INTERNATIONAL MONETARY FUND

IMF Country Report No. 19/327

FRANCE

FINANCIAL SECTOR ASSESSMENT PROGRAM

October 2019

TECHNICAL NOTE—MACROPRUDENTIAL POLICY FRAMEWORK AND TOOLS

This Technical Note on Macroprudential Policy Framework and Tools on France was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on October 1, 2019.

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Price: $18.00 per printed copy

International Monetary Fund
Washington, D.C.

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MACROPRUDENTIAL POLICY FRAMEWORK AND TOOLS

Prepared By
Monetary and Capital Markets Department, IMF

This Technical Note was prepared in the context of an IMF Financial Sector Assessment Program (FSAP) in France in December 2018 and March 2019 that was led by Udaibir Das. Further information on the FSAP program can be found at http://www.imf.org/external/np/fsap/fssa.aspx

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Glossary

ACE	Allowance for Corporate Equity
ACPR	French Prudential Supervision and Resolution Authority
AMF	French Financial Markets Authority
ANC	Accounting Standards Authority
AT	Assessment Team
ATC	Advisory Technical Group
AWG	Analysis Working Group
BdF	Banque de France
BIS	Bank for International Settlements
CCyB	Countercyclical Capital Buffer
CET1	Common Equity Tier 1
CIT	Corporate Income Tax
CRE	Commercial Real Estate
CRR/CRD	Capital Requirement Directive/Capital Requirement Regulation
DSF	Department of the BdF
DSTI	Debt-Service-to-Income
EA	Euro Area
EBA	European Banking Authority
EBITDA	Earnings before interest, tax, depreciation and amortization
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ESFS	European System of Financial Supervision
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
EWS	Early Warning System
FMI	Financial Market Infrastructure
FSAP	Financial System Stability Assessment
GDP	Gross Domestic Product
G-SIB	Global Systemically Important Bank
G-SII	Global Systemically Important Insurer
HCSF	High Council for Financial Stability (Haut conseil de stabilité financière)
ICR	Interest Coverage Ratio
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
LCR	Liquidity Coverage Ratio
LE	Large Exposure
LSIs	Less significant institutions
LTV	Loan-to-Value
MMF	Money Market Fund
MoF	Ministry for the Economy and Finance

MPAG	Macroprudential Analytical Group
MPF	Macroprudential Forum
MPPG	Macroprudential Policy Group
NFC	Nonfinancial Corporation
NTNI	Non-traditional and Non-insurance
NSFR	Net Stable Funding Ratio
OECD	Organization for Economic Co-Operation and Development
O-SII	Other Systemically Important Institution
SI	Significant Institution
SIBs	Supervision of the Systemically Important Banks
SRB	Systemic Risk Buffer
SSM	Single Supervisory Mechanism

EXECUTIVE SUMMARY

Macroprudential policy in France is the joint responsibility with several European institutions. With the operationalization of the EU Capital Requirement Directive and Capital Requirement Regulation (CRD/CRR), the French authorities have implemented, several capital buffers, as well as the liquidity coverage ratio (LCR), based on this framework. In France, Haut conseil de stabilité financière (HCSF) is the macroprudential authority established in accordance with recommendation European Systemic Risk Board (ESRB)/2011/13 and the designated authority established in accordance with Article 136 of CRD and is in charge of activating several measures in the CRD/CRR framework as well has direct responsibilities over several tools outside this framework, for example borrower-based tools.

France has strengthened its institutional arrangements for macroprudential policymaking. The HCSF's financial stability mandate includes the power to formulate macroprudential policy based on well-defined intermediate objectives. It is composed of the Minister for the Economy (chair), Governor of the Banque de France (BdF), the Vice-Chairman of the French Prudential Supervision and Resolution Authority (ACPR), the Chairmen of the French Financial Markets Authority (AMF) and the French Accounting Standards Authority (ANC) and three external members. In addition to the HCSF, BdF, ACPR, and AMF also have a formal mandate for financial stability, which strengthens HCSF's willingness to act. Notably, the HCSF must rely on its member authorities for systemic risk analysis as well as implementation of macroprudential tools as it has no staff of its own.

The institutional arrangements provide adequate powers to ensure HCSF's ability to act; however, some tools remain outside its legal domain. HCSF has broad powers to access information from both regulated and unregulated entities. It has direct (hard) powers over a wide-range of macroprudential tools; as well as soft powers to issue opinions or warnings. Recently the HCSF has proactively deployed macroprudential tools. For example, strengthening large exposure (LE) limits on globally and domestic systemically important banks' exposure to highly indebted corporates, activating counter-cyclical capital buffer (CCyB) with a buffer rate of 50 basis point and using soft power to communicate risks in the Commercial Real Estate (CRE) market. However, there are some tools that are entrusted with HCSF's member institutions. HCSF has nevertheless, the power to issue public recommendations to member institutions, without a formal 'comply or explain' mechanism.

The HCSF's strong accountability, disclosures and transparency framework can be further enhanced. HCSF has a strong accountability and transparency framework wherein it is accountable to the national parliament and publishes press releases after the sessions, a public annual report and issues ad hoc reports on thematic reviews. However, currently proposed policy action by the BdF can be outvoted without it being disclosed, even though the Governor of the Banque de France may decide to make his proposals public. While the framework seems to have worked well so far, it can be made further transparent by requiring proposed policy decisions and how the decisions were made, publicly disclosed in the summary of meetings.

The HCSF's member institutions have strong analytical capacity and framework for monitoring systemic risks however it's largely oriented to the banking sector. BdF and ACPR take the lead in producing risk statement that is discussed in the HCSF meetings. This encompasses risks both in the time and structural dimension and incorporates risk identification (through leading indicators), impact assessment (through risk models) and resilience analysis (through structural models). However, indicators used in regular systemic risk monitoring are largely focused on the banking sector, households, corporates and increasingly insurance sector. Key indicators on French investment funds should be added to the risk dashboard given the size and importance of this sector. Finally, since the financial system is dominated by financial groups and the bancassurance model, analytical capability should be further deepened to understand transmission of shocks between financial balance sheets within a group.

The HCSF should evaluate effects of tools introduced to mitigate risks from corporate leverage. The HCSF should continue to monitor vulnerabilities in the corporate sector and once sufficient data is available, evaluate the impact on the tools introduced on (i) resilience of the financial system, and (ii) corporate borrowing behavior.

