IV⁵ and Capital Requirements Regulation⁶ (CRD/CRR) came into force on 1 January 2014. These two pieces of legislation were pivotal in the development of a macroprudential policy framework in the EU and the flow of information on the use of macroprudential tools. The new rules provided Member States with a common legal framework and a set of macroprudential instruments to mitigate systemic risk in the banking sector. The CRD/CRR set in motion the requirement for macroprudential authorities (designated authorities, competent authorities and/or Member States) to notify the ESRB of macroprudential measures. It is the information from these notifications – and from the notification requirements in certain ESRB recommendations⁷ – that have made it possible to set up the Macroprudential Measures Database (MPMDB).

In March 2014 the ESRB published its Handbook on operationalising macroprudential policy in the banking sector,⁸ which contributed to the further development of macroprudential policy and an analytical framework in the EU. This Handbook is targeted at the macroprudential authorities and provides detailed instrument-specific advice on how to design and implement macroprudential policy for the banking sector. The Handbook's discussion of data largely forms the basis for the

³ Recommendation of the European Systemic Risk Board of 22 December 2011 on the macroprudential mandate of national authorities (ESRB/2011/3) (OJ C 41, 14.0.2012, p. 1).

⁴ Recommendation of the European Systemic Risk Board of 4 April 2013 on intermediate objectives and instruments of macroprudential policy (ESRB/2013/1) (OJ C 170, 15.6.2013, p. 1).

⁵ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (OJ L 176, 27.6.2013, p. 338).

⁶ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (OJ L 176, 27.6.2013, p. 1).

⁷ ESRB 2013/1, Recommendation of the European Systemic Risk Board of 11 December 2015 on recognising and setting countercyclical buffer rates for exposures to third countries (ESRB/2015/1) (OJ C 97, 12.3.2016, p. 1); and Recommendation of the European Systemic Risk Board of 15 December 2015 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures (ESRB/2015/2) (OJ C 97, 12.3.2016, p. 9).

⁸ Available at [esrb_handbook](#).



design of the MPMDB. The information in the MPMDB is used by the ESRB in several of its outputs, notably the yearly reviews of macroprudential policy in the EU.^{9 10 11}

The objective of this paper is to describe the information that is available for research and analysis from this up-to-date, comprehensive and cross-country database and the derived datasets on macroprudential instruments used in the EU and the European Economic Area (EAA).

⁹ ESRB (2015), **A review of macroprudential policy in the EU one year after the introduction of the CRD/CRR**, June.

¹⁰ ESRB (2016), **A Review of Macroprudential Policy in the EU in 2015**, May.

¹¹ ESRB (2017), **A Review of Macroprudential Policy in the EU in 2016**, April.



2 Main features of the ESRB Macroprudential Measures Database

2.1 How information is handled

The ESRB MPMDB was built with the aim of storing information on macroprudential measures and making this information available for analysis. The macroprudential measures are notified to the ESRB by the respective authorities in the EU in accordance with the notification requirements. Notifying authorities use the common ESRB/European Central Bank (ECB)/European Banking Authority (EBA) notification templates,¹² of which there are currently nine. The templates cover buffers for global systemically important institutions (G-SIIs), buffers for other systemically important institutions (O-SIIs), the systemic risk buffer (SRB), the countercyclical capital buffer (CCyB), risk weights, minimum loss given default (LGD), so-called national flexibility measures,¹³ reciprocity measures, and other measures not covered by the CRD/CRR.

All templates contain the following items of information:

- the name of the notifying national authority
- a description of the measure, including information on the institutions concerned, as identified by the name and legal entity identifier (LEI)
- the time frame of the measure
- the reason for activating the measure, including details on the methodology and indicators used
- the cross-border and cross-sectoral impact of the measure
- details of any other connected measures.

Notifications submitted to the ESRB are stored on its internal document management system and published on its website. The relational MPMDB is populated with the information from the templates in accordance with an established data-recording and managing process. An exception to this is information on the CCyB, which is directly entered into a separate database schema by

¹² The notification templates are available at [ESRB website](#).

¹³ "National flexibility measures" under Article 458 of the CRR are a set of measures allowing national authorities to impose stricter prudential requirements in order to address systemic risks. They include the level of own funds, large exposure limits, public disclosure requirements, the level of the capital conservation buffer (CCoB), liquidity requirements, risk weights for the residential and commercial property sectors, and measures for intra-financial sector exposures. These instruments may only be used if the national authority can establish that the measure is necessary, effective and proportionate and that other specified measures cannot adequately address the identified systemic risk. The instruments are subject to a notification and non-objection process. They include the level of own funds, large exposure limits, public disclosure requirements and the level of the capital conservation.



the reporting authorities using an online survey tool. Such an arrangement was put in place in the case of the CCyB, since it is the most frequently reassessed and notified measure (in principle, on a quarterly basis). The introduction in the near future of a survey programme for non-CCyB measures is currently under consideration.

