FINANCIAL STABILITY BOARD

Peer Review of Germany

Review Report

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Foreword

Financial Stability Board (FSB) member jurisdictions have committed, under the FSB Charter and in the *FSB Framework for Strengthening Adherence to International Standards,*[1] to undergo periodic peer reviews. To fulfil this responsibility, the FSB has established a regular programme of country and thematic peer reviews of its member jurisdictions.

Country reviews focus on the implementation and effectiveness of regulatory, supervisory or other financial sector policies in a specific FSB jurisdiction. They examine the steps taken or planned by national/regional authorities to address IMF-World Bank Financial Sector Assessment Program (FSAP) and Reports on the Observance of Standards and Codes recommendations on financial regulation and supervision as well as on institutional and market infrastructure that are deemed most important and relevant to the FSB's core mandate of promoting financial stability. Country reviews can also focus on regulatory, supervisory or other financial sector policy issues not covered in the FSAP that are timely and topical for the jurisdiction and for the broader FSB membership. Unlike the FSAP, a peer review does not comprehensively analyse a jurisdiction's financial system structure or policies, or its compliance with international financial standards.

FSB jurisdictions have committed to undergo an FSAP assessment every five years; peer reviews taking place typically two to three years following an FSAP will complement that cycle. As part of this commitment, Germany volunteered to undergo a peer review in 2019.

This report describes the findings and conclusions of the Germany peer review, including the key elements of the discussion in the FSB's Standing Committee on Standards Implementation (SCSI) in June 2020. It is the second FSB peer review of Germany, and is based on the objectives and guidelines for the conduct of peer reviews set forth in the *Handbook for FSB Peer Reviews.*[2]

The analysis and conclusions of this peer review are based on the responses to a questionnaire by financial authorities in Germany and reflect information on the progress of relevant reforms as of May 2020. The review has also benefited from dialogue with the German authorities as well as discussion in the FSB SCSI. The review process and report preparation largely took place prior to the COVID-19 pandemic; accordingly the report does not examine in depth recent market developments or the related actions by the German authorities.

The draft report for discussion was prepared by a team chaired by Ksenia Yudaeva (Central Bank of the Russian Federation) and comprising Indranil Chakraborty (Reserve Bank of India), Nicoletta Giusto (Companies and Exchange Commission CONSOB, Italy) and Miriam Kurtosiova (Bank of England). Michael Januska and Costas Stephanou (FSB Secretariat) and Maxim Morozov (Central Bank of the Russian Federation) provided support to the team and contributed to the preparation of the report.

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1 See the *FSB Framework for Strengthening Adherence to International Standards* (January 2010).

2 See the *Handbook for FSB Peer Reviews* (April 2017).

Abbreviations

Act	Financial Stability Act
AIF	Alternative investment fund
AIFMD	Alternative Investment Fund Managers Directive
AnaCredit	Analytical Credit Datasets
BaFin	Federal Financial Supervisory Authority
BMF	Federal Ministry of Finance
CCP	Central counterparty
CCyB	Countercyclical capital buffer
CRD IV	Capital Requirements Directive (EU)
CRE	Commercial real estate
CRR	Capital Requirements Regulation (EU)
CSDB	Centralised Securities Database
DG	Directorate General
DSTI	Debt-service-to-income ratio
DTI	Debt-to-income ratio
ECB	European Central Bank
EEA	European Economic Area
EF	Economic function
EMIR	European Market Infrastructure Regulation
ESCB	European System of Central Banks
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
FSB	Financial Stability Board
FSC	Financial Stability Committee
FSAP	IMF-World Bank Financial Sector Assessment Program
FVC	Financial vehicle corporation
GDP	Gross domestic product
HoM	House of Microdata
IOSCO	International Organization of Securities Commissions
IMF	International Monetary Fund
LTV	Loan-to-value ratio
NAV	Net asset value
NBFI	Non-bank financial intermediation
OFI	Other financial intermediary
SCSI	Standing Committee on Standards Implementation
SHS	Securities holdings statistics
UCITS	Undertakings for Collective Investments in Transferable Securities

Executive summary

Background and objectives

The main focus of this peer review is the macroprudential policy framework and tools in Germany. In particular, the review examines: (1) progress with data collection for macroprudential analysis and the availability and use of macroprudential tools; and (2) how the authorities assess and manage risks to financial stability from non-bank financial intermediation (NBFI). The review focuses on the steps taken by the authorities to implement reforms in this area, including by following up on relevant FSAP and FSB recommendations. The review largely took place prior to the COVID-19 pandemic, so it does not examine in depth recent market developments or the related actions by the German authorities.

Main findings

Germany's macroprudential framework is well established and operationalised through the Financial Stability Committee (FSC), which adopted and published its macroprudential strategy in 2014. Data collection, quality and integration have improved, with the FSC facilitating effective information and data exchange across its member authorities: the Bundesbank, the Federal Financial Supervisory Authority (BaFin), and the Federal Ministry of Finance (BMF). This cooperation in turn has enhanced the FSC's analytical capabilities for the assessment of financial stability risks.

The FSC has further developed its macroprudential toolkit in recent years. After the FSC recommended in 2015 the introduction of new macroprudential instruments for residential real estate loans, the federal government proposed to establish the legal basis for four borrower-based instruments. Subsequently, two borrower-based tools were established by law in 2017, allowing BaFin to set a loan-to-value ratio (LTV) cap and amortisation requirement for new housing loans. These tools are designed to address potential financial stability risks stemming from developments in the residential real estate market, and they apply to both banks and non-bank financial institutions, but so far have not been activated. BaFin did, however, activate the countercyclical capital buffer (CCyB) in 2019, in response to an FSC recommendation. The CCyB rate was subsequently reduced to 0% against the backdrop of the COVID-19 pandemic.

The efforts of the authorities to monitor and manage risks to financial stability from NBFI have increased in recent years as the importance of the sector has grown, most notably with respect to investment funds. Trends and potential risks relating to NBFI are regularly discussed at the FSC, while BaFin, the Bundesbank and the BMF have established formal and informal structures for coordination and information sharing on NBFI-related matters. The analytical framework is mainly based on quantitative monitoring, complemented by qualitative information where data gaps persist. Monitoring of the open-ended investment fund sector in particular has benefited from initiatives to improve data and risk analysis as they relate to funds' credit intermediation, liquidity, leverage and interconnectedness with other sectors. The authorities have taken steps to increase monitoring of fund liquidity following COVID-19 developments. BaFin's risk classification methodology for fund managers has been substantially revised and recent legislative changes have extended the set of liquidity management and pricing tools available to asset managers.

At the same time, as is the case in other jurisdictions, further steps can be taken to strengthen the macroprudential framework in a number of areas. These involve: enhancing data collection for macroprudential analysis; extending the policy toolkit; and strengthening public communication and the analysis of emerging risks and of risks outside the banking sector.

Enhancing data collection for macroprudential analysis**:** At present, there is no sufficiently granular database on residential real estate financing based on regular data collection; only ad-hoc data collections on credit standards on housing loans are available. The lack of granular (including by geographic area) and timely information on real estate lending remains a material data gap that impedes a full assessment of potential financial stability risks in specific market segments – notably how lending standards and borrowers' debt sustainability are evolving. Closing these gaps will support financial stability monitoring and the introduction of any additional policy tools needed to address risks when identified. The BMF consultation on a draft statutory order for a regular data collection by the Bundesbank on residential real estate loans in Germany is a welcome development in this regard. More broadly, the authorities should continue to improve the quality and integration of data for macroprudential analysis, including for NBFI and interconnectedness, to get a better view of system-wide risks.

Strengthening FSC communication**:** The FSC's strategy is under review, and one element under consideration is the effectiveness of its public communication. The FSC does not publish records or minutes of its quarterly deliberations, and there is no pre-announced calendar for such meetings, unlike the case for financial stability bodies in some other FSB jurisdictions. The FSC provides, however, an annual report to the Bundestag which is also published on the member institutions' websites. The current FSC strategy relies on public communication when deemed necessary (e.g. announcement of new measures) rather than on a regular basis, which may limit its potential effectiveness as a soft policy instrument. More transparency and regular communication, including through diverse channels, could help market participants understand better the FSC's macroprudential mandate, approach and policy decisions.

Strengthening FSC analysis of non-bank and emerging risks**:** Data and risk analysis is most advanced for the banking sector, which is appropriate given Germany's bank-based financial system. But the financial landscape has evolved in recent years, including in terms of increased central clearing of over-the-counter (OTC) derivatives, the growth and increasing importance of NBFI, the low-for-long environment, and the emergence of new risks associated with the digitalisation of finance and climate change. It is therefore useful for the authorities to monitor these developments and assess their macro-financial implications and risks in a coordinated manner. The FSC should provide an ongoing forum to carry out this work.

Extending the policy toolkit**:** The BMF is currently reviewing the effectiveness of existing borrower-based macroprudential instruments in the area of residential real estate financing and the need for new ones. The FSC's Fifth Annual Report and the Bundesbank's 2019 Financial Stability Review reiterate that the two income-based instruments also recommended by the FSC in 2015 should be established to complement the two borrower-based instruments – an amortisation requirement and an LTV cap – created for new housing loans in 2017. Having a comprehensive toolkit would allow BaFin to activate different instruments as needed, enabling them to respond in a timely, flexible and proportionate way to address potential financial stability risks.

Past recommendations from the IMF, FSB, IOSCO and ESRB highlighted that there was scope to broaden the set of pricing and liquidity risk management tools available to fund managers in Germany. It is welcome that the authorities introduced three new tools in March 2020: (i) notice periods of up to one month for retail funds; (ii) redemption gates; and (iii) swing pricing. The authorities may also want to consider introducing other tools as appropriate based on market developments. One such example would be side pockets for open-ended funds (especially alternative investment funds), which are part of fund managers' toolkits in several jurisdictions and were used successfully during the global financial crisis. Furthermore, the liquidity management tools referred to above are intended, as in most jurisdictions, to be used by fund managers at their discretion. However, attention should be paid to the possible implications of such tools from a financial stability perspective. The authorities should consider clarifying requirements or providing guidance to promote clear and timely decision-making processes for fund managers to implement these tools, particularly in stressed conditions.

Recommendations

In response to the aforementioned findings and issues, the peer review has identified the following recommendations to the German authorities:

1. The authorities should enhance data collection for macroprudential analysis by: (a) establishing regular, consistent and granular reporting on lending standards for residential real estate loans; and (b) continuing to improve the quality and integration of data for macroprudential analysis, including for NBFI and interconnectedness.
2. The authorities should consider as part of the ongoing FSC strategy review: (a) additional periodic communication channels to enhance market participants' awareness and understanding of the macroprudential framework; and (b) continuing to expand their analysis of non-bank and emerging risks.
3. The authorities should, in line with the 2015 FSC recommendation and as proposed by the federal government in 2016, expand their macroprudential policy toolkit to include income-based instruments – caps on the debt-to-income ratio (DTI) and the debt-service-to-income ratio (DSTI) – for residential real estate financing.
4. The authorities should consider extending further the set of liquidity risk management and pricing tools for investment funds in Germany as part of a regular review of the adequacy of those tools; and providing guidance on their use, particularly in stressed market conditions.

1. Introduction

Germany completed its first FSB peer review in 2014,[3] which examined the macroprudential policy framework and micro-prudential supervision. The review concluded that good overall progress had been made in addressing the 2011 FSAP recommendations in both areas, although several elements of the reforms were ongoing. It noted that the authorities need to expeditiously develop and implement a comprehensive macroprudential strategy, and to further strengthen the banking and insurance supervisory frameworks in order to enhance risk identification and allow for timely intervention in financial institutions.