A sectoral systemic risk buffer (SRB), calibrated to corporate exposures, could be considered if vulnerabilities intensify. The sectoral SRB, unlike the LE limit, could affect all corporate exposures, and provide for added resilience in the event of wide-spread corporate distress. While designing an SRB, care should be taken to calibrate it to penalize the riskier corporate exposures more heavily. A well targeted SRB could enhance resilience through increased loss absorbing capacity however it may still fall short of limiting risks from rising market debt issued by corporates.

A fiscal measure that incentivizes corporates to finance through equity rather than debt would affect both bank and market-based finance. Such a measure would have an impact on the demand for credit, rather than its supply. While fiscal measures are outside the macroprudential toolkit of the HCSF, it can issue a recommendation to the Ministry of Finance on this matter. Having the Minister for the Economy as chairman of the council should assist in the complementary use of fiscal measures both for fiscal and macroprudential policy. The current reduction in marginal corporate income tax (CIT) could be complemented, if needed, with (i) an interest deductibility based on fixed debt-to-equity rule, i.e., denying interest deductibility if debt-to-equity exceeds some fixed value; and (ii) an allowance for corporate equity, which supplements deductibility of interest with a similar deduction for the normal return on equity.

The macroprudential policy toolkit should be strengthened further. The current European framework has limited tools to address corporate sector risks in a targeted way. The French authorities should actively engage at the EU level to broaden the toolkit. Similarly, enhancement of reporting, monitoring and analytical capacity to address risks from interconnectedness within financial groups should be a priority.

Table 1. France: Recommendations on Macroprudential Policy Framework

Recommendations	Agency	Time[1]
Empower the HCSF to make recommendations to member institutions on tools entrusted to them (O-SII buffer, Articles 124 and 164 CRR for ACPR; leverage limits for AMF), with a 'comply or explain' mechanism.	HCSF	I
Consider publication of summary of meetings including the policy proposals discussed.	HCSF	I
Expand the role of external members, including greater involvement at an earlier stage of the HCSF decision process.	HCSF	I
Develop analytical framework for borrower-based measures for corporates. Consider sectoral SRB (Systemic Risk Buffer) if risks intensify.	HCSF	NT
Evaluate options to further incentivize corporates to finance through equity rather than debt.	HCSF, MoF	NT
Actively engage with the ESRB and others for a speedy development of liquidity and leverage related tools for insurers and investment funds.	HCSF, BdF, ACPR, AMF, ESRB	NT
Report intra group exposures and transactions within conglomerates on a flow and stock basis, at quarterly frequency.	ACPR, AMF	NT
Introduce liquidity management requirements and liquidity stress tests at the conglomerate level	HCSF, ACPR, ECB	NT
Develop specific guidance to address direct exposures within conglomerates and common exposures of entities in the conglomerate.	ACPR, AMF	NT
Add to the HCSF dashboard indicators on investment funds (assets under management, leverage, liquidity and returns).	HCSF, AMF	I
Develop capacity for macro stress test of investment funds.	AMF	NT

[1] I = immediate (within one year), NT = near term (1–3 years), MT = medium term (3–5 years).

INTRODUCTION[1]

1. French institutions share the macroprudential policy responsibilities with European institutions. The Single Supervisory Mechanism (SSM) regulation provides national authorities and the European Central Bank (ECB) with specific tasks on macroprudential policy instruments set out in the CRDIV/CRR. Country authorities have the power to initiate and implement macroprudential measures, subject to notification and coordination with the ECB. Moreover, the regulation provides the ECB with the power to apply more stringent requirements of any capital buffer that is in the CRDIV/CRR, if deemed necessary ("top up" power). In addition, the ESRB is responsible for macroprudential oversight at the EU level. Its tasks include collecting and analyzing data, identifying and analyzing systemic risks, issuing warnings where appropriate and cooperating closely with all other bodies within the European System of Financial Supervision (ESFS). The EU-level macroprudential framework was assessed in the Euro Area (EA) FSAP.[2]

2. CRDIV/CRR establish a range of macroprudential policy tools at the European Union level, but other important tools remain at the discretion of the national authorities. The CRDIV/CRR introduce, among others, the countercyclical capital buffer (CCyB), the systemic risk buffer and capital surcharges for systemically important institutions. The so-called "flexibility package" (Article 458 CRR) also provides for tools in the hands of macroprudential authorities regarding the level of own funds, LE requirements, public disclosure requirement, level of the capital conservation buffer, liquidity requirements, risk-weights for targeting asset price bubbles in the residential and commercial property sector or intra financial sector exposures. On the other hand, a range of macroprudential tools are outside of the scope of the current CRDIV/CRR, and under direct responsibilities of national authorities. This includes borrower-based tools such as loan-to-value caps and debt-service-to-income caps, as well as loan-to-deposit caps and margin and haircut requirements. These tools can be established and defined at the country level in addition to those contained in the CRDIV/CRR. In France, HCSF is the designated authority[3] for macroprudential policy.

3. This background note evaluates the domestic macroprudential framework in France and its ability to address emerging vulnerabilities. It assesses: (i) the domestic institutional arrangements; (ii) the systemic risk monitoring framework; and (iii) adequacy of the macroprudential policy toolkit. The assessment is conducted based on the IMF guidance, which is laid out in the Staff Guidance Note (IMF, 2014a), its background note (IMF, 2014b), and other IMF's policy papers. It also assesses current and emerging financial vulnerabilities in France and provides specific policy recommendations to address them.

[1] This Technical Note has been prepared by Umang Rawat, Economist from the Monetary and Capital Markets Department of the IMF.

[2] See the Euro Area FSAP Technical Note on the macroprudential oversight.

[3] Established in accordance with Article 136 of CRD.

4. This note is structured as follows: Section II reviews the current domestic institutional arrangements for macroprudential policymaking and provides recommendations. Section III discusses the strengths and weakness of the existing systemic risk monitoring framework and provides options to enhance it. Section IV maps an assessment of systemic vulnerabilities into recommendations for macroprudential policy actions. Section V concludes.

INSTITUTIONAL FRAMEWORK

5. Strong institutional arrangements for macroprudential policymaking at national level are essential for effective functioning of macroprudential policy. A strong institutional framework should generate the willingness to act and thereby overcome the underlying policy inaction bias that results from the cost of policy actions being sooner and more easily observable than their potential benefits. The institutional arrangement also needs to foster the ability to act when systemic risk is building up. Finally, the framework needs to promote effective cooperation and coordination between institutions with a financial stability mandate. This section evaluates the current institutional arrangement against these three key principles, which are set out in the Staff Guidance Note on Macroprudential Policy.