The relational MPMDB comprises four main areas: i) notifications; ii) measures; iii) banks; and iv) measure levels (see the Annex for the relationship structure of the MPMDB tables). As at end-March 2017 there were 259 notifications recorded and 35 measure types covering 213 individual banking entities (either on a solo or consolidated basis). Collection of the data began in January 2015 and covers notifications received since 2014 and some older ones dating back to 2010.

The ESRB Secretariat is the owner of the dataset and carries out regular revisions and publications of the information derived from the MPMDB. The Secretariat is also responsible for analytical support to the ESRB committees,¹⁴ and uses the MPMDB's interface (see Figure 1) for querying the database to produce reports and notes.¹⁵

Figure 1
MPMDB user interface

ESRB
European Systemic Risk Board
European System of Financial Supervision

Macroprudential Measures Database

Search / filter notification Admin

Any country

Any primary intermediate objective

Any year

Any measure type

Any country of bank

Any bank

Last modified after (inclusive):

View results

View all

Notifications & buffers & buffer levels

Export results

Source: ESRB MPMDB.

¹⁴ See the [ESRB's organisational chart](#).

¹⁵ See, for example, the [reports and notes](#).



2.2 Overview of the MPMDB

The ESRB has identified a number of macroprudential instruments to achieve its so-called intermediate objectives of financial stability.¹⁶ The four intermediate objectives are preventing or mitigating systemic risks that may arise from the following sources:

1. *excessive total/sectoral credit growth*, which may be a key driver of financial crises, with leverage as the amplifying feature
2. *excessive maturity mismatch* with overreliance on short-term and unstable funding, which may lead to *market illiquidity*, fire sales and contagion
3. direct and indirect *exposure concentrations* that make a financial system vulnerable to common shocks
4. *misaligned incentives*, which arise from moral hazard and the negative effect of (implicit) government guarantees.

The following is a selection of the suite of macroprudential instruments used for addressing the intermediate objectives of financial stability:¹⁷

- for objective 1: *total scope*: the CCyB, the SRB, leverage ratio, increased capital conservation buffer (CCoB) and own funds requirement; *sectoral scope*: risk weights (RW), loss given default (LGD) floors, and limits for: loan-to-value (LTV), loan-to-income (LTI) or debt servicing-to-income (DSTI)
- for objective 2: liquidity charges, loan-to-deposit (LTD) limit, liquidity buffers, net stable funding ratio (NSFR) and other stable funding requirements
- for objective 3: the SRB, large exposures requirements, increased own funds requirement, measures for intra-financial sector exposures
- for objective 4: capital buffers for G-SIIs and O-SIIs, the SRB, increased CCoB, own funds requirements.

Figure 2 below illustrates which of the measures in the suite of instruments the macroprudential authorities have opted to use.¹⁸ The measures used have most frequently been directed at addressing excessive credit growth and limiting the systemic impact of misaligned incentives. The focus on these two intermediate objectives is a reflection of the many policy initiatives that concern lending to the real estate sector and systemically important institutions.

¹⁶ See Recommendation ESRB/2013/1.

¹⁷ For details on the instruments and transmission channels, see footnote 8 above.

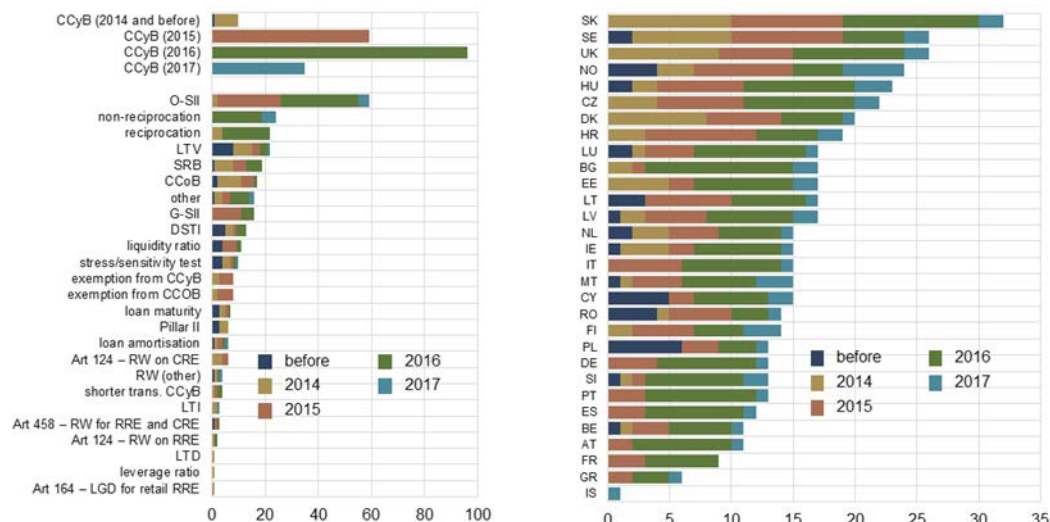
¹⁸ See footnotes 9, 10 and 11.