Germany subsequently underwent an FSAP assessment by the IMF in 2016.[4] The FSAP noted that Germany's financial system plays a key role in the global economy and is home to global systemically important financial institutions. The system is heterogeneous, with a large number of smaller banks and insurers, and a large asset management industry. The FSAP concluded that overall, there is welcome emphasis on quantitative analysis to augment the traditional qualitative and relationship-based supervision. One of the priorities highlighted was to expand further the capacity to monitor financial stability risks and cross-sector spillovers, by collecting comprehensive and granular data and completing the macroprudential toolkit.

The IMF's 2017, 2018 and 2019 Article IV reports[5] followed up on the macroprudential toolkit and data; noted the limited progress made on the formalisation of a coordination mechanism between the ECB, Single Resolution Board and the German authorities for addressing systemic crises; and called for continued supervisory attention to interest rate risk and restructuring plans for banks and insurance companies.

Implementation of the post-crisis G20 financial regulatory reforms in Germany is advanced across most core reform areas. However, implementation of certain Basel III elements and insurance resolution powers is still pending. Annex 1 provides an overview of Germany's implementation status of G20 financial reforms, including the steps taken to date and actions planned by the authorities in core reform areas (not covered in this peer review) where implementation has not yet been completed.

The remainder of this report, drawing on the experience of other FSB jurisdictions and on international guidance in this area,[6] focuses on the steps taken by the authorities to implement

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3 See *Peer Review of Germany* by the FSB (April 2014).

4 See *Germany: Financial System Stability Assessment* (June 2016, IMF Country Report No. 16/189). The detailed assessments on the observance of standards and codes are available on the IMF website (http://www.imf.org/external/np/fsap/fsap.aspx).

5 See *Germany: 2017 Article IV Consultation* (July 2017, IMF Country Report No. 17/192), *Germany: 2018 Article IV Consultation* (July 2018, IMF Country Report No. 18/208) and *Germany: 2019 Article IV Consultation* (July 2019, IMF Country Report No. 19/213).

6 See *Macroprudential Policy Tools and Frameworks – Progress Report to the G20* (October 2011) and *Elements of Effective Macroprudential Policies* by the IMF, FSB and BIS (August 2016); *Macroprudential Policy: An Organizing Framework* (March 2011), *Institutional Models for Macroprudential Policy* (November 2011), *Key aspects of macroprudential policy* (June 2013) and *Staff Guidance on Macroprudential Policy* (December 2014) by IMF staff; and *Macroprudential instruments and frameworks: A stocktaking of issues and experiences* (May 2010), *Operationalising the selection and application of macroprudential instruments* (December 2012), *Experiences with the ex ante appraisal of macroprudential instruments* (July 2016) and *Objective-setting and communication of macroprudential policies* (November 2016) by the Committee on the Global Financial System (CGFS).

reforms to the macroprudential policy framework and tools in Germany, including by following up on relevant FSAP and FSB recommendations. In particular, the report examines: the work of the FSC, progress with data collection for macroprudential analysis and the availability and use of policy tools, including with respect to residential real estate lending; and how the authorities assess and manage risks to financial stability from NBFI. Annex 2 describes the main instruments available to the German authorities for macroprudential purposes.

The review process and report preparation largely took place prior to the COVID-19 pandemic; accordingly the report does not examine in depth the related actions of the German authorities. COVID-19 developments are described separately at the end of each section.

2. Macroprudential policy framework and tools

2.1. Background

Responsibility for macroprudential policy in Germany is shared by the members of the inter-agency FSC: the Bundesbank, BaFin, and the BMF. The FSC also acts as the contact point for the macroprudential authorities of other EU member states and the European Systemic Risk Board (ESRB), and assesses ESRB warnings and recommendations. The FSC can issue warnings and 'comply or explain' recommendations. These can be addressed to the Federal Government, BaFin or any other public sector institution in Germany. Any entity receiving a recommendation must explain within an appropriate timeframe how it has implemented the recommendation or why it does not intend to do so. Box 1 provides more detail on the FSC.

2.2. Institutional arrangements and communication

Institutional arrangements: Shortly after the FSC's formation, there were organisational changes in its member institutions to support the committee's macroprudential focus.

- The Bundesbank's Directorate General (DG) Financial Stability was re-organised to place a stronger and more distinct focus on macroprudential surveillance of both the banking and non-banking sectors. In addition, the Bundesbank set up an internal coordinating committee, bringing together perspectives from all relevant DGs to discuss financial stability issues.

- BaFin's organisational changes concentrated on synergies and efficiency in the field of macroprudential supervision and financial stability, including setting up a new directorate for international policy, financial stability and regulation.

- The BMF set up a Financial Markets Stability division and has continuously improved staffing of the division.

Box 1: The German Financial Stability Committee (FSC)[7]

The FSC was established in 2013 and is the central committee for macroprudential surveillance in Germany. It convenes quarterly, though every member may request a meeting at short notice.

Each of the three member authorities (BaFin, BMF, Bundesbank) has three voting representatives on the FSC; there is also one non-voting advisory representative from BaFin, responsible for resolution.[8] The BMF Chair may also invite third parties to attend the meetings. The FSC's meetings are confidential. FSC decisions generally require a simple majority. However, decisions to issue warnings and recommendations, and the FSC's annual report to the German Parliament, should be unanimous, and cannot be passed against the votes of the Bundesbank representatives. Warnings are issued to flag identified financial stability risks. Recommendations flag risks to financial stability but also suggest remedial measures that the FSC deems appropriate and necessary.

The FSC's secretariat is hosted by the BMF. Each of the authorities has its own team to support FSC functioning; these secretariats are in an ongoing dialogue.

- The BMF chairs the FSC; its secretariat is part of the Financial Markets Stability division within the Directorate Financial Markets Policy.
- The Bundesbank has the statutory mandate to identify and assess risks to financial stability. The Bundesbank's main task for the FSC is to analyse issues that are key to financial stability and to identify and assess related risks. It prepares briefing notes for the FSC's meetings to facilitate the deliberations. If, on the basis of its analyses, the Bundesbank identifies threats to financial stability, it presents to the FSC proposals for warnings or recommendations to avert or mitigate these threats. The Bundesbank also monitors and evaluates the measures taken to implement FSC recommendations and shares its assessment with the FSC.
- BaFin's primary objective is to ensure the proper functioning, stability and integrity of the German financial system. As integrated supervisory authority, it supervises banks, insurers, asset management companies and investment funds, payment services institutions and other financial services institutions. As such, it contributes prudential insights into the FSC's macroprudential discussions, informing its system-wide oversight. It is also the authority responsible for applying all prudential instruments, including macroprudential instruments such as the CCyB.

The authorities note that the FSC plays a crucial macroprudential oversight role in prompt and comprehensive identification of potential risks in a forward-looking manner. Since its establishment, it has enhanced cooperation between the Bundesbank, BaFin and the BMF; and issued two recommendations – in 2015 to establish the legal basis for new macroprudential instruments for residential real estate loans, and in 2019 to activate the CCyB – as described further below.

The 2014 FSB peer review recommended "*the FSC should consider further specifying its role*

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[7] See the websites of the Bundesbank, BMF and BaFin for details. The Act on Monitoring Financial Stability (Financial Stability Act) can be found on the BMF website, while an unofficial translation is available at: https://www.bundesbank.de/resource/blob/618350/b457498ceed0fef3498e50d43783d06e/mL/act-monitoring-financial-stability-data.pdf.

[8] Since January 2018, the Federal Agency for Financial Market Stabilisation has been integrated into BaFin, which has become the national resolution authority.

on financial stability issues – such as in the development and implementation of prudential regulations and involvement in crisis management and resolution – to ensure clarity vis-à-vis its member institutions and to enhance accountability". Shortly thereafter, the FSC's role was specified by its macroprudential strategy (published in 2014 and revised slightly in 2017).[9] The strategy includes the FSC's tasks, its operational framework and relevant definitions, describes how the FSC acquires relevant information and conducts analyses, and illustrates decision-making processes, accountability, transparency and communication of the FSC's work.

The FSC's role in crisis management is set out in the Financial Stability Act (the 'Act')[10], which tasks the FSC with strengthening the cooperation of its member institutions in the event of a crisis since all relevant institutions are represented, facilitating timely information sharing and efficient cooperation. Relatedly, the FSC must be informed by BaFin, Germany's national resolution authority, if an institution is failing or likely to fail.[11] The Act however does not envisage a formal role for the FSC in the operational crisis management decision-making. In line with this, the FSC is not set up as a crisis management forum but is rather aimed at preventative action, allowing for cooperation among senior officials.

Communication and transparency: The 2014 peer review recommended that the FSC should "*develop a comprehensive strategy to maximise the effectiveness of its communication and avoid duplication with its member institutions. This strategy should include the identification of target audiences and the calibration of the range and content of communication tools accordingly*". The 2014 FSC strategy lists four objectives for its external communication: (i) ensuring accountability; (ii) explaining and supporting macroprudential policy measures; (iii) providing information to the wider public; and (iv) improving decision-making by means of consultations between experts and concerned parties.

The FSC's communications comprise regular elements such as publishing its annual report to the Bundestag[12] and ad-hoc communications such as press releases and briefings when needed in light of a change in the risk environment. For example, the FSC held press briefings on cyclical risks in the financial system in December 2018, ahead of the May 2019 recommendation to increase the CCyB, and after the final decision was taken. The FSC communication strategy is focused on explaining changes in the risk environment and policy. The FSC does not publish records or minutes of its quarterly deliberations, and there is no pre-announced calendar for such meetings. Details of FSC members and dates of meetings are retrospectively listed in the annual report to the Bundestag. The authorities aim to develop communication on developments regarding financial stability risks as a 'soft policy instrument' of the FSC, acknowledging the FSC communications could be enhanced. An ongoing review

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9 See *Strategy of the Financial Stability Committee in Germany* (June 2014) and the update from 2017 (in German only), *Strategie des Ausschusses für Finanzstabilität*.

10 In particular section 2 of the Act. See *Finanzstabilitätsgesetz –* FinStabG and the unofficial translation, *Act on Monitoring Financial Stability*.

11 As per section 138 of the German Act on the Recovery and Resolution of Credit Institutions (*Gesetz zur Sanierung und Abwicklung von Kreditinstituten*).

12 The first annual report was published in June 2014; the most recent one in May 2019. All six reports are available here: https://www.bundesfinanzministerium.de/Content/EN/Standardartikel/Topics/Financial_markets/Financial-market-stability-and-macroprudential-policy/2017-01-19-reports-to-the-german-bundestag.html.

of the FSC's macroprudential strategy provides an opportunity to further develop the FSC's role and communication strategy.

2.3. Data collection and risk analysis

***Data collection for macroprudential analysis**:* Progress has been made towards the 2016 FSAP recommendation that "*authorities should establish a core set of readily-available, consistent data for banks and non-banks to strengthen financial stability and macroprudential policy analysis*". The Bundesbank has developed, uses and keeps improving several indicator sets that cover various topics relevant for financial stability analysis and monitoring (e.g. an indicator set that is regularly prepared for the FSC). Currently the analysis is based on data derived from various (heterogeneous) data sources which include supervisory micro data, data from the Bundesbank central credit register, statistical datasets and data from external data providers.

The authorities continue to improve data availability and quality, and efforts are underway to integrate and consolidate data – both at the domestic and European level (see Box 2). Collaboration between FSC member authorities is supported by data sharing, enabling richer risk analysis and complementarity between macro and micro prudential perspectives.