A. Principle I: Willingness to Act

6. France has strengthened its institutional arrangements for macroprudential policymaking. Following the crisis, the July 2013 Banking Reforms Act transformed the inter-agency Conseil de la régulation financière et du risque systémique (Corefris)—originally created in 2010—into the HCSF, endowing it with an explicit mandate for financial stability and a broad range of macroprudential binding powers. The HCSF is composed of the Minister for the Economy (chair), Governor of the BdF, the Vice-Chairman of the ACPR, the Chairmen of the AMF and the French ANC and three external members (see Table 2). The HCSF could nominate a Vice chair or a Co-chair to allow flexibility for holding meetings when the Chair is not available.

7. The HCSF has a mandate to help mitigate and prevent systemic risks. To achieve this goal, the HCSF has five intermediate objectives that guide the operational implementation of its macroprudential policy: mitigating and preventing excessive credit growth and leverage; limiting overreliance on short-term funding or excessive risk mismatch, and mitigating market illiquidity; limiting direct and indirect exposure concentrations; limiting the systemic impact of misaligned incentives with a view to reducing moral hazard; and strengthening the resilience of financial infrastructures. In addition to the HCSF, BdF, ACPR, and AMF also have a formal mandate for financial stability, which further enhances the willingness to act.

8. The institutional setup of the HCSF provides a special role for the BdF. The Financial Stability Department of the BdF (DSF) and the Financial Sector Economic Analysis Division of the Treasury jointly provide the Secretariat of the HCSF. The Secretariat lays out the groundwork for the HCSF's discussion and leads ad hoc working groups that could—depending on the topic—involve other teams within the BdF/Treasury or other authorities. The agenda for each meeting is set by the

Table 2. France: Macroprudential Institutional Framework	
Macroprudential Authority	
HCSF (High council for financial stability)	Set up in July 2013. Consists of eight members: Minister for the Economy, Governor of the BdF, Vice-Chairman of the ACPR, Chairman of AMF, Chairman of ANC, three external members. At least four meetings a year.
Other institutions with their own mandate	
BdF (Banque de France)	Central banks with explicit mandate for financial stability. The BdF oversees the analyses regarding the activation and calibration of the macroprudential tools at the disposal of the HCSF (e.g., capital buffers, credit standards). The Governor has specific powers in the HCSF, in particular the monopoly of proposals regarding macroprudential tools and the ability to issue a public statement on his proposals. See Table 3 for more details.
ACPR (Autorité de contrôle prudentiel et de resolution)	Direct supervisor of banks (LSIs), insurers and other financial intermediaries. Participation to the SSM for the supervision of the systemically important banks (SIBs). Conducts cross-sectional analysis on the impact of macroeconomic conditions on the solvency and profitability of institutions (stress tests and quantitative impact studies), the designation of SIBs in France, and the implementation of certain policy tools defined in the CRR for macroprudential purposes. The tools implemented based on an individual assessment of certain institutions are the responsibility of the ACPR. For example—higher real estate risk weights; higher minimum exposure weighted average loss given defaults. See Table 3 for more details.
AMF (Autorité des marchés financiers)	Financial markets authority The AMF takes account of the objectives of financial stability throughout the European Union and the European Economic Area. The AMF thus contributes to financial stability as part of its mission of maintaining orderly financial markets and investor protection. The AMF provides analysis on financial markets topics that may create risks (e.g., corporate bond liquidity, liquidity and leverage in the asset management industry, exchange traded funds market analysis).
ANC	Accounting Rules Authority.

Source: French Authorities

Chairman of the HCSF, but any member can request items to be included in the agenda. While HCSF seeks to build consensus among its members, voting rules are set by a decree. BdF has a special role as decisions involving legally binding tools (e.g., countercyclical capital or systemic risk buffer) have to be proposed by the BdF Governor. Decisions relating to hard powers are only adopted if at least four members have voted in favor.[4]

9. The role of external members in the HCSF can be more formalized. The three external members in HCSF provide independent views in the discussion, which can help limit any inaction bias. However, in the current framework their role is largely advisory in the course of the preparation of the meetings (even though they have voting rights). Given the vast amount of academic experience and expertise that these experts bring, their role can be further formalized—including greater engagement at an earlier stage of the decision process (for example, through formalizing technical meetings before the HCSF quarterly plenary meetings) and direct access to technical groups.

10. The HCSF is accountable to the national parliament. From a legal perspective, the HCSF is accountable before Parliament. It has to submit an annual report to the French Parliament and its Chairman may also be called to appear before the committees on Finance of both houses of Parliament. This report presents the diagnosis and the analysis which underpin the HCSF's macroprudential policy. It reviews the work of the HCSF over the past year. It reflects the HCSF's analysis on recent developments and on existing risks for financial stability as well as their evolution. The report also presents thematic analyses on topics that the HCSF has deemed useful to signal to public attention.[5] A record of decisions (when a measure is introduced) is published in the *Journal Officiel de la République Française*, as well as on the HCSF website.[6] Furthermore, a press release is issued at the end of each HCSF meeting to give insight on members' discussions and risk assessment. However, there is no public ex-post record of decisions when a measure was outvoted.

B. Principle II: Ability to Act

11. The institutional arrangements seem to provide adequate powers to ensure HCSF's ability to act. HCSF has broad powers to access information from both regulated and unregulated entities. The Transparency, Fight against Corruption and Modernization of Economic Life Act (signed into law in December 2016) empowered the HCSF to gather any necessary information from any third parties (representatives from credit institutions, financing companies, investment firms,

[4] Decisions regarding the publication of opinions and recommendations are taken by a simple majority rule of members present, with the Chairman holding the casting vote in case of a tie. However, there is a quorum, half of the members must be present for the meeting to take place.

[5] Beyond these legal obligations, the HCSF uses its external communication (annual reports, press releases, public notes, consultation, website, etc.) to bolster its macroprudential policy, by providing the general public, the media and financial sector stakeholders with information and explanations on the measures it implements.

[6] This includes decisions relative to the countercyclical buffer, the systemic risk buffer, the measures provided for in Article 458 of CRR, and credit standards as well as any insurance-targeted measures, should they be adopted.

investment management companies, portfolio management companies, insurance companies, mutual and pension funds as well as any other relevant actor).[7] HCSF has direct (hard) powers over a wide-range of macroprudential tools (see Table 3); as well as soft powers to issue opinions or warnings.

12. However, some tools remain outside HCSF's legal domain. In line with European legal framework, there are some tools that are entrusted with HCSF's member institutions with HCSF having limited power to activate them. For example, ACPR is the competent authority for activation of O-SII buffer, and targeted capital tools on residential or commercial real estate (Articles 124 and 164 CRR). However, in practice, there is strong coordination regarding these tools in the HCSF, and within the BdF/ACPR via the "Pôle de stabilité financière." Similarly, AMF has the power to use leverage limits in asset management industry as a macroprudential tool.[8] While HCSF can issue public recommendations to its member institutions, it's powers can be further enhanced with a formal 'comply or explain' mechanism. (IMF, 2013; IMF, 2014).