Figure 2

Measures recorded in the MPMDB by type, country and year of initiative

(as at April 2017, number of measures by type (left-hand panel) and by country (right-hand panel))



Source: ESRB MPMDB.

Note: “CRE” refers to commercial real estate, “RRE” to residential real estate, and “trans. CCyB” to transitional periods for CCyB. The Article numbers refer to provisions of the CRR.

2.3 Release of data on macroprudential measures

A host of information and several datasets derived from the MPMDB are regularly made available on the ESRB’s website, including information on:

1. the CCyB (dedicated webpage and dataset)
2. measures beyond the CCyB (dataset)
3. capital measures targeting specific banks (dataset).

2.3.1 Overview of the CCyB on the ESRB’s website and in the data extract

A page dedicated to information on the CCyB is available on the ESRB’s website.¹⁹ This capital buffer is designed to mitigate procyclicality in the financial system and is assessed on a quarterly basis. As the most frequently assessed measure, the related notification flow has been automated

¹⁹ See the relevant page on the [ESRB’s website](#).



via an online survey tool (see Section 2.1 above), which feeds the database that in turn populates the website. All EU Member States as well as Iceland and Norway²⁰ report into the database. The ESRB has also developed a set of principles and guidelines on activating and calibrating the CCyB.²¹

With regard to the published dataset, historical data on how the authorities in Europe have set the CCyB can be retrieved from a dedicated file.²² This file contains details of the CCyB rates, the timing of the decisions and the dates of application. It also contains links to relevant press releases or other publicly available information, with explanatory notes and background analyses. Finally, any new items of information are flagged, as and when they become available, for the benefit of users.

The MPMDB contains a broader set of data than the above-mentioned file with details on CCyB rates. The macroprudential authorities report on the leading indicator – the credit-to-GDP gap (credit gap) – and also on additional indicators²³ and the powers exercised following the principles of guided discretion in setting the CCyB. In particular, the authorities provide additional information on the credit-to-GDP ratio, buffer guide,²⁴ and any justifications, elaborating on exceptional circumstances.

2.3.2 Overview of measures beyond the CCyB

Information on the overview of the macroprudential measures beyond the CCyB is extracted on a monthly basis from the MPMDB and posted in the Overview of national macroprudential measures file on the ESRB's website.²⁵ The following information is provided on such measures:

- *geographical specifications* (region, country, authority)
- *timing and communication strategy* (year that the macroprudential measure was initiated, dates of publication and notification, time frame for the measure, links to the communication materials)
- *targeted intermediate objective* of financial stability
- *legal basis*

²⁰ Reporting from Liechtenstein is forthcoming.

²¹ See the relevant page on the [ESRB's website](#).

²² Available at [ESRB website](#).

²³ See ESRB (2016), "Implementation of the countercyclical capital buffer regime in the European Union", [Macroprudential Commentaries](#), Issue 8, December.

²⁴ For definitions and more information, see the sections entitled "Recommendation B" of the ESRB Recommendation ESRB/2014/1. "Buffer guide" means a benchmark buffer rate, selected in accordance with recommendation B(4); "additional credit-to-GDP gap" means a credit-to-GDP gap measured and calculated in accordance with Recommendation B(2).

²⁵ Available at [ESRB website](#).



- *status of the measure* (information about revocation or replacement)
- *description* of the measure, including links to relevant public information
- *reciprocation*, including ESRB recommended reciprocation.

The measures covered in the file can be grouped as follows:

1. capital buffers
2. reciprocation measures
3. other measures.

With regard to the **capital buffers**, the CRD equips the macroprudential authorities with several buffers which form part of the combined capital buffer requirement. More specifically, the combined buffer requirement means the total common equity tier 1 (CET1) capital needed to meet the requirement for the CCoB and, if applicable, the CCyB, the G-SII buffer, the O-SII buffer and the SRB. The CRD/CRR capital buffer framework was implemented on 1 January 2014, with derogations in place until 1 January 2016 and a phasing-in period lasting until 2019.