In case additional information is needed, the Act allows the BMF to issue a statutory order to empower the Bundesbank to collect economic and trade data from financial institutions for financial stability purposes. Intending to use this power, in December 2019 the BMF launched the consultation on a draft statutory order for regular data collection by the Bundesbank on residential real estate loans (see below). The Bundesbank and BaFin can also request information from institutions in general via ad-hoc data requests.

A number of international authorities have highlighted the need for Germany to address data gaps related to real estate lending. The IMF has recommended that data gaps – such as the lack of granular loan information – be addressed urgently, most recently in its 2019 Article IV consultation.[13] The ESRB in 2019 also noted such gaps in its warning on medium-term vulnerabilities in the residential real estate sector in Germany. In particular, the ESRB considered the main vulnerabilities to be the significant overvaluation of house prices in urban areas, associated with some indication of a loosening of lending standards, in the context of overall uncertainty regarding lending standards for housing loans due to the significant data gaps.[14] This reiterated the earlier 2016 ESRB recommendation on closing real estate data gaps that was addressed to all national macroprudential authorities.[15] Domestically, the FSC

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13 See *Germany: 2019 Article IV Consultation* (July 2019, IMF Country Report No. 19/213) and *Germany: 2018 Article IV Consultation* (July 2018, IMF Country Report No. 18/208). The latter report states that "The absence of regional credit statistics and granular loan information prevents a full assessment of potential financial stability risks in specific market segments. The distribution of housing credit growth by type of bank, for instance, suggests that there could be important differences between major urban centers and the rest of the country. Given this, it is increasingly urgent that data gaps should be addressed."

14 See *Warning of the European Systemic Risk Board of 27 June 2019 on medium-term vulnerabilities in the residential real estate sector in Germany* (June 2019, ESRB/2019/11).

15 See *Recommendation of the European Systemic Risk Board of 31 October 2016 on closing real estate data gaps* (ESRB/2016/14). Amended on 21 March 2019 through ESRB/2019/3.

and the Bundesbank has also underscored the need to close the data gaps on lending standards.[16]

Box 2: Existing data collection and use by authorities for macroprudential analysis

The FSC uses a range of data sources, including:

- supervisory microdata for entities (banks and non-banks) and on transactions (e.g. for funds including Alternative Investment Fund Managers Directive (AIFMD) data or data on derivatives transactions reported to trade repositories in accordance with European Market Infrastructure Regulation (EMIR) on derivatives, central counterparties and trade repositories;
- data from the Bundesbank's Central Credit Register (including loan-by-loan data with a reporting threshold since 2015 > €1mn);
- statistical datasets (e.g. statistics on investment funds, securities holdings statistics (SHS), Monetary Financial Institutions balance sheets statistics);
- ad-hoc surveys (e.g. quantitative information on credit standards of housing loans to households); and
- data from external data providers (e.g. for funds data).

Some of these data are gradually being added to a single database managed by the Bundesbank, the 'House of Microdata' (HoM). The HoM currently contains several integrated statistical datasets of financial intermediaries, in particular banks (e.g. monthly balance sheet items, profit and loss accounts, interest rate statistics and money market statistical reports), as well as of corporations. Since February 2020, granular securities reference information from the Centralised Securities Database (CSDB) are also available. Information technology projects to further integrate micro data such as Common Reporting (COREP) into HoM are ongoing.

There are also efforts to integrate data at the EU level, based on the standardised and harmonised European System of Central Banks (ESCB) statistical frameworks. The FSC member institutions are actively contributing to and supporting these initiatives. There are two key elements:[17]

- The Integrated Reporting Framework aims to integrate banks' statistical reporting requirements. The ESCB plans to conduct a cost-benefit analysis in 2020 in close cooperation with the banking industry.
- The Banks' Integrated Reporting Dictionary aims to help reporting agents efficiently organise information stored in their internal systems and fulfil their reporting requirements. At the moment, this covers the reporting requirements of the Analytical Credit Datasets (AnaCredit), some SHS data, and Financial Reporting data. The inclusion of Common Reporting, asset encumbrance and resolution planning data is under development.

Relatedly, the European Banking Authority was tasked with conducting a feasibility study for the integration of statistical, supervisory and resolution data, taking into account the ESCB experience.

Authorities agree that the main existing data limitations concern the residential real estate sector. With no sufficiently granular database on residential real estate financing based on regular data collection, quantitative information on credit standards of housing loans to private households is currently available only on an ad-hoc basis. Consequently, the FSC and its

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16 See the Bundesbank's *Financial Stability Review 2019* (November 2019).

17 For further details, see *the ECB's long-term approach to banks' data reporting*.

member institutions are implementing a strategy to address these data gaps, including options to regularise data requests. In particular, in December 2019 the BMF issued for consultation a draft statutory order for regular data collection by the Bundesbank on residential real estate loans in Germany (see Box 3 for detail). It is scheduled to enter into force in the course of 2020, and allows the Bundesbank to order the first data collection one year after that at the earliest, meaning the first set of data would be likely available during the course of 2021.

Box 3: Draft statutory order for regular data collection on residential real estate

The draft statutory order if thus issued by the BMF in agreement with the Bundesbank provides the legal framework for the collection by the Bundesbank of data from banks and non-banks (i.e. insurance companies and investment funds) on residential real estate loans in Germany.

The data shall be collected at the institution level on a semi-aggregated basis (i.e. no granular loan-by-loan data), using pre-defined distribution buckets (e.g. in terms of LTV, DSTI, DTI and loan term). Other data attributes will include for example borrower age, repayment rates, and data on bank's internal risk metrics (e.g. probability of default, loss given default and expected losses). The data collection shall focus on new loans and be collected on a quarterly basis.

Given the data collection is not expected to start before 2021, data on new business for 2018, 2019 and 2020 shall be captured in a one-off exercise.

The definitions of data attributes mostly follow the ESRB recommendation as well as other definitions established in the European banking regulation. This will help facilitate integrating the national data collection in any future reporting framework (e.g. by extending the scope of the above-mentioned AnaCredit reporting), in line with the efforts to integrate the data with other sources.

Risk assessments: The 2014 FSB peer review recommended "*the FSC should put in place an analytical framework setting out the: (a) conditions for triggering warnings and recommendations; (b) functioning of the 'comply or explain' mechanism; and (c) approach to assessing the impact of the policy action.*"

The FSC uses a broad information set in its risk assessments and to prepare its decisions. Risk assessments cover three areas in particular that can cause or reinforce systemic financial crises: the macroeconomic environment; aspects of the regulatory framework; and market failures.

According to the FSC strategy, the objective of issuing warnings and recommendations is to strengthen the resilience of the financial system (i.e. its ability to absorb losses without causing or exacerbating a downturn) not to fine-tune the financial system or the economy as a whole. Warnings and recommendations are typically issued when the FSC identifies material risks to financial stability. Relevant risk factors include: (i) excessive credit growth/leverage; (ii) excessive maturity/currency/liquidity transformation; (iii) excessive direct and indirect exposure concentrations; (iv) systemic impact of misaligned incentives and moral hazard; and (v) systemic impact of disruptions to financial market infrastructures.

The quantitative information set includes macroeconomic and financial statistics as well as granular data from supervisory statistics and surveys. These indicators and the underlying data are used for descriptive and econometric analysis; network analysis; sector aggregations, and creation of risk dashboards; and model-based indicators, such as composite indicators for the build-up of financial stability risks (e.g. early warning indicators such as gross domestic product

(GDP)-at-Risk or principal component analysis) as well as for their materialisation (e.g. stress tests). For some indicators, thresholds are defined, giving guidance on whether to activate/adjust a macroprudential measure. In addition to quantitative information, the FSC also relies on qualitative input. Hence, the FSC's decisions are not mechanistic (as illustrated in the next sub-section on the activation of CCyB).

The authorities are also developing multiple projects to assess cross-sectoral risks. The projects include assessments of linkages across cash and derivatives markets. With specific reference to derivatives markets, the Bundesbank complements the analytical focus from a bank system perspective with a cross-sectoral one through improved analysis of cross-sectoral holdings of over-the-counter derivatives within the German financial system as well as holdings of different sectors abroad. The authorities have also started using several data sources to assess macroprudential risks relating to CCPs. Specifically EMIR derivatives transaction data is used to assess the interlinkages of the German financial system with EU- and third country CCPs.

The 2014 FSB peer review highlighted it would be useful to develop the framework underpinning the 'comply or explain' mechanism, such as the parameters and criteria that will be used to determine that an FSC warning/recommendation has been complied with or that an explanation about non-compliance is acceptable (and on how to proceed if it is not). At present, an authority to whom the recommendation is addressed is obliged to inform the FSC within a reasonable period of time on how it intends to implement the recommendation and should provide regular updates on the state of implementation.[18] It also has to report to the FSC on the actions taken to comply or to explain reasons for not doing so.

Regarding the approach to assessing the impact of the policy action and whether it has been effective, the FSC's analytical framework includes both ex-ante and ex-post evaluation studies and underpinning models. Ex-ante analyses are designed to choose and calibrate the policy instrument; ex-post analyses would aim to quantify intended as well as unintended effects, and whether any adjustments are needed. The authorities note there is no overarching cost-benefit analysis framework being applied, and that it is too early for an ex-post analysis of instrument activation/re-calibration given so far the only measure that was activated was the CCyB as of 2019 Q3 (see Box 4 below).

2.4. Availability and use of policy tools for macroprudential purposes

The 2014 peer review recommended that the "*FSC should develop a comprehensive macroprudential toolkit on an ex ante basis to ensure the timely application of relevant tools if the need arises.*"

Macroprudential instruments differ in terms of the legal strength of the intervention they entail, ranging from 'soft' (e.g. public communication) to 'harder' ones (e.g. activation of policy tools). The authorities note that it is helpful to consider risk mitigation from the bottom up (micro-

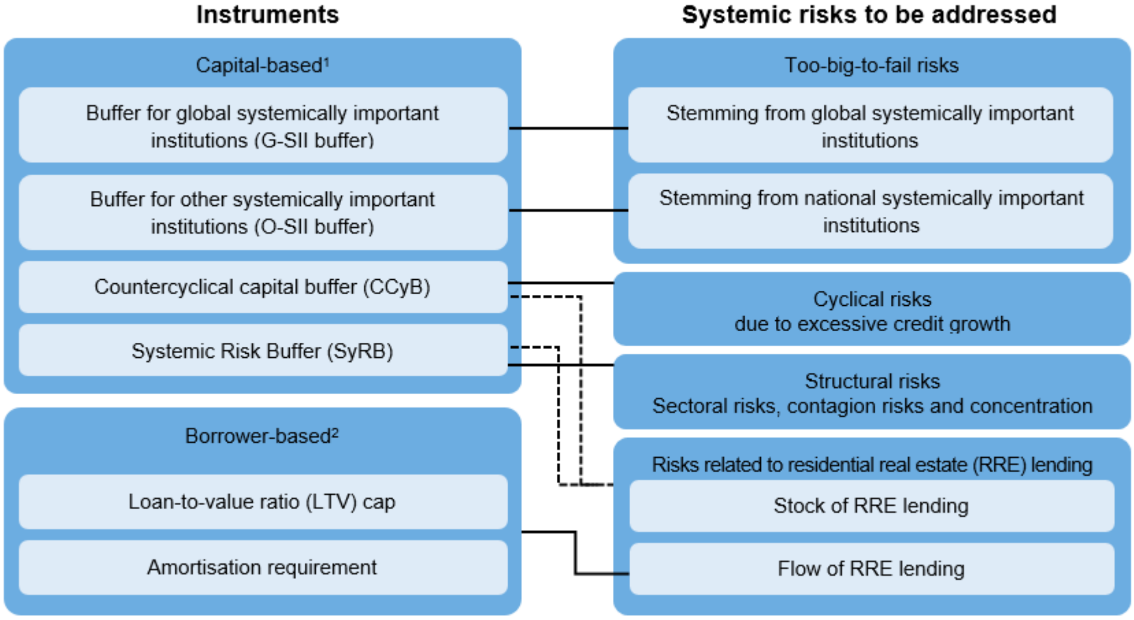
[18] The Act does not specify what constitutes a reasonable period for time. In response to the FSC's recommendation on CCyB activation in May 2019, BaFin responded in June 2019.

prudential) and top down (macroprudential) perspectives – the two are related and can be considered as part of a continuum rather than treating them as distinct. For example, the overall loss-absorbing capacity for the banking system reflects the mix of micro-prudential requirements (i.e. minimum capital ratios for individual banks) and macroprudential buffers (e.g. CCyB).