C. Principle III: Effective Coordination and Cooperation

13. The HCSF plays a key role in the coordination of all the authorities in charge of the supervision of the financial sector. Article L.631-2-1 of the French monetary and financial code gives HCSF the task of ensuring "cooperation and exchange of information between the institutions that its members represent, as well as between these institutions and itself." Information exchanges are facilitated by the fact that the ACPR and the AMF have the legal right to provide the HCSF with all information they may have, including information protected by professional secrecy. The HCSF's coordination role complements pre-existing coordination mechanisms in the French institutional set-up.[9] There are also cross-participations in the boards of supervisory institutions: the ACPR, the AMF and the ANC all have representatives on the boards of the other two supervisors, and the MoF is also represented, in a non-voting position, on these three boards. This board cross-participation strengthens the information sharing legal underpinning.

14. The French institutions in charge of financial stability have regular dialogue with European institutions. They take part in working groups and committees at the ECB and ESRB level,

[7] While HCSF has broad powers to seek information from all entities, currently there isn't a framework to penalize third parties that do not provide quality information. However, no such experience has been reported by the authorities so far.

[8] AMF also has the power to use suspension of redemptions as a macroprudential tool. There is merit to keeping the ultimate trigger on such ex-post tools that lean towards crisis management with the institution closely monitoring the sector, i.e., AMF in this case. However, based on EU level discussions implementing ESRB recommendations on investment fund liquidity and leverage, ex-ante tools could be brought under the ambit of HCSF.

[9] In particular, different provisions authorize the exchange of information with other French authorities: Article L. 631-1 of the CMF requires the BdF, the ACPR and the AMF to cooperate, and to provide to each other the necessary information to fulfill their respective mandates.

Table 3. France: Main Macroprudential Instruments Available to the French Authorities[1]

Instrument	Intermediate Objective	Responsible Authority	EU Legal Basis	French Legal Basis
Countercyclical capital buffer	Moderate and prevent excessive credit growth and leverage	Designated authority (HCSF), on the proposal of the BdF Governor	Articles 130 and 135–140 CRD IV	Article L. 631–2–1 MFC
Systemic risk buffer	Limit direct and indirect exposure concentrations; limit systemic impact of misaligned incentives and reduce moral hazard; strengthen resilience of FMI	Designated authority (HCSF), on the proposal of the BdF Governor	Articles 133 and 134 CRD IV	Article L. 631–2–1 MFC
Flexibility package: national measures that are stricter in terms of requirements for own funds, LE, public disclosure, the level of the capital conservation buffer, liquidity, risk weights for targeting asset bubbles in the property sector, and intra financial sector exposures	Moderate and prevent excessive credit growth and leverage; limit overreliance on short-term funding and excessive maturity mismatch, and mitigate market illiquidity; limit direct and indirect exposure concentrations; limit systemic impact of misaligned incentives and reduce moral hazard	Designated authority (HCSF), on the proposal of the BdF Governor	Article 458 CRR	Directly applicable, Article L.631–2–1 4° ter MFC
Setting of credit standards (including loan-to-value, loan-to-income and debt service-to-income ratios). Recently powers extended to set credit standards on lending from investment funds too	Moderate and prevent excessive credit growth and leverage	Designated authority (HCSF), on the proposal of the BdF Governor		Article L. 631–2–1 MFC
Additional own funds requirements(buffer) for global systemically important credit institutions and other systemically important financial institutions	Limit systemic impact of misaligned incentives and reduce moral hazard	Competent authority (ACPR)	Article 131 CRD IV	Article L. 612–1 MFC
Stricter risk weights for exposures secured by residential or commercial property		Competent authority (ACPR)	Article 124 CRR	Directly applicable
Increase in the minimum loss given default for exposures secured by residential or commercial property		Competent authority (ACPR)	Article 164 CRR	Directly applicable
Additional own funds requirements under Pillar 2 for institutions with similar risk profiles	Limit systemic impact of misaligned incentives and reduce moral hazard	Competent authority (ACPR)	Article 103 CRD IV	Article L.511–41–1-C MFC
Modulate the rules for setting up and taking over the profit-sharing provision for all or a subset of the insurance companies	Mitigate market illiquidity	Designated authority (HCSF), on the proposal of the BdF Governor and in consultation with ACPR		Article L. 631–2–1 MFC
Precautionary measures towards the insurance sector: temporary restrictions on—some transactions/activities (incl. premium collection or payment); free disposal of assets; surrender value payment (for part or all portfolio); reallocation of assets or early payments (i.e., corresponding to a loan guaranteed by the insurance contract); and dividends (or members' shares) distribution	Mitigate market illiquidity	Designated authority (HCSF), on the proposal of the BdF Governor and in consultation with ACPR		Article L. 631–2–1 5° ter MFC
Limits to the level of leverage that an AIFM is entitled to employ or other restrictions on the management of the AIF with respect to the AIFs under its management	Mitigate investment fund leverage	Competent authority (AMF), upon prior notification of ESMA, the ESRB and other competent authorities of considered AIFs	Article 25–3	Article L.214–24–20 MFC

[1] Upon recommendation of the ESRB on liquidity and leverage of investment funds, the macroprudential powers of national and EU authorities and their coordination are under review.
Sources: Banque de France, ACPR.

especially the Macroprudential forum (MPF), macroprudential policy group (MPPG) macroprudential analytical group (MPAG) and related task forces and working groups at the ECB level as well as the General Board, the Advisory technical group (ATC), the instrument working group (IWG), the analysis working group (AWG), the Assessment team (AT) and related task forces and working groups at the ESRB level. Further, AMF is represented in all of European securities and markets authority's (ESMA) standing committees (committee of economic and market analysis, financial innovation standing committee), and participates in the ESMA's quarterly risk survey. These groups and committees are dedicated places for analytical discussions, macroprudential analysis debate and policy measures and foster dialogue with the European institutions as well as with foreign counterparts. Moreover, the Banque de France has a member taking part to the ESRB's AT that assesses the macroprudential measures to be taken by national jurisdictions and the need for reciprocity of these measures.

SYSTEMIC RISK MONITORING

15. Macroprudential policy decisions in France are based on several indicators and judgement. A guided discretion approach is used wherein key indicators are used for *risk identification* to assess when policy action might be needed, but the decision is based on judgement that considers all relevant information. The HCSF reviews a broad set of indicators and undertakes analysis relating to macroeconomic, credit, market, liquidity and solvency risk, as well as the risks associated with excessive concentration and interdependency. Indicators include regular statistics (macrofinancial time series, macroeconomic forecasting, financial data, microprudential data) complemented by model-based indicators (e.g., composite indicator of systemic stress;[1] joint probability of default extracted from credit default swap prices) and analytical tools (e.g., early warning system (EWS)[2]) developed by the BdF. These are assembled in a comprehensive chart pack that is circulated prior to HCSF's meetings.

16. The HCSF's member institutions have strong analytical capacity and framework for monitoring systemic risks. BdF and ACPR take the lead in producing, on a semi-annual basis, an assessment of risks to financial stability.[3] It forms the basis of the monitoring presented to the HCSF and of a BdF risk assessment report published twice a year. The systemic risk monitoring takes form of a four-block strategy (Figure 1): (i) risk assessment and using macro models for scenario design; (ii) assessing the impact of stress scenario on solvency at individual bank level; (iii) using network and contagion models[4] to assess aggregate banking sector solvency impact; and (iv) integrating scenarios in a structural model[5] to conduct welfare analysis of macroprudential tools. BdF has also

[1] See Menfred et. al. (2012). CISS – a composite indicator of systemic stress in the financial system.

[2] See Coudert and Idier (2017). An early warning system for macroprudential policy in France.

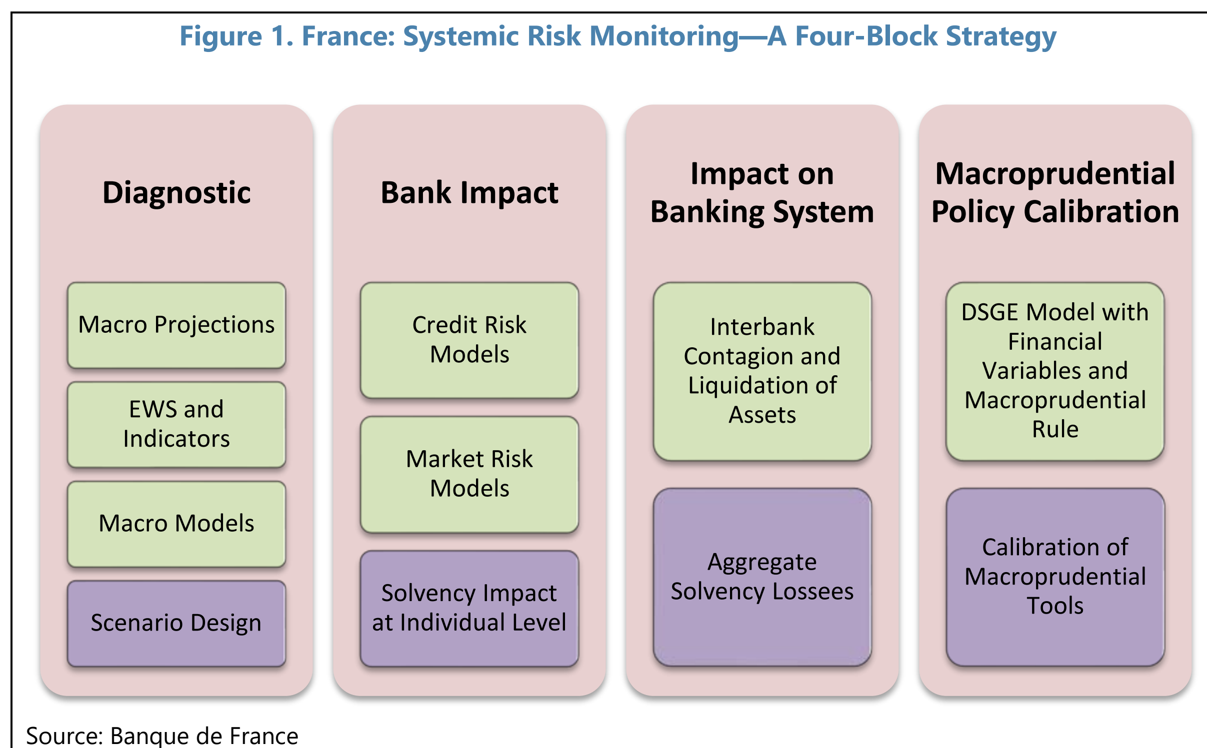
[3] Made publicly available online: https://publications.banque-france.fr/en/liste-chronologique/assessment-risks-french-financial-system

[4] See, for example Idier and Piquard (2017). Pandemic crises in financial systems: a simulation-model to complement stress testing frameworks.

[5] See, for example Clerc et. al. (2015) Capital regulation in a macroeconomic model with three layers of default. (estimated for French data in Bennani et. al. (2017) An analytical framework to calibrate macroprudential policy.

developed macroprudential stress tests where individual bank losses from micro prudential stress tests are complemented with bank amplification channel (contagion) and macro amplification channel to get an aggregate macro impact.

Figure 1. France: Systemic Risk Monitoring—A Four-Block Strategy



Source: Banque de France

17. However, the analytical framework for systemic risk monitoring is largely oriented towards the banking sector. The indicators used for risk identification are largely focused on the banking sector, households, corporates and increasingly insurance sector as ACPR plays an active role in preparing the risk analysis. The AMF prepares its own risk outlook on the French financial markets (once a year). Its quarterly risk committee brings together Board members and a representative from the BdF to share its analysis on potential risks on topics including corporate bond liquidity, liquidity and leverage in the asset management industry, exchange traded funds market, etc. Overall, there is scope for better incorporating AMF's risk analysis into common risk assessment for the HCSF. For example, key indicators on French investment funds (assets under management, leverage, liquidity and profitability) could be added to the risk dash board, particularly given the size of this sector in the French financial system.

18. Recent work by ad hoc working groups on specific issues of interest for the HCSF has tried to fill in this gap. Two such work includes assessing French financial systems' resilience to a shock in the CRE market and interconnections between the French asset management sector and the rest of the financial system. On the former, after risk identification pointed to a possible build-up of risk in the CRE market, a working group was formed under the aegis of HCSF. A CRE stress scenario was developed by the BdF and its system-wide implications were studied via sensitivity analysis for the banking and insurance sectors by the ACPR and for the asset management sector by

the AMF.[6] HCSF did not find systemic risk in the segment and in April 2016, used communication as a soft tool to raise awareness of risks in CRE markets.[7] On the latter, the working group mapped exposures with asset management and rest of the financial system and found significant exposure to entities of the same group. In particular, the report pointed out that fund liabilities remain more concentrated than fund assets and show a significant exposure to entities of the same group.[8] Work is ongoing both to increase the scope of the financial links studied, and to implement initial macro stress test exercises that take into account nonbank financial institutions.

19. Relatedly, there is a need to further develop analytical frameworks to incorporate nonbanks in systemic risk monitoring. France is taking a lead in analyzing the links between asset management and rest of the financial system. While the literature on this issue is still nascent, given the concentration and dominance of financial groups and bancassurance model, analytical capability should be deepened to understand (i) transmission of shocks between financial balance sheets within a group; and (ii) extending macro stress testing to nonbank entities, notably asset management industry[9] and insurance.

SYSTEMIC RISKS AND MACROPRUDENTIAL TOOLS

20. This section provides an assessment of systemic vulnerabilities and their mapping into recommendations for macroprudential toolkit in France. Systemic vulnerabilities are assessed based on developments in multiple signaling indicators, as well as on the FSAP's financial sector risk analysis (see the Technical note on risk analysis), and following an approach suggested in the Staff Guidance Note on Macroprudential Policy (IMF, 2014). Based on the assessment of each type of vulnerabilities, recommendations are provided for France's macroprudential policy.

A. Broad-Based Vulnerabilities

21. Credit developments are pointing to an increase in broad-based risks (Figure 2). We look at two measures of credit-to-GDP gap (deviation of credit-to-GDP from its long-term trend): (i) Total credit to GDP gap using ESRB (Bank for International Settlements (BIS)) approach where total credit to GDP is detrended using an HP-filter; and (ii) Bank credit to GDP gap.[10] All measures result in a positive credit gap, reflecting broad based credit growth especially since 2015, in part due to

[6] See HCSF memo on French commercial real estate markets.

[7] See also reminder by the AMF and the Autorité des normes comptables (ANC) on their expectations for the valuation of real estate assets and reminder by the AMF and the ACPR on their expectations concerning the distribution of financial products that invest in real estate, both published on March 31, 2017.

[8] See Benhami et. al. (2018). Interconnections between the French asset management sector and the rest of the French financial system.

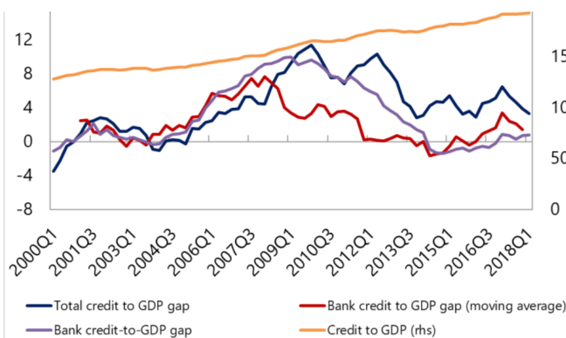
[9] Upon reviewing analytical and data challenges, Grillet-Aubert (2018) stresses the need for supervisors' contribution to the development of these exercises.

[10] Two measures are used to compute bank credit to GDP gap: (i) bank credit to GDP detrended by HP filter; and (ii) bank credit to GDP gap (moving average) calculated by subtracting 8 quarter moving average of bank credit to GDP ratio from the current value.

Figure 2. France: Broad Credit Conditions

The financial cycle in France is accelerating …

1. Credit to GDP Gap



Sources: Banque de France ; and IMF staff calculations.

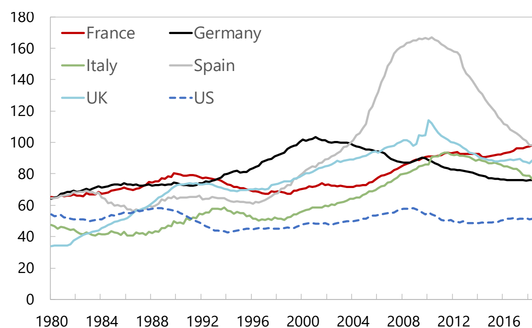
… and credit has continued to grow …

2. Credit Growth (Percent)

Source: Banque de France.

Bank credit to private sector has accelerated …

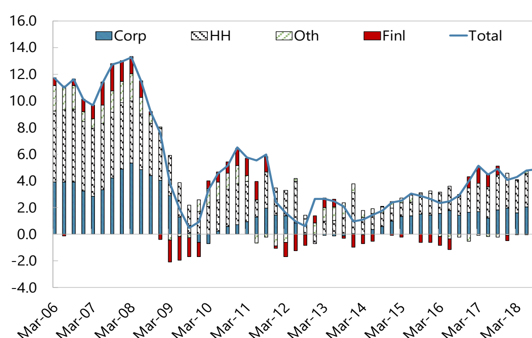
3. Bank Credit to Nonfinancial Private Sector (Percent of GDP)



Source: Haver Analytics.

… driven by credit to households and to firms.

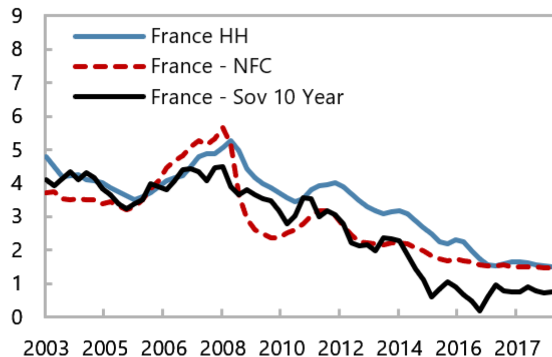
4. MFI Credit to Residents (Percent contribution, y-y)



Source: Haver Analytics.

The financial cycle is reinforced by low borrowing costs …

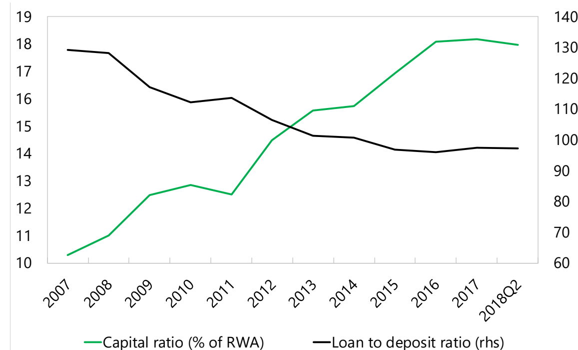
5. Cost of Borrowing (Percentage)



Source: European Central Bank.

… and bank balance sheets have strengthened.

6. Financial Institutions' Balance Sheets Developments



Source: Banque de France.

the prolonged low interest rate environment. Bank credit to the nonfinancial private sector in France has continued to grow, which is in contrast with other large euro area countries. The Basel III leverage ratio in the banking system is conveniently above the regulatory minimum of 3 percent. Capital ratios are high,[11] making the banking system more resilient to risks.

22. Accordingly, the countercyclical capital buffer (CCyB) has been activated. The HCSF uses a range of indicators (other than the Basel credit-to-GDP gap) capturing credit, household, corporate, banking sector and market risks in assessing build-up of systemic risk to decide on the activation of the CCyB.[12] On June 11, 2018, it announced a rise in the CCyB to 0.25 percent,[13] in line with the preventive nature of macroprudential policy and given the favorable macroeconomic context and the continued acceleration of the financial cycle.[14] The buffer rate was further increased to 0.50 percent in HCSF's 20th meeting on March 18, 2019. Growth is expected to slow down in 2019, however still stay above its potential. FSAP analysis suggests that the credit cycle, while still accelerating, is already advanced. While we welcome the activation of the CCyB, it should be noted that to be most effective CCyB should be activated at an early stage of the financial cycle to build buffers that can be used as the cycle turns. CCyB would be relaxed in the event of a reversal in the financial cycle, which would enable banks to mobilize this capital reserve to preserve their ability to provide credit, notably to small and medium sized firms, which rely most on bank financing.

B. Vulnerabilities from Housing and Household Sector

23. Real house price growth has subdued and there are limited signs of house price misalignments (Figure 3). After an acceleration in 2015, real house price growth has slowed down and remains below euro area average. Model-based results show that house prices are broadly in line with fundamentals. Similarly, price-to-income and price-to-rent ratios are broadly in line with euro area average and do not show signs of overheating. However, a sudden tightening of financial conditions (for example, from unexpected monetary policy tightening in the US would be associated with a downturn in the housing market (see Technical Note on Household Vulnerabilities).

24. Household debt has risen however aggregate households' balance sheet seems solid (Figure 4). Household debt-to-GDP has reached a historical high of 58 percent (2018:Q1) driven by growth in consumer lending (closely linked to car financing) and loans for house purchase. Overall, loans to households for house purchase account for more than 80 percent of the total loans to households. About half of homeowners have debt and recently the debt servicing costs have gone down. Finally, at an aggregate level, households continued to build their financial net worth by accumulating financial assets faster than debts.[15]

[11] There is variation across banks' capital ratios, with those more internationally active having lower CET1 ratio.

[12] See HCSF's note on countercyclical capital buffer.

[13] Banks have to comply with the new requirement starting July 1, 2019.

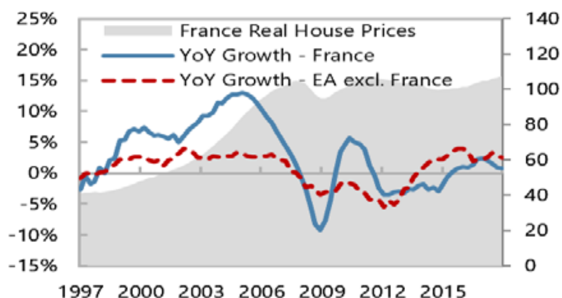
[14] See the press release of the seventeenth meeting of the HCSF.

[15] It is important to note that the distribution of assets matter and it is likely that those who have large real estate debt are not those who have large financial assets.

Figure 3. France: Housing Prices and Household Balance Sheet

The house price growth has subdued …

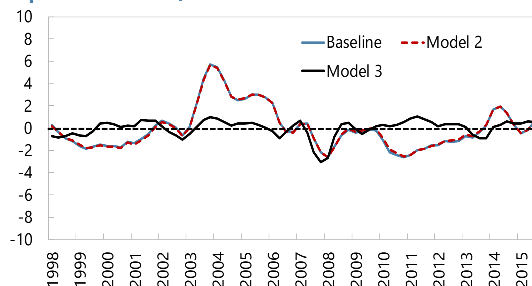
Real House Prices
(Indexed 2015 = 100)



Sources: Banque de France; European Central Bank; and IMF staff calculations.

… with house prices in line with fundamentals.

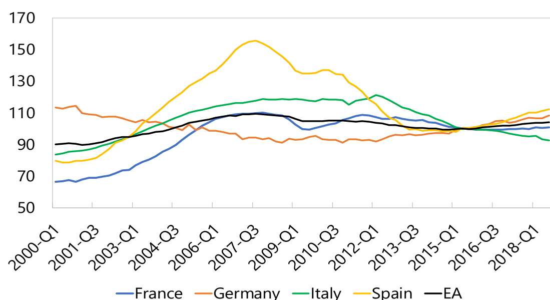
Housing Valuation—Metropolitan France
(The percentage deviation of actual price from equilibrium level)



Source: IMF staff estimates.
Note: In model 2, the natural log of housing price to income is replaced with the first lag of natural log of housing price to income ratio. In model 3, the growth rate of mortgage credit is added into the equation as an additional explanatory variable.

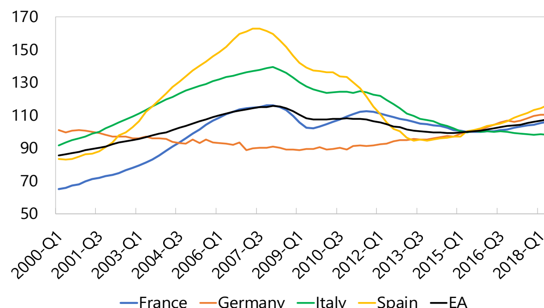
Price-to-income ratio is below the euro area average …

Price-to-Income
(Index 2015 = 100)



… Price-to-rent ratio has increased however in line with euro area.

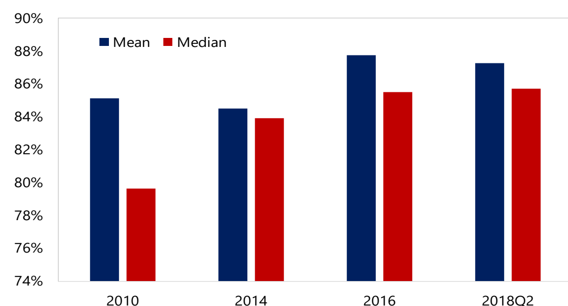
Price-to-Rent
(Index 2015 = 100)



Source: Organization for Economic Co-Operation and Development.

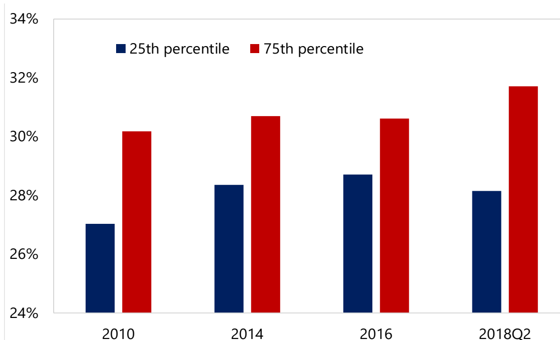
Loan-to-value (LTV) ratio (at origination) has remained largely stable …

Loan-to-Value Ratio



… however, there is some easing of credit standards according to DSTI ratio.

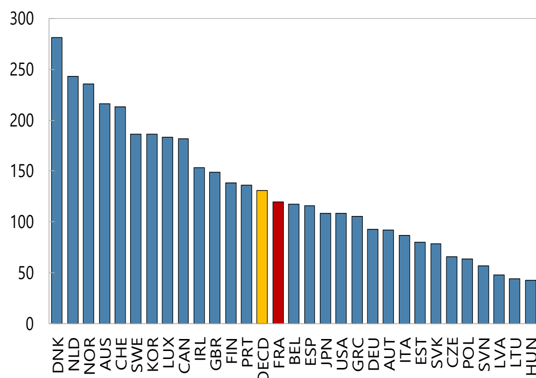
Debt-Service-to-Income Ratio



Source: Banque de France.

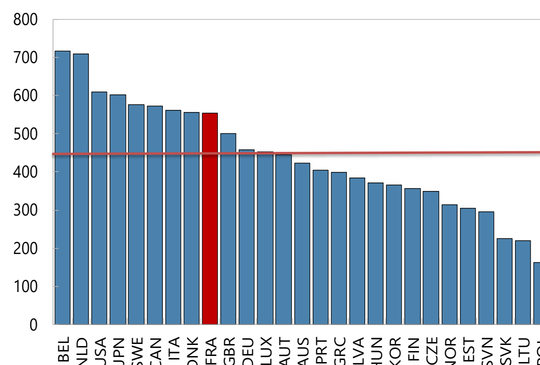
Figure 4. France: Household Debt

Household debt in percent of disposable income remains below the OECD average.



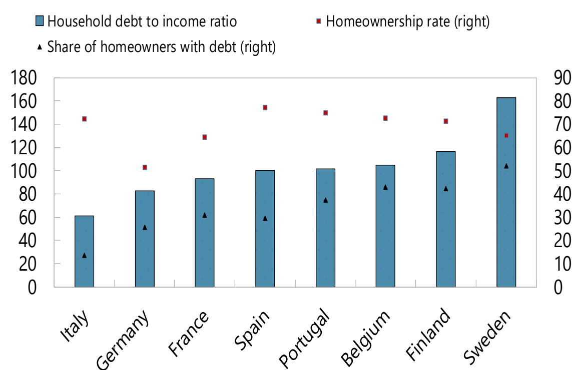
Source: Organization for Economic Co-Operation and Development (OECD).
Note: Latest available data for Japan, Poland, and Switzerland is 2016.

And households have relatively high net worth.



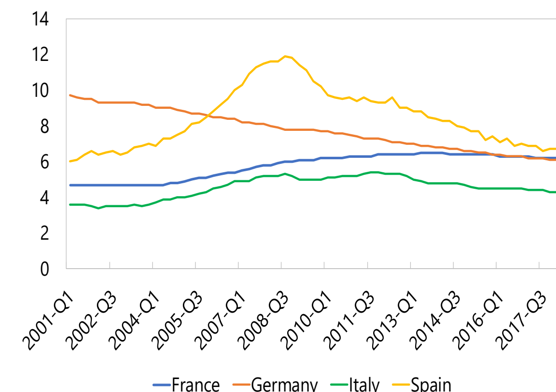
Source: Organization for Economic Co-Operation and Development.

Nearly half of homeowners have debt in France ...



Source: Eurostat.

... However, the debt service ratio has declined slightly.



Source: Organization for Economic Co-Operation and Development.

25. Lending standards have eased slightly however continue to remain prudent. Median and mean debt-service-to-income (DSTI) ratios have increased however remain low (median DSTI of 30 percent in 2018:Q2). The share of households with DSTI above 35 percent has slightly increased in recent years (about 24 percent in 2017) but remain below its 2012 level (28 percent). However, banks have strong screening mechanisms and loans with high DSTI ratios are usually extended to borrowers with steady income source. Even though average loan amounts have increased, they have been accompanied with an increase in average initial maturity of new loans, with limited deteriorating effect in the average debt-service to income ratio. Loan-to-value ratio on new loans have remained stable. However, in the absence of disaggregated data from household surveys for

recent years, the extent to which lower-income and younger households have accumulated vulnerabilities in their balance sheets is still unknown.[16]

26. Hence, there is a need to gather, monitor and analyze more granular data related to housing loans and household balance sheets. This would allow a better understanding of whether there are vulnerabilities developing among specific segments of households, in particular, lower income and younger households. Moreover, the authorities should stand ready to consider activating borrower-based instruments if future analysis uncovers vulnerabilities.

27. Structural features of housing loan market in France make it more resilient. Housing loans in France are predominantly fixed-rate (99 percent of new housing loans and 93 percent of the stock in 2017) insulating household balance sheets from interest rate risks. They are usually extended based on the borrower's financial assessment, not the house value. Further, households cannot extract home equity (no borrowing using home equity as collateral) hence there are limited wealth effects from housing. Banks' screening procedures for borrowers (based on qualification, occupation, etc.) are quite stringent protecting them from unemployment risk, which is the major risk faced by lenders in extending loans for house purchase. On the borrowers' side, there is mandatory insurance against death and disability and protection mechanisms exist for lenders in case of default for majority (about 95 percent) of loans. Hence, interest rate risks are transferred to banks' balance sheet who are in a better position to hedge them and other uncertainty driven risks are shifted to insurance companies.

C. Vulnerabilities from Corporate Sector

Unconsolidated nonfinancial corporate debt in France has increased by 20 percent of GDP between 2010 and 2017 and stands at 133 percent of GDP, among the highest in advanced countries (Figure 5). This contrasts with developments in other large euro area countries which have experienced either a stabilization of their corporate debt (Germany) or a significant decrease (Italy and Spain). Netting out intercompany loans, consolidated corporate debt is lower, at 74 percent of GDP (2018:Q3), and more in line with peers. Nonetheless, it has still experienced an increase of 12 percentage points of GDP since 2010, mainly resulting from net bond issuances.[17] This increase has however been matched with a commensurate increase in corporate equity on the period.

28. The increase in