Taking each capital buffer in turn, the CCoB is required for a bank to meet its own funds requirements.²⁶ The CCyB is designed to mitigate procyclicality in the financial system and to build a capital buffer during periods of excessive credit growth, which is then released when a systemic risk abates. The SRB targets structural systemic risks of a long-term non-cyclical nature. It can be used to prevent or mitigate any long-term non-cyclical systemic or macroprudential risk not covered by the CRR. Lastly, buffers for G-SIIs and O-SIIs address banks that, from an international and domestic perspective, are considered too big to fail.

Information on all additional capital buffers is extracted from the MPMDB and made available in the Overview of national macroprudential measures file. In particular, the file provides useful information on the buffers' modalities, namely:

- for the CCoB: transitory buffer rates, if applicable; coverage (system-wide, bank-specific, group of banks that fulfil certain criteria); consolidation scope; and exceptions for small and medium-sized investment firms from the requirements
- for the SRB: buffer rates; coverage; consolidation scope; type of exposures; and any other condition for applying the measure
- for the O-SII and G-SII buffers: designated banks with corresponding buffer rates; and phasing-in, if applicable.

²⁶ See Article 92 of the CRR.



Building a more resilient banking system in the EU requires authorities to recognise²⁷ macroprudential measures set by other Member States and to set or recognise the CCyB rates for so-called third countries.²⁸ Information on such a **reciprocation framework**, which is essential to the effectiveness of the macroprudential measures, is recorded in the MPMDB.

Information on reciprocation or non-reciprocation is contained in the Overview of national macroprudential measures file as are the cross-links between the measures in the so-called matrix of reciprocation.

Macroprudential authorities have several **other measures** at their disposal. Among the most widely used are measures targeting real estate lending, as developments in this area continue to be high on the agenda of macroprudential policymakers in Europe. A variety of such measures were applied at the national level and introduced into the MPMDB with details on their modalities.

Key features of such measures covering DSTI, LTI, payments-to-income (PTI), LTV, LTD, loan amortisation, risk weights, LGD floors, maturity restrictions, leverage ratio, liquidity ratio, stress tests of lender or borrower and amortisation requirement are included in the Overview of national macroprudential measures file. Further details of the measures are available in the Review of macroprudential policy in Europe in 2016 (for example, in Tables 1-3).²⁹

The authorities also used Pillar 2 additional own funds requirements to address systemic risks related to specific banks. These additional own funds requirements can be used as an “add-on” to the other buffers.

2.3.3 Overview of measures targeting specific banks

Macroprudential authorities are responsible for setting measures targeting specific banks and deciding on the modalities of these measures. Information on such bank-specific capital buffer requirements is collected in the MPMDB and a subset is made public on the ESRB’s website.³⁰

When analysing capital buffer requirements, it is important to consider general conditions for combining capital buffers (additivity versus a “higher of” approach), rules on combinations arising from the application of capital buffers on different levels of consolidation (parent versus subsidiary), and principles that apply when transitional periods do not coincide.

The main feature of the CCoB is that it consists of an additional CET1 capital fixed at 2.5% of a bank’s total risk exposure on an individual or consolidated basis, which effectively serves as a minimum capital requirement. Phasing-in over time has been made available with rates of 0.625%, 1.25%, and 1.875% in 2016, 2017 and 2018 respectively.

²⁷ See Recommendation ESRB/2015/2.

²⁸ See Recommendation ESRB/2015/1.

²⁹ See footnote 11 above.

³⁰ See **Overview of national capital-based measures**.



In the case of the CCyB, the rate is set at between 0% and 2.5% of total risk exposure but may also be set higher if justified by the underlying risk. The institution-specific CCyB rate consists of the weighted average of the CCyB rates that apply in the jurisdictions where the relevant credit exposures of the institution are located. This buffer should be assessed on a quarterly basis.

The SRB rates can vary depending on banks' contribution to the specific structural systemic risk and geographical location of their exposures. The measure should be reviewed at least every other year and there is no maximum buffer limit. Furthermore, in practice the measure is often linked to the O-SII buffer, as some countries use the SRB as an alternative or as a supplement to the O-SII buffer.

With regard to the SIIs, which are designated in accordance with a prescribed methodology³¹ and supervisory judgement, the G-SII buffer rate varies within five categories of SIIs with a starting rate of 1% increasing in increments of 0.5% up to 3.5%. For the O-SIIs, the authorities may require a buffer of up to 2%. Phasing-in of the buffers has been made possible, as the authorities were able to move the application date from 1 January 2014 to 1 January 2016, with reductions to 25%, 50% and 75% of the buffer rate in 2016, 2017 and 2018 respectively.