Germany's macroprudential toolkit is based on EU law to a considerable extent – particularly capital-based instruments available to the authorities for macroprudential purposes – while others are national in nature, such as borrower-based instruments related to residential real estate lending (see Figure 1 and Annex II). For credit institutions, the macroprudential toolkit provided under the EU's Capital Requirements Regulation (CRR)/Capital Requirements Directive (CRD IV) package is meant to address the potential financial stability risks. It has been adjusted to increase its effectiveness and coherence, e.g. better delineating micro and macroprudential instruments such as the 'other systemically important institution' buffer and the systemic risk buffer, and facilitating the sectoral application of the latter (e.g. for real estate risks). For insurers, the European Commission's review of Solvency II will assess the appropriateness of the current framework for insurance companies.[19]

[19] This review was originally due at the end of 2020. The European Commission and EIOPA recently agreed to revise the original timetable due to the COVID-19 pandemic. The review is expected to take place in 2021. See *EIOPA revises its timetable for advice on Solvency II Review until end December 2020* (April 2020).

Main instruments available to the authorities for macroprudential purposes **Figure 1**



Source: Bundesbank.[20] Notes: (1) According to EU CRR/CRD IV. Article 458 of the CRR allows for additional measures to address systemic risks such as increased risk weights on real estate lending or a higher capital conservation buffer, or adjustment of public disclosure requirements to reinforce market discipline and improve risk management. (2) Based on national legislation. See Annex 2 for details and additional instruments.

Domestically, in 2015 the FSC recommended adoption of borrower-based macroprudential tools for residential real estate financing as a precautionary measure (as the FSC did not see the need for their activation at the time). Specifically, the FSC recommended *"the creation of a legal foundation for regulating the granting of new housing loans by setting (i) a cap on the LTV ratio; (ii) an amortisation requirement; (iii) a cap on borrowers' debt-service-to-income ratio (DSTI); and (iv) a cap on borrowers' debt-to-income (DTI) ratio"*.[21] In 2016, the German government proposed to establish the legal basis for all four instruments as recommended by the FSC. In 2017, the Bundestag agreed to establish two macroprudential instruments: BaFin may set a legally binding LTV cap (i above) and an amortisation requirement (ii above).[22] Importantly, these tools apply not only to banks but also to other credit providers, including non-bank financial institutions. They cover loans for the purchase and construction of both residential real estate and commercial property for residential purposes.

20 See Bundesbank Vice President Buch's panel statement on *Macroprudential Policy in Europe: The German Countercyclical Capital Buffer (CCyB)* (November 2019).

21 See *Financial Stability Committee Recommendation of 30 June 2015 on new instruments for regulating loans for the construction or purchase of residential real estate*.

22 BaFin may activate the LTV cap or amortisation requirement for new housing loans if necessary to counteract potential risks to financial stability. The IMF recommended in 2018 an early activation of LTV caps given possible housing overvaluations in dynamic cities. However, the authorities saw overvaluation concerns as localised and the lack of substantial credit growth or deterioration of credit standards, alongside households' strong balance sheets, as reassuring. Assessing financial stability risks from new housing loans to be low, their view was an early activation of borrower-based macroprudential tools was unjustified at that stage and would face legal obstacles. See *Germany: 2018 Article IV Consultation* (July 2018, IMF Country Report No. 18/208).

With these new tools, some progress has been made against the 2016 FSAP recommendation that *“the legal basis for real estate-related macroprudential tools should be developed”*. But in 2017, the Bundestag decided not to introduce the income-related instruments (iii and iv above), primarily due to concerns that such instruments would increase the complexity of macroprudential measures, and due to data availability limitations that would make their activation unlikely over the short to medium run.

The 2019 IMF Article IV recommended that, given the prolonged rise in house prices,[23] the authorities should consider implementing an LTV cap and amortisation requirements on mortgages, and introducing income-based instruments. It also recommended that instruments for commercial real estate should be taken into consideration.

The BMF is currently reviewing the effectiveness of existing borrower-based macroprudential instruments in the area of residential real estate financing and will be reporting to the Bundestag in due course. As requested by the Bundestag, this evaluation will also consider the question of expanding the current toolkit with income-related tools contemplated in the 2015 FSC recommendation. The FSC and the Bundesbank noted recently that the remaining two income-based instruments should be created and that data gaps regarding lending standards should be closed.[24] Regarding the latter and as discussed above, the BMF in December 2019 launched the public consultation on a draft statutory order which would enable regular data collection on lending standards for residential real estate loans by the Bundesbank in the future. This is expected to include data on DSTI and DTI ratios of borrowers.

Relatedly, in late 2019 the BMF also launched a public consultation on a draft statutory order which sets out further technical details regarding the new measures available to BaFin to impose certain minimum standards upon lenders to limit macroprudential risks from new loans for the construction or acquisition of residential property if deemed necessary for safeguarding financial stability (i.e. namely the LTV cap and amortisation requirement). This draft includes provisions on cooperation between BaFin and the Bundesbank in the adoption of these measures. The draft statutory order aims to provide commercial lenders with legal certainty in relation to these new measures and the opportunity to prepare for their application, irrespective of which instruments are applied in the future. The European Central Bank’s (ECB) opinion on the draft statutory order reiterated that the availability of a comprehensive set of borrower-based measures, including the income-based measures, would be beneficial by enabling BaFin to respond in a proportionate way in relation to potential risks to financial stability.[25]

Box 4: Activation of the CCyB in Germany

In May 2019, the FSC recommended to BaFin that the CCyB be activated as from 2019 Q3 and lifted to 0.25%.[26] The FSC acted to mitigate risks to financial stability from the build-up of cyclical risks in three risk areas: (i) potentially underestimated credit risk (“economic risk”); (ii) potentially overvalued

[23] During the 2010 to 2018 period, real estate prices in Germany were up by 59% overall and by around 98% in Germany’s seven largest cities, and overvaluations in towns and cities are estimated to have reached between 15% and 30%.

[24] See the FSC’s *Fifth Annual Report* (June 2018) and the Bundesbank’s *Financial Stability Review 2019* (November 2019).

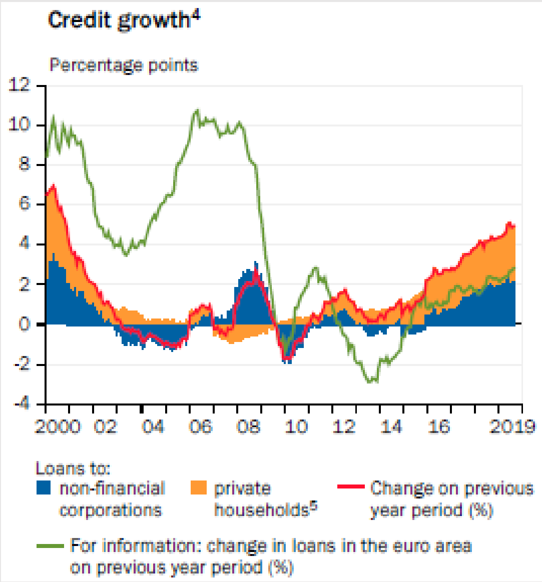
[25] See *Opinion of the European Central Bank of 8 January 2020 on measures limiting macroprudential risks in residential property loans*.

[26] See *Recommendation by the German Financial Stability Committee dated 27 May 2019 concerning the increase of the countercyclical capital buffer*.

loan collateral on the back of many years of rising real estate prices ("real estate risk") and (iii) interest rate risk, particularly if interest rates stay low for an even longer period or increase unexpectedly abruptly or strongly, for instance if risk premia in financial markets rise suddenly.

Stress test-based analyses showed that banks under stress would deleverage considerably in order to maintain sufficient capital. Under those circumstances, the banking system could no longer sufficiently play its vital role of supplying credit to the real economy. Hence, resilience and the associated loss absorption capacity of the banking system needed to be strengthened as a preventative measure to avoid adverse feedback loops between the financial system and the real economy, should a period of stress arise. If risks were to materialise in a downturn, the buffer can be immediately released to cover losses, preventing damaging deleveraging.

Chart 1: The evolution of credit in Germany (2000-19)



Source: German Council of Economic Experts Annual Report 2019/20.

The FSC's decision on setting the CCyB rate follows the principle of guided discretion, reflecting a series of macroeconomic indicators, including the credit-to-GDP gap, as well as additional information. Hence, issuing a recommendation was not mechanistic. While credit growth has been rising in Germany for several years (Chart 1), the credit-to-GDP gap as a rule-based component did not reach the level for a buffer guide above zero at that time.
In response to the FSC recommendation, on 28 June 2019 BaFin issued a general administrative act and raised the CCyB rate (in line with the FSC recommendation) to 0.25% as of 1 July 2019, with a phase-in period of one year. The buffer also applies in a reciprocal manner to German exposures of banks in other member states of the European Economic Area (EEA). BaFin reviews the appropriateness of CCyB every quarter.

2.5. COVID-19 developments

The COVID-19 pandemic represents a major exogenous global economic shock. In Germany, GDP is expected to shrink significantly. The government has taken comprehensive fiscal measures to support the economy and help avoid a sharp increase in corporate insolvencies.[27]

At the outset of the COVID-19 pandemic, the FSC discussed at its regular meeting in March contingency planning and various scenarios on how the pandemic might develop. Shortly thereafter, the FSC discussed the impact of COVID-19 on financial stability in an ad-hoc

[27] As of May 2020, these measures included the expansion of existing liquidity assistance programmes by the public development bank KfW; the establishment of a state fund for large non-financial corporations; direct aid for small enterprises; tax measures (e.g. reduction of tax prepayment) to improve corporate sector liquidity; and short-term working arrangements. See https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#G and *Covid-19 situation: BaFin information on new developments and key points.*

conference call. One of the issues discussed was BaFin's intention to decrease the CCyB from 0.25% to 0% as a preventative action to ensure the banking sector's capacity to provide credit to the real economy. The FSC welcomed this step, and held a press briefing on 18 March in order to inform the public of BaFin's intention and its assessment of financial stability. BaFin on 31 March officially announced the decrease in the CCyB as of 1 April.[28] This decision was taken prior to the CCyB rate of 0.25% actually coming into effect due to the 12-month implementation period (see Box 4). The German authorities have also taken measures to extend ECB-issued supervisory and operational flexibility to German banks under national supervision, and are involved in international initiatives to coordinate the COVID-19 response.

3. Assessing and managing risks to financial stability from NBFI

3.1. Background

While the German financial sector remains bank-dominated, the relative importance of non-banks has increased notably in recent years, and particularly following the global financial crisis. This increase has been driven mostly by the growth in assets of other financial intermediaries (OFIs), notably investment funds.[29] Box 5 provides detail on the structure of the German financial system and the role of non-banks.

Box 5: Structure of the German financial system and the role of non-banks

The relative importance of NBFI in the German financial system increased between 2002 and 2018 from less than a quarter of total financial assets to over a third (Chart 2). This increase has been driven mostly by growth in assets of OFIs, followed by insurance and pension funds. Investment funds are the largest OFI sub-sector, accounting for over three quarters of OFI assets.

According to ECB data, Germany has the third largest fund sector in the Euro Area, with its €2.4 trillion in assets under management representing 18% of the market. The industry has more than doubled since the crisis, with the increase driven in particular by open-ended retail and special funds (Chart 3).

Special funds (Spezialfonds) are a type of an alternative investment fund (AIF) that are held mostly by institutional investors. Spezialfonds tend to have only one investor or a limited group of investors (often insurers and pension funds). This may eliminate the run risk associated with other types of open-ended funds investing in potentially less liquid assets. However, losses in the sector could have an impact on the institutional investor and ultimately on the insurance policy holders or pension policy holders. The Bundesbank's 2018 Financial Stability Review notes that Spezialfonds can work as a shock absorber by using hidden reserves (stille Reserven).[30] The particularly fast growth of this fund

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28 See https://www.bafin.de/SharedDocs/Veroeffentlichungen/DE/Aufsichtsrecht/Verfuegung/vf_200331_allgvfg_antizykl_kapitalpuffer.html.

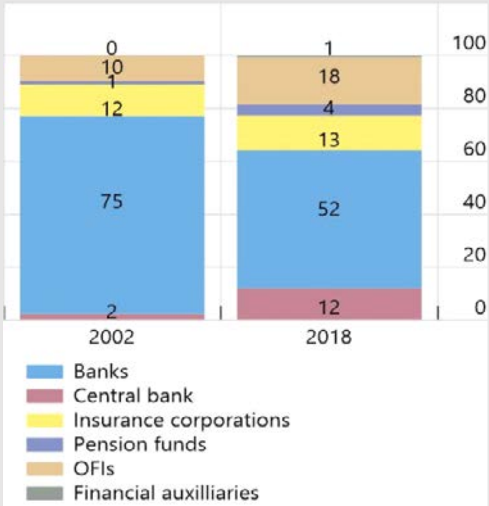
29 OFIs are comprised of all financial institutions that are not central banks, banks, public financial institutions, insurance corporations, pension funds, or financial auxiliaries.

30 Under German accounting and supervisory law, life insurers are permitted to create hidden reserves in a targeted manner by steering these fund dividend payments, as only capital gains accruing to insurers are recognised in profit or loss according to the "realisation principle" set out in the German Commercial Code. These earnings must then be allocated on a pro rata basis among policyholders and shareholders (in accordance with the Minimum Allocation Regulation). Life insurers can draw on these reserves later – for instance, to fund guaranteed payments to policyholders. The authorities note that within those parameters, this cushioning function performed by fund investment can impact positively on financial stability. See the Bundesbank's *Financial Stability Review 2018* (November 2018).

category reflects a number of drivers, including cost effectiveness for insurers. From a risk management perspective, where investors are insurers, the same restrictions in terms of prudential requirements apply as if the insurer held assets directly (i.e. complete 'look through').

Chart 2: The financial sector remains bank-dominated but the role of NBFIs has increased

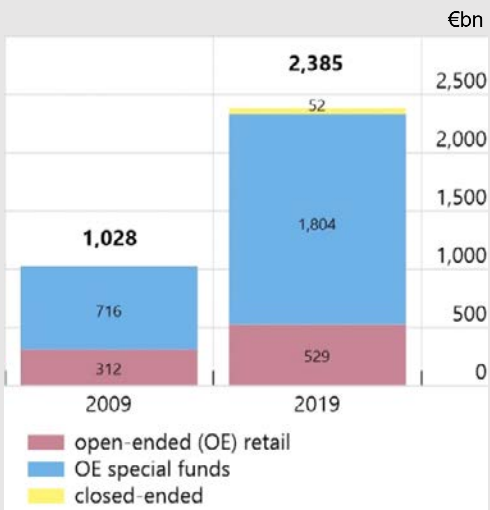
Financial system structure



Source: FSB *Global Monitoring Report on Non-Bank Financial Intermediation 2019.*

Chart 3: The German fund industry has more than doubled since the crisis, driven by open-end retail funds and special funds

Composition of the German fund industry



Source: Bundesbank Investment Fund Statistics

Note: excludes discretionary mandates; data on closed-end funds available from 2015 onwards.

3.2. Analytical framework and data for assessing financial stability risks from NBFI

The German analytical framework for assessing financial stability risks from NBFI closely follows the monitoring approach of the FSB's 2013 Policy Framework.[31] This entails classifying activities based on five economic functions (EFs) that may pose bank-like financial stability risks and/or regulatory arbitrage. The analytical framework combines regular monitoring in accordance with the FSB's annual exercise with analyses of topical issues.

While the Bundesbank leads the preparation of financial stability risk assessments, all FSC authorities work in close cooperation on NBFI and appear to contribute substantially in the analysis. To this end, BaFin, the Bundesbank and the BMF have established a number of formal and informal structures for coordination and information sharing on NBFI-related matters. The FSC represents the most important formal structure, and is tasked with the evaluation of financial stability risks, including from NBFI. Furthermore, cooperation between BaFin and the Bundesbank is stipulated in their respective laws. The informal structures

[31] See the FSB *Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities* (August 2013).

include the joint BaFin-Bundesbank-BMF NBFI network, joint workshops on topical NBFI issues, the joint Bundesbank-BaFin contact group on macroprudential stress-testing in the investment fund sector, and BaFin's Strategy and Risk Committee, in which the Bundesbank participates.

Table 1 summarises the entities classified by the German authorities into the five EFs in the 2019 edition of the FSB annual monitoring exercise and the data sources used to monitor each.

Table 1: Entity types, data sources and policy tools by economic function

Economic function	Entities	Data sources	Policy tools
EF1 *Collective investment vehicles with features that make them susceptible to runs*	Money market funds, fixed income funds, mixed funds, hedge funds, real estate and other funds	Investment funds statistics of the Bundesbank, granular balance sheet information on investment funds located in Germany (monthly frequency), combined with the Securities Holding Statistics (SHS) and the Centralised Securities Database (CSDB) and private vendor data (Morningstar).	Various preventative, pre-emptive and containment tools available to fund managers and, in some cases, authorities (for details, see table 2).
EF2 *Lending dependent on short-term funding*	Financial corporations engaged in lending, financial leasing companies, and factoring companies	Supervisory data of the Bundesbank, balance sheet information on financial corporations engaged in lending, financial leasing as well as factoring companies located in Germany (annual frequency).	A number of applicable prudential requirements, including risk-bearing capacity covering credit, market price, liquidity and operational risk; large exposure limits.
EF3 *Market intermediation dependent on short-term funding*	Broker-dealers (security and derivatives dealers)	Supervisory data of the Bundesbank and BaFin, balance sheet information on security and derivative dealers (annual frequency).	Prudential regulatory requirements; liquidity and capital requirements; restrictions on use of client assets; EMIR requirements (derivatives).
EF4 *Facilitation of credit intermediation*	N/A – German authorities classify no entities into this economic function		
EF5 *Securitisation-based credit intermediation*	Financial vehicle corporations (FVCs)	Statistics on FVCs of the Bundesbank, balance sheet information on FVCs located in Germany (quarterly frequency).	Restrictions on maturity/liquidity transformation and eligible collateral; restrictions on exposures to other financial entities

Note: Not all policy tools listed are available for all entity types in a given economic function.

Trends and potential risks relating to NBFI are regularly discussed at the FSC (quarterly analysis, complemented with discussions on particular trends). Some of the non-bank risks discussed recently are:

- The functioning, construction and complexity of exchange traded funds from a financial stability perspective. This was preceded by working level information exchange and a roundtable with market participants.

- Trends towards longer portfolio durations in the investment fund sector and portfolios becoming increasingly international, as well as increased intra-sectoral interconnectedness of open-ended funds;

- Credit provision by non-bank financial entities; and

- Fintech credit intermediation.

The analytical framework is mainly based on quantitative monitoring and is complemented by qualitative monitoring, for instance in areas where data gaps remain an issue and with regard to financial innovation. The primary data sources for the Bundesbank's regular monitoring are the German financial accounts as well as available primary statistics and supervisory data. The Bundesbank's regular roundtables with market participants, including asset managers, provide qualitative information.

As the German investment fund sector represents 95% of Germany's narrow measure of NBFI, particular emphasis from the authorities has been on enhancing their analysis of risks from the open-ended investment fund sector (EF1) and its interconnectedness with the rest of the financial system, as well as on interconnectedness among financial sectors more broadly. This involves improving risk metrics as well as developing analytical tools. In particular, as regards:

- *credit intermediation* – The indicator for credit intermediation by open-ended investment funds is an integral part of the Bundesbank's financial stability monitoring framework.

- *liquidity and leverage* – BaFin carries out *ad hoc* analyses on investment fund assets/composition and started a regular monitoring of liquidity and leverage indicators, while the Bundesbank regularly monitors liquidity and leverage indicators and has developed a stress test for the German fund sector (the latter is being taken forward by the Bundesbank-BaFin 'Stress Test Contact Group).[32] A Bundesbank project to analyse German investment funds' synthetic leverage via derivative exposures (based on EMIR data) is at an early stage due to the size and complexity of EMIR data. In addition, BaFin monitors leverage in AIFs that report under the

[32] As the first empirical stress test results based on the German open-ended investment fund sector suggest, investment funds might amplify financial market stress by triggering second-round effects within the sector. However, in the specified stress scenario, these tend to be rather limited in size. As a next step, it is planned to expand the analysis by considering whether and to what extent other intermediaries (banks, insurers) might be affected. See the Bundesbank's *Financial Stability Review 2019* (November 2019).

AIFMD and in Undertakings for Collective Investments in Transferable Securities (UCITS) via annual derivatives reporting and quarterly reporting of market risk. However, since regulatory restrictions apply on their holdings of illiquid assets, liquidity in UCITS itself was not subject to regular monitoring in the past, but in the light of recent episodes of liquidity distress in the EU UCITS fund sector, BaFin started to do so on a regular (monthly) basis.

- *interconnectedness* – The German authorities monitor interconnectedness primarily via direct exposures, in line with the approach taken by the FSB's NBFI monitoring exercise.[33] This analysis builds on banks' claims on NBFI entities and banks' liabilities to NBFI entities as well as claims and liabilities between NBFI entities. The Bundesbank calculates indicators of interconnectedness between the open-ended investment fund sector and the banking and insurance sector on a monthly basis. It analyses a range of data sources (e.g. the German investment fund statistics, the CSDB and the SHS) on both the intra- and inter-sectoral interconnectedness of the German open-ended investment fund sector. The Bundesbank's regular assessment of the open-ended investment fund sector's consolidated balance sheet gives valuable insights with regard to possible risk transmission channels based on interconnectedness, both via holder structures as well as via the structure of investments in different sectors. A macroprudential fire sale stress test was developed which also takes into account the indirect interconnectedness within the fund sector via overlapping portfolios. Looking ahead, the plan is to enhance the stress test model by incorporating other financial intermediaries (like banks and insurers) to take a system-wide perspective, in line with the 2017 FSB recommendation and subsequent work on addressing structural vulnerabilities from asset management activities.[34]

BaFin has also recently started detailed analysis of AIFMD data, which covers the characteristics of the AIFs (type, strategy, concentration of investors) along with detailed information on assets (principal exposures, exposures by asset type and regional investment focus), as well as several risk features (market risk, liquidity profile, use of leverage and stress test results).[35] As an example of effective information and data sharing across the FSC authorities, BaFin also shares AIFMD data with the Bundesbank. The authorities expected quarterly analysis of the AIFMD data commencing mid-2020 for data as of Q1 2020. While AIFMD data cover a wide range of indicators and fund coverage is good in Germany, the complexity of the database structure and reporting quality hampers the usability and analysis of the data – for example, due to data cleaning and consistency checks. To address the outstanding issues, both close cooperation with other EU institutions and continued efforts in monitoring the quality of reporting by the German asset managers would be beneficial.[36]

The authorities agree that NBFI is one of the main areas suffering from data limitations. The Bundesbank has set up an internal working group to examine the potential for improving the

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[33] See the FSB *Global Monitoring Report on Non-Bank Financial Intermediation 2019* (January 2020).

[34] See FSB *Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities* (January 2017).

[35] For further information see the *ESMA Annual Statistical Report: EU Alternative Investment Funds 2019* (March 2019).

[36] BaFin chairs the ESMA AIFMD Task Force to develop a common basis for analysis by the national competent authorities.

representation of the German NBFI sector in the financial accounts using various granular and micro data sources (e.g. internal Bundesbank data sources). Furthermore, German authorities acknowledge that data gaps hinder the analysis of cross-border NBFI interconnectedness (e.g. funds of funds holdings create a cross-border intermediation chain impeding a genuine "look through" to ultimate risk exposure). Banks' supervisory reporting provides insights on banks' and other financial intermediaries' exposures. Using its Central Credit Register data, the Bundesbank has analysed the exposure of the German financial system to several NBFI sectors nationally and internationally. Furthermore, the Bundesbank sources data from private vendors (e.g. Morningstar) to mitigate some of these data gaps.

The 2016 FSAP recommended BaFin should "*intensify the frequency of on-site inspections of asset management companies and accompany external audits on a more regular basis, and enhance the risk classification methodology (to take into account a broader range of factors than assets under management (AUM), such as the leverage employed by fund managers and the level of interconnectedness).*"

Since then, BaFin has substantially revised its risk classification for asset management companies. A new manual was put into effect in April 2018. The assessment now includes a broader range of criteria, including liquidity of the assets, leverage and interconnectedness. Noting IOSCO's work on developing leverage measures for funds,[37] the authorities said they would consider revising their risk classification methodology if warranted. On interconnectedness, BaFin focuses in particular on special funds (see Box 5 above), given their links to other financial institutions who are often the investors. In 2019 BaFin reviewed its risk classification and identified the need for changes in a few small areas, implying continuous process of review its risk classification. The next revision is planned in 2020.

In addition to revising its risk classification methodology, BaFin has strived to increase the number of supervisory visits and on-site inspections in response to the FSAP recommendations. The number of supervisory visits almost doubled between 2016 and 2018 (from 56 to 100), though these consist mostly of regular supervisory meetings rather than inspections.[38]

3.3. NBFI-related policy tools

A number of policy tools are in place to mitigate risks from NBFI, as shown in Table 1. Following the financial crisis of 2007-08, some open-ended real estate funds in Germany experienced difficulties, which led to suspensions. In response, in 2013 Germany introduced a number of structural policy changes to stabilise funds and improve investor protection, particularly for retail investors (see Box 6).

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37 See IOSCO's *Recommendations for a Framework Assessing Leverage in Investment Funds* (December 2019).

38 The overall number of on-site reviews is approaching the level considered during the 2016 FSAP review (118 visits and audits in 2013), which the authorities note was exceptionally high. See the IMF's *Germany: Financial Sector Assessment Program-Fund Management: Regulation, Supervision and Systemic Risk Monitoring-Technical Notes* (June 2016, IMF Country Report No. 16/193).

The FSB recommended in 2017 that authorities should make liquidity risk management tools available to open-ended funds to reduce first-mover advantage, where it may exist. [39] The FSB listed swing pricing, redemption fees and other anti-dilution methods as examples of such tools. IOSCO operationalised the FSB recommendations with its 2018 liquidity risk management recommendations.[40] Relatedly, in 2017 the ESRB recommended that the regulatory framework governing investment fund liquidity management in the EU needs to be broadened.[41] The ESRB recommendation notes that the availability and implementation of additional liquidity management tools varies significantly across jurisdictions. The most commonly available tools listed are suspensions, redemption fees and gates; redemptions in kind; and side pockets.

Box 6: 2013 policy changes for German open-ended real estate funds[42]

Following the financial crises of 2004/5 and 2008/9 some open-ended real estate funds in Germany experienced difficulties, which led to suspensions. In October 2008, redemptions were suspended for 12 real estate funds. With the law not permitting suspension longer than two years, by the end of October 2010, the management companies of three funds concluded that an orderly winding up of these funds was the only option in order to assure a fair and equal treatment of all investors.[43] Overall, in the wake of the financial crisis, a total of 18 open-ended real estate funds with a total portfolio volume worth €33bn had been terminated by ten real estate investment companies. As of early 2015, ten of the 18 funds were still in process of liquidation.[44] Germany introduced a number of structural policy changes to stabilise real estate funds and improve investor protection, particularly for retail investors.

- First, investments in such funds have to be held for a minimum period of 24 months, and 12 months' notice is required for redemption requests. Previously, investors could request redemptions at any time without notice; institutional investors used this option extensively during the global credit crunch, leading to liquidity problems for funds and suspensions.
- Second, the management company of a fund is obliged to suspend redemption of units if the bank deposits and the proceeds from the funds invested are not sufficient to pay the redemption price and to ensure a proper management on an on-going basis, or are not immediately available. According to the rules, 5% of the fund's net asset value (NAV) must be available on a daily basis for redemption of shares/units, and hence invested in liquid assets (e.g. bank deposits, money market instruments).
- There was also tightening in leverage limits for retail funds (down to 30% from 50%).

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39 See *Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities* by the FSB (January 2017).

40 See IOSCO's *Recommendations for Liquidity Risk Management for Collective Investment Schemes* (February 2018).

41 See *Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds* (April 2018).

42 An IMF staff Technical Note on fund management, prepared as input to the 2016 FSAP, recommended that the authorities (i) consider including a broader range of pricing tools, including swing pricing or ad hoc redemption fees and (ii) consider putting in place a broader set of liquidity management tools, such as gates and side pockets, to complement the existing possibility to suspend redemptions. See the IMF's *Germany: Financial Sector Assessment Program-Fund Management: Regulation, Supervision and Systemic Risk Monitoring-Technical Notes* (June 2016) and IOSCO's *Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration* (February 2018).

43 See *Germany: Financial Sector Assessment Program – Detailed Assessment of Observance of IOSCO Objectives and Principles of Securities Regulations* (September 2011, IMF Country Report No. 11/274).

44 Open-ended real estate funds in liquidation – the investor's view, KanAm Grund Real Estate Asset Management, February 2015.

- Further, the rules also include quarterly valuations.

The sector has grown[45] since the introduction of the reforms, probably reflecting the search for higher yields in a low/negative rate environment.

A number of other jurisdictions have expanded fund managers' toolkits recently. For example, in 2016 the US Securities and Exchange Commission (SEC) finalised a rule that would permit US mutual funds to use swing pricing. The asset management industry is also adopting swing pricing more widely.[46] In 2017, the French securities regulator (Autorité des Marchés Financiers) adapted its policy to allow for redemption gates mechanisms in open-ended funds.[47] In the UK, the Bank of England and the Financial Conduct Authority are working on a joint review of open-ended funds, examining how to better align funds' redemption terms, including pricing and notice periods, with the liquidity of their assets.[48]

Table 2 shows that, before the recent introduction of three new tools, Germany had relatively fewer liquidity management tools available compared to some other jurisdictions.

In light of the FSAP Technical Note recommendation and the 2017 FSB recommendations to address liquidity mismatch in funds, the FSC discussed different liquidity risk management instruments and their interplay in 2017. In 2018, BaFin published a report on the practice of German investment funds and guidelines on liquidity stress testing for UCITS and AIFs.[49] Legislative changes came into effect in March 2020 to extend the set of liquidity management and pricing tools currently available to investment funds – both UCITS and AIFs – in Germany.[50] These include the introduction of redemption gates, notice periods (up to one month for retail funds) and swing pricing, but not side pockets (see Box 7).

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45 According to the official Bundesbank Investment fund statistics as well as BVI data (*BVI Investment Statistik)*.

46 For example, Vanguard moved to a full swing pricing model on their UK and Irish domiciled fund range in 2017 and to a partial swing pricing model in 2019. See *Why Vanguard is moving to swing pricing* (October 2017) and *Why Vanguard is moving to partial swing pricing* (May 2019).

47 See *Setting up redemption gates mechanisms: the AMF publishes a new instruction and adjusts its existing policy* (April 2017).

48 See the Bank of England's Financial Stability Reports (July 2019 and December 2019).

49 See the BaFin report on *Liquidity stress testing in Germany asset management companies*.

50 See https://www.bgbl.de/xaver/bgbl/start.xav#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl120s0529.pdf%27%5D__1586964347136.

Table 2: Available liquidity management tools in selected European jurisdictions and the US as of end-2019

	Gates	Side pockets	Anti-dilution levy	Redemption fees	Redemption-in-kind	Suspension of redemptions	Swing pricing	Short-term borrowings	Mandatory liquidity buffers	Side letters	Other tools or measures
DE	#			●	●	●	#	●	●*	●*	●
ES	●	●			●	●		●	●	●	●
FR	●	●	●	●	●	●	●	●			●
IE	●	●	●	●	●	●	●	●		●	
IT	●	●	●	●	●	●		●			●
LU	●	●	●	●	●	●	●	●		●	●
NL	●	●	●	●	●	●	●	●	●	●	
UK	●		●	●	●	●	●	●		●	●
US	●	●		●	●	●	●				

Sources: *A Review of Macroprudential Policy in the EU 2019* by the ESRB (April 2020); IOSCO's *Liquidity Management Tools in Collective Investment Schemes: Results from an IOSCO Committee 5 Survey to Members* (December 2015); and US SEC *Investment Company Swing Pricing – a small entity compliance guide* (October 2016).

Notes: (*) In Germany, mandatory liquidity buffers only apply to open-ended real estate funds and side letters only apply to special funds. (#) These tools were introduced in Germany in March 2020.

Redemption gates are partial restrictions on investors' ability to redeem, generally on a pro-rata basis. For example, a 10% gate would mean that if redemption orders exceed 10% of fund's net assets, the orders would be only partially executed, with the rest being cancelled or automatically carried over to the next valuation/dealing day. This allows the fund manager to spread asset sales, helping avoid fire sales.

Swing pricing refers to the process of adjusting a fund's NAV to effectively pass on the costs stemming from fund net capital activity (i.e. inflows/outflows) to the investing/redeeming investors. Swing pricing has two forms: (i) full swing pricing (whereby the NAV adjusts every day) and (ii) partial swing pricing (which is only invoked with the net capital activity exceeds a pre-determined 'swing' threshold).[51]

Other tools or measures include notice periods, which outline the length of advance notice that an investor must give to a fund manager of his/her intention to redeem, allowing the fund to meet the redemption request in an orderly fashion. Notice periods are often used in the hedge fund industry but there are also examples from open-ended investment funds such as German retail open-ended property funds (see Box 6).

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51 See IOSCO's *Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration* (February 2018).

Box 7: Side pockets

Side pockets are a mechanism by which a fund manager establishes a separate account for the sole purpose of segregating specific assets, which might be difficult to value or liquidate at a given moment, from the fund's overall portfolio.[52] The liquid part of the fund remains open for subscription and redemption, while the illiquid part in the side pocket can be dealt with separately.

Side pockets have been used to segregate and hold illiquid securities during past crises or in times of uncertainty where fair valuation of an asset was temporarily difficult or impossible (e.g. by hedge funds in Italy and Singapore during the global financial crisis).[53] Such instruments are part of fund managers' toolkits in several jurisdictions such as Brazil, France, Hong Kong, Italy and the US.[54] They are most commonly used by funds investing in less liquid assets, such as private equity, venture capital or hedge funds, however they can also be useful for open-ended mutual funds. For example, in France side pockets are authorised for all funds.

One of the key advantages of side pockets is that the fund manager, through unit segregation, can better manage the unique liquidity of the different underlying assets. This helps avoid fire sales and ensures fair treatment of investors. While gates can delay large redemptions for a limited time period, side pockets allow for blocking the liquidation of the subset of assets as long as necessary without affecting the rest of the portfolio (unlike for example in the case of a suspension).

There are also potential disadvantages and complications. First, only the NAV of the fund, other than the side pocket, may be known to the investors, which introduces some uncertainty. IOSCO has also highlighted that side pockets could raise investor protection issues. There have been examples of illiquid assets being segregated into side pockets accounts to protect managers' fees on the more liquid part of the investment strategy. Also, those investors that decide to sell out will still remain invested in the side pocket until the assets can be sold which can take a long time. Finally, given assets of the fund are split between two segregated legal investment vehicles, the use of side pockets could introduce complexity.

3.4. COVID-19 developments

Additional steps by the authorities have been taken to monitor NBFI in response to the market turmoil due to the COVID-19 pandemic. Having experienced large outflows in the investment fund sector due to the crisis and in order to get early signals about possible suspensions or difficulties, BaFin put in place a daily reporting obligation on redemption rates and liquidity risk for open-ended retail funds investing in financial instruments. A similar reporting obligation was put in place for open-ended retail funds investing in real estate, where there is now a weekly obligation for asset management companies to report on redemption rates and liquidity risk. Furthermore, the Bundesbank set up a high-frequency macroprudential monitoring of net redemptions in the German investment fund sector based on private vendor data, while BaFin and the Bundesbank have shared assessments of COVID-19-related developments in the fund sector within their joint stress test contact group.

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52 See IOSCO's _Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration_ (February 2018).

53 See also examples in IOSCO's _Liquidity Management Tools in Collective Investment Schemes: Results from an IOSCO Committee 5 Survey to Members_ (December 2015).

54 *Ibidem*, see Table 2 of the 2015 IOSCO survey on liquidity management tools in collective investment schemes and Appendix 1 of the 2018 IOSCO report *Open-ended Fund Liquidity and Risk Management*.

4. Conclusions and recommendations

Germany's macroprudential framework is well-established and operationalised through the FSC. The FSC adopted and published its macroprudential strategy in 2014, addressing the FSB peer review recommendation that the FSC should consider further specifying its role on financial stability issues and its analytical framework. Data collection, quality and integration have improved, with the FSC facilitating effective information and data exchange across its member authorities. This cooperation in turn has enhanced the FSC's analytical capabilities for the assessment of financial stability risks.

The FSC has further developed its macroprudential toolkit in recent years. In particular, two borrower-based macroprudential tools were established by law in 2017, allowing BaFin to set a legally binding LTV cap and amortisation requirement for new housing loans. These tools are designed to address potential financial stability risks stemming from developments in the residential real estate market. Notably, these tools apply to both banks and non-bank financial institutions, but so far their activation has not been deemed necessary. BaFin did, however, activate the CCyB in 2019, in response to an FSC recommendation. The CCyB rate was subsequently reduced to 0% against the backdrop of the COVID-19 pandemic.[55]

The efforts of the authorities to monitor and manage risks to financial stability from NBFI have increased in recent years as the importance of the sector has grown, most notably with respect to investment funds. Trends and potential risks relating to NBFI are regularly discussed at the FSC, while BaFin, the Bundesbank and the BMF have established formal and informal structures for coordination and information sharing on NBFI-related matters. The analytical framework is mainly based on quantitative monitoring, complemented by qualitative information where data gaps persist. Monitoring of the open-ended investment fund sector has benefited from initiatives to improve data and risk analysis as they relate to funds' credit intermediation, liquidity, leverage and interconnectedness with other sectors. The authorities have taken steps to increase monitoring of fund liquidity following COVID-19 developments. BaFin's risk classification methodology for fund managers has been substantially revised and recent legislative changes have extended the set of liquidity management and pricing tools available to asset managers (notice periods, redemption gates and swing pricing).

At the same time, as is the case in other jurisdictions, further steps can be taken to strengthen the macroprudential framework in some areas. These involve: enhancing data availability and quality for macroprudential analysis; extending the policy toolkit; and strengthening public communication and the analysis of emerging risks and of risks outside the banking sector.

Enhancing data collection for macroprudential analysis: The lack of granular (including by geographic area) and timely information on real estate lending – and lending standards in particular – remains a material data gap that impedes a full assessment of potential financial stability risks in specific market segments. For residential real estate lending, the FSC's Sixth Annual Report and the Bundesbank's 2019 Financial Stability Review note that these gaps make it difficult to assess in a timely manner how lending standards and borrowers' debt

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[55] See BaFin's *General Administrative Act regarding a decrease in the domestic countercyclical capital buffer rate* (March 2020).

sustainability are evolving. At present, there is no sufficiently granular database on residential real estate financing based on regular data collection; only ad-hoc data collections providing data of limited quality on credit standards on housing loans are available. An ESRB country-by-country assessment[56] noted that an assessment of a potential build-up of vulnerabilities in Germany was hampered by data gaps regarding the credit characteristics of new housing loans.[57] Furthermore, banks use different methods to calculate LTV ratios, which, among others, limits the ability to draw market-wide conclusions from ad hoc data collections. Closing data gaps in the area of residential real estate lending will support financial stability monitoring and the introduction of additional policy tools. The BMF consultation on a draft statutory order for regular data collection by the Bundesbank on residential real estate loans in Germany is a welcome development and would respond to both the ESRB recommendations as well as the data element of the 2015 FSC recommendation.

More broadly, building on progress to date, the authorities should continue to improve the quality and integration of data for macroprudential analysis, including for NBFI and interconnectedness, to get a better view of system-wide risks. For example, for the asset management sector, BaFin has enhanced its risk metrics and monitoring of the open-ended investment fund sector. Still, the structure of the AIFMD database on funds transactions is complex and quality of reporting remains an issue. EMIR data on derivatives, central counterparties and trade repositories can also be improved in terms of quality and usability in Germany. Data gaps remain an issue also in the analysis of cross-border NBFI interconnectedness, particularly for funds-of-funds holdings. BaFin initiatives to foster usage and enhance the quality and coverage of AIFMD and EMIR data are welcome, and should possibly be further strengthened in coordination with other EU authorities and ESMA.[58] In addition, further integration of EMIR data into macroprudential assessments would enable a more granular view on emerging systemic vulnerabilities.

- **Recommendation 1**: The authorities should enhance data collection for macroprudential analysis by: (a) establishing regular, consistent and granular reporting on lending standards for residential real estate loans; and (b) continuing to improve the quality and integration of data for macroprudential analysis, including for NBFI and interconnectedness.

Strengthening FSC communication: The FSC's strategy is under review, and one important element under consideration is the effectiveness of its public communication. The German authorities view communication on developments regarding financial stability risks as a 'soft policy instrument' of the FSC. The FSC does not publish records or minutes of its quarterly deliberations, and there is no pre-announced calendar for such meetings. The FSC provides, however, an annual report to the Bundestag which is also published on the member

56 See the ESRB's *Methodologies for the assessment of real estate vulnerabilities and macroprudential policies: residential real estate* (September 2019).

57 In contrast, Germany performs well with respect to CRE data. See the ESRB *Report on vulnerabilities in the EU commercial real estate sector* (November 2018).

58 This includes taking into account the recommendations stemming from a recent ESMA peer review. See *Peer review into supervisory actions aiming at enhancing the quality of data reported under EMIR* (October 2019).

institutions' websites and represents an element of regular communication. In contrast, communication strategies of financial stability bodies in some other FSB jurisdictions (e.g. France, Netherlands, UK, US) include more regular public information such as a calendar of meetings, summaries or minutes of their discussions, as well as data and analysis of financial stability risks examined. Some of these jurisdictions also have a dedicated webpage with committee information, separate from pages of their member authorities.[59]

Given the scope of the macroprudential framework, the range of available instruments and the discretion in deploying them, the current FSC strategy of communicating only when deemed necessary (e.g. announcement of new measures), rather than on a regular basis, may limit its potential effectiveness as a soft policy instrument. More regular communication, including through different channels, could help market participants and other stakeholders understand better the FSC's macroprudential mandate, approach and policy decisions. This could include, for example, disclosing more – and more regular – information on its activities and deliberations, as well as holding periodic meetings with stakeholders to exchange views and explain (where possible) risks or policy measures under discussion.

Strengthening FSC analysis of non-bank and emerging risks: Given Germany's bank-based financial system, it is appropriate that data and risk analysis is most advanced for the banking sector. But the financial landscape has evolved in recent years, so it is important that oversight of risks outside of the banking sector be progressively enhanced.

More specifically, post-crisis developments such as increased central clearing of OTC derivatives have changed the nature of interconnectedness in the financial system and has meant further risk concentration in CCPs. Other important developments include the increasing importance of NBFI, particularly investment funds; the low-for-long environment, which may have adverse implications for financial institutions (e.g. banks and insurance companies); and the emergence of new risks associated with the digitalisation of finance and climate change (stemming from both transition and physical impacts) that may test the resilience of the financial system. While some of these developments are longer-term in nature and may have been discussed by the FSC, it is useful for the authorities to monitor them on an ongoing basis and assess their macro-financial implications and risks in a coordinated manner. This will also promote a forward-looking approach and an early identification of potential vulnerabilities, which may not always be possible through available (and typically backwards-looking) data.

Chapters in the Bundesbank's 2019 Financial Stability Review dedicated to interconnectedness in the financial system (including the increased use of CCPs) and the impact on climate-related risks on financial stability demonstrate that the authorities recognise the importance of such issues. The FSC should provide an ongoing forum to discuss and

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[59] See, for example, Annex 3 on the communication strategies of financial stability bodies in selected countries in the FSB's *Peer Review of Turkey* (November 2015).

continue to expand the analysis of such risks, similar to the approach used in some other jurisdictions.[60]

- **Recommendation 2**: The authorities should consider as part of the ongoing FSC strategy review: (a) additional periodic communication channels to enhance market participants' awareness and understanding of the macroprudential framework; and (b) continuing to expand their analysis of non-bank and emerging risks.

Extending the policy toolkit: As noted previously, the IMF has recommended that the authorities consider implementing an LTV cap and amortisation requirements on mortgages, and introducing income-based instruments for residential real estate lending. The IMF has also suggested that appropriate instruments for CRE lending should be considered. The German Council of Economic Experts has suggested that the authorities address increasing risks to financial stability in the real estate market by introducing further macroprudential measures that could include increased sectoral risk weights for real estate loans, an increase in the CCyB rate or an LTV cap.[61]

The BMF is currently reviewing the effectiveness of existing borrower-based macroprudential instruments in the area of residential real estate financing and the need for potential new ones. The FSC's Fifth Annual Report and the Bundesbank's 2019 Financial Stability Review reiterate that the two income-based instruments recommended by the FSC in 2015 should be established to complement the two borrower-based instruments existing since 2017.[62] The income-based instruments rely on measures of creditworthiness that lenders regularly use for credit assessments when granting loans, and relevant data should become available in the future given the consultation launched in December 2019 on a draft statutory order for a regular data collection on residential real estate lending.

Experience from other countries supports having a comprehensive macroprudential toolkit to ensure the timely application of relevant tools if the need arises, rather than waiting for specific risks to emerge before seeking legislative approval to adopt new tools. Having such a toolkit would allow the authorities to act quickly and activate different (one or a combination of) instruments as needed, enabling them to respond in a timely, flexible and proportionate way to address potential financial stability risks.

- **Recommendation 3**: The authorities should, in line with the 2015 FSC recommendation and as proposed by the federal government in 2016, expand their macroprudential policy toolkit to include income-based instruments – caps on the debt-to-income ratio (DTI) and the debt-service-to-income ratio (DSTI) – for residential real estate financing.

The authorities have made significant steps to prevent and mitigate liquidity risks in the fund sector. They recently introduced three new tools for UCITS and AIFs: (i) notice periods of up

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60 The UK Financial Policy Committee, for example, holds annually a dedicated discussion of financial stability risk and regulation beyond the core banking sector, covering financial markets, non-bank financial institutions and infrastructure.

61 See Chapter 4 of the German Council of Economic Experts' *Annual Report 2019/20: Dealing with Structural Change* (November 2019).

62 See the Bundesbank's *Financial Stability Review 2019* (November 2019).

to one month for retail funds; (ii) redemption gates; and (iii) swing pricing. This is a welcome step in response to the recommendations of international bodies and consistent with practices elsewhere. In this context, the authorities may also want to consider introducing other tools as appropriate based on market developments. One such example would be side pockets for open-ended funds (especially AIFs), which are part of fund managers' toolkits in several jurisdictions and were used successfully during the global financial crisis.

The instruments referred to above are intended, as in most jurisdictions, to be used by fund managers at their discretion. With the exception of suspension of redemption and subscription (which is a measure that can also be ordered by the authorities, including in Germany), the toolkit is conceived as a set of micro-prudential measures aimed at solving situations affecting individual funds, though their use can also have broader benefits. However, attention should also be paid to the possible implications of such tools for financial stability. In particular, the authorities should consider clarifying requirements or providing guidance to promote clear and timely decision-making processes for fund managers to implement these tools, particularly in stressed conditions.[63] The recently-increased monitoring by BaFin and the Bundesbank of liquidity risk in open-ended retail funds in light of COVID-19 developments highlights the importance of examining this market segment from both a micro-prudential and a macroprudential perspective.

- **Recommendation 4**: The authorities should consider extending further the set of liquidity risk management and pricing tools for investment funds in Germany as part of a regular review of the adequacy of those tools; and providing guidance on their use, particularly in stressed market conditions.

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[63] Recommendation 8 of the FSB *Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities* (January 2017) states: "While asset managers have the primary responsibility to exercise exceptional liquidity risk management tools regarding the open-ended funds they manage, authorities should provide guidance on their use in stressed conditions. Where jurisdictions consider it appropriate, authorities should also provide direction in extraordinary circumstances regarding open-ended funds' use of such liquidity risk management tools, taking into account the costs and benefits of such action from a financial stability perspective."

Annex 1: Germany's implementation of G20 reforms (as of September 2019)

This FSB Jurisdictional Profile presents the status of implementation of G20 financial regulatory reforms, drawing on information from various sources. The tables below distinguish between priority areas that undergo more intensive monitoring and detailed reporting via progress reports and peer reviews, and other areas of reform whose monitoring is based on annual survey responses by FSB member jurisdictions. See here for further information.

IMPLEMENTATION STATUS OF REFORMS IN **PRIORITY AREAS**

Reform area	Basel III						Compen-sation
	Risk-based capital	Liquidity Coverage Ratio	Requirements for systemically important banks	Large exposures framework	Leverage ratio	Net Stable Funding Ratio	
Agreed phase in (completion) date	*2013 (2019)*	*2015 (2019)*	*2016 (2019)*	*2019*	*2018*	*2018*	
Status	MNC	LC	C				

Reform area	Over-the-counter (OTC) derivatives				Resolution				Non-bank financial intermediation	
	Trade reporting	Central clearing	Platform trading	Margin	Minimum external TLAC requirement for G-SIBs	Transfer / bail-in / temporary stay powers for banks	Recovery and resolution planning for systemic banks	Transfer / bridge / run-off powers for insurers	Money market funds	Securi-tisation
Agreed phase in (completion) date	*end-2012*	*end-2012*	*end-2012*	*2016 (2021)*	*2019/2025 (2022/2028)*					
Status										

Legend: Final rule or framework implemented. Final rule published but not implemented, draft regulation published or framework being implemented. Draft regulation not published or no framework in place (dark red colour indicates that deadline has lapsed). Requirements reported as non-applicable. Basel III: C=Compliant, LC=Largely compliant, MNC=Materially non-compliant, NC=Non-compliant. △=Final rules implemented but certain elements are not finalised. OTC derivatives: R/F=Further action required to remove barriers to full trade reporting (R) or to access trade repository data by foreign authority (F). Non-bank financial intermediation: */**=Implementation is more advanced in one or more/all elements of at least one reform area (money market funds), or in one or more / all sectors of the market (securitisation). Further information on the legend.

Notes: G-SIBs=Global Systemically Important Banks. TLAC=Total Loss-Absorbing Capacity.

Source: FSB, *5th Annual Report on the Implementation and Effects of the G20 Financial Regulatory Reforms*, October 2019.

IMPLEMENTATION STATUS OF REFORMS IN **OTHER AREAS**

Reform area	Hedge funds			Securitisation			Supervision				Macroprudential frameworks and tools	
	Registration, appropriate disclosures and oversight of hedge funds	Establishment of international information sharing framework	Enhancing counterparty risk manage-ment	Strengthening of regulatory and capital framework for monolines	Strengthening supervisory requirements or best practices for investment in structured products	Enhanced disclosure of securitised products	Consistent, consolidated supervision and regulation of SIFIs	Establishing supervisory colleges and conducting risk assessments	Supervisory exchange of information and coordination	Strengthening resources and effective supervision	Establishing regulatory framework for macroprudential oversight	Enhancing system-wide monitoring and the use of macroprudential instruments
Status	REF*	REF	REF*	REF*	REF	REF	REF	REF*	REF	REF	REF	REF

Reform area	Credit rating agencies		Accounting standards	Risk management		Deposit insurance	Integrity and efficiency of financial markets		Financial consumer protection
	Enhancing regulation and supervision of CRAs	Reducing the reliance on ratings	Consistent application of high-quality accounting standards	Enhancing guidance to strengthen banks' risk management practices	Enhanced risk disclosures by financial institutions		Enhancing market integrity and efficiency	Regulation and supervision of commodity markets	
Status	REF*	REF	REF	REF	REF	REF	REF	REF	REF

Legend: REF=Implementation reported as completed. IOG=Implementation reported as ongoing. ABN=Applicable but no action envisaged at the moment. N/A=Not applicable. *=collected in previous year(s) for all members.

Notes: The FSB has not undertaken an evaluation of survey responses to verify the status or assess the effectiveness of implementation. In a number of cases, the complexity of the reforms and the summarised nature of the responses does not allow for straightforward comparisons across jurisdictions or reform areas. In particular, reforms whose status in a particular area is reported as complete should not be interpreted to mean that no further policy steps (or follow-up supervisory work) are anticipated in that area. CRA = Credit Rating Agency, SIFI = Systemically important financial institution.

Source: FSB, *Jurisdictions' Responses to the 2019 IMN Survey*.

Other information	Latest IMF-World Bank FSAP: Jun 2016	Latest FSB Country Peer Review: 2014	Home jurisdiction of G-SIBs: yes	Signatory of IOSCO MMoU: yes / IAIS MMoU: yes

The following table presents the steps taken to date and actions planned by the German authorities in core reform areas (not covered in this peer review) where implementation has not yet been completed. The actions mentioned below have not been examined as part of the peer review and are presented solely for purposes of transparency and completeness.

Reform area	*Steps taken to date and actions planned (including timeframes)*
Basel III	
Large exposures framework Leverage ratio Net stable funding ratio (NSFR)	National implementation of Basel III follows the EU process. The respective Basel provisions have been transposed into Union law by Regulation (EU) 2019/876 of 20 May 2019 (CRR II). CRR II entered into force on 27 June 2019. The amended or newly introduced provisions regarding the large exposure framework, the leverage ratio and the NSFR will apply as of 28 June 2021, the requirement regarding a leverage ratio buffer for G-SII will apply as of 1 January 2022.
Resolution	
Transfer/bridge/run-off powers for insurers	Within the EU, new or revised standards on an international level are usually not implemented individually by the Member States but via a centralised EU-wide legislative process that also determines the timeline for the implementation. This is especially true in the insurance sector following the implementation of Solvency II, which is a maximum harmonisation directive in the EU for insurance regulation. Currently, the Solvency II Review is underway at the EU level and the European Commission has asked EIOPA for technical advice by end-2020. The advice requested relates to recovery and resolution issues as there is currently no common EU-wide regulation framework with respect to recovery and resolution. Answers are expected on whether there is a need for minimum harmonised rules regarding the resolution of insurance or reinsurance companies, including resolution planning, and on the tools to be created to address the failure or risk of failure of insurance or reinsurance companies. In addition, the technical advice aims to look at specific resolution powers to be assigned to national resolution authorities. This implies that the EU process of legislation and harmonisation is still in progress. From mid-2020, the EU Commission, together with the EU Council, will reach a decision on these proposals, and will decide whether and how the principles are to be implemented in an EU regulation. Consequently, Germany is, in a first step, waiting for the results of the EIOPA surveys and analysis, in which BaFin is fully involved as an active member of the relevant EIOPA working groups.

Annex 2: Main instruments available to the German authorities to address financial stability risks

Instrument	**Objective**	**Responsible authority**	**EU legal basis**	**German legal basis**	**Use**
Countercyclical capital buffer (CCyB)	To increase banks´ resilience towards cyclical systemic risk.	BaFin, considering possible recommendations from FSC	Art. 130 and 135-140 CRD IV	Article 10d of the Banking Act	0.25% from 1 July 2019, with the implementation deadline of Q3 2020 (see Box 4) 0% from 1 April 2020
Systemic risk buffer (SyRB)	To counteract structural (i.e. non-cyclical) systemic risks	BaFin	Art. 133 and 134 CRD IV	Article 10e of the Banking Act	No activation so far
Capital buffer for global systemically important institutions (G-SII buffer)	To account of size, interconnectedness, substitutability, complexity and cross-border activity	BaFin	Art. 131 CRD IV	Article 10f of the Banking Act	One institution has been identified and has to fulfil an individual capital buffer
Capital buffer for other (i.e. not global) systemically important institutions (O-SII buffer)	To account of size, economic importance for the EEA and Germany, cross-border activity and interconnectedness	BaFin	Art. 131 CRD IV	Article 10g of the Banking Act	Twelve O-SIIs have been identified and have to fulfil individual capital buffers
LTV ratio cap and an amortisation requirement	To impose minimum standards on new loans for construction/ acquisition of residential real estate	BaFin		Section 48u of the Banking Act (KWG), Section 308b of the Insurance Supervision Act (VAG), Section 5(8a) of the Investment Code (KAGB)	No activation so far

Flexibility package: e.g. adjustment of liquidity or large exposures requirements, or adjustment of public disclosure requirements, risk weights for targeting asset bubbles.	For example to moderate and prevent liquidity risk and exposure concentrations. To reinforce market discipline and improve risk management.	BaFin	Art. 458 CRR	Article 48t of the Banking Act	No activation so far

Source: BaFin; 2014 FSC strategy.