Granular information on the banks that are subject to the bank-specific measures of macroprudential authorities is available in the MPMDB. In particular, the identification of entities with LEIs enables information about the measures to be combined with bank-level and other data, as well as with the information on other macroprudential measures. Finally, it should be mentioned that since the focus of the MPMDB is on macroprudential measures, it does not contain information on the capital requirements resulting from the Supervisory Review and Evaluation Process (SREP) and Pillar 2 measures.³²

³¹ Further information is available on the [website of the European Banking Authority \(EBA\)](#). See also the [EBA methodology for O-SIIs](#).

³² Further information on the [SREP and Pillar 2](#).



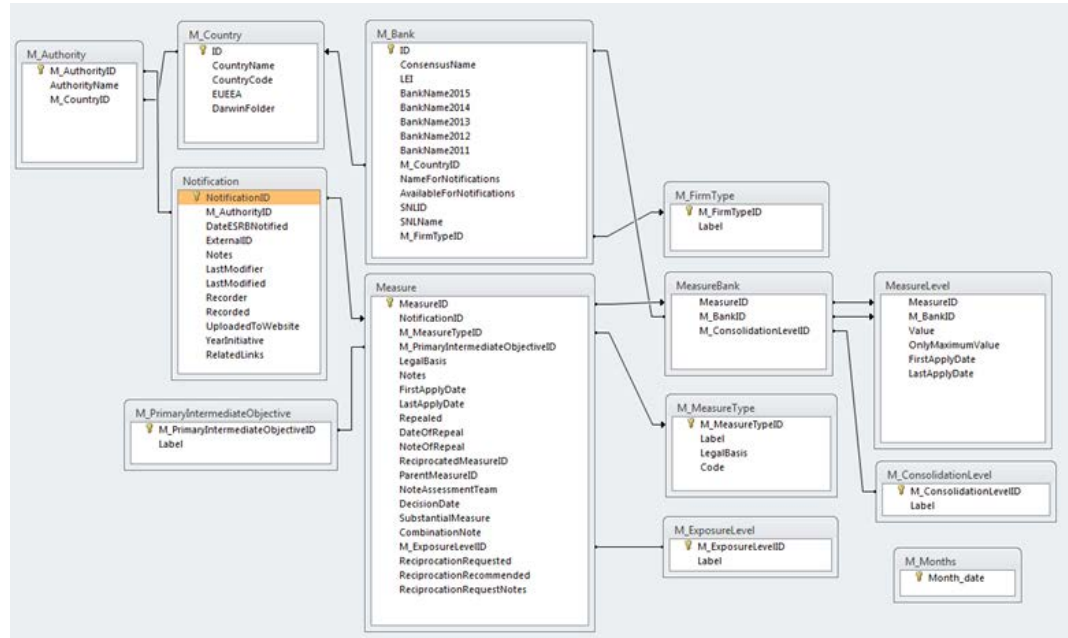
3 Conclusion

The ESRB MPMDB is a comprehensive and up-to-date database designed to store – and make available for analysis – information on macroprudential measures in Europe. The content of the database is based on the information provided by the macroprudential authorities to the ESRB in line with the notification requirements. The information in the database is used in several ESRB analyses and reports and can be accessed on the ESRB's website, where three data extracts are provided and updated on a regular basis. The standardised data extracts cover the CCyB, measures beyond the CCyB and bank-specific capital measures. The database constitutes a unique source of information for macroprudential policy. To promote analytical work and transparency in this area, further inclusion of information on non-banking sector measures and data releases are anticipated as is a deepening of the cross-country analysis of how measures are used.



Annex

Figure A.1
Relationship structure of the MPMDB tables



Source: ESRB MPMDB.



Abbreviations

CCoB	capital conservation buffer
CCyB	countercyclical capital buffer
CET1	common equity tier 1
CRD IV	Capital Requirements Directive
CRE	commercial real estate
CRR	Capital Requirements Regulation
DSCR	debt service coverage ratio
DSTI	debt service-to-income
DTI	debt-to-income
EBA	European Banking Authority
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
GDP	gross domestic product
G-SII	global systemically important institution
LEI	legal entity identifier
LGD	loss given default
LTD	loan-to-deposit
LTI	loan-to-income
LTV	loan-to-value
MPMDB	Macprudential Measures Database
NSFR	net stable funding ratio
O-SII	other systemically important institution
PTI	payment-to-income
RRE	residential real estate
RW	risk weight
RWA	risk-weighted assets
SII	systemically important institution
SRB	systemic risk buffer
SREP	Supervisory Review and Evaluation Process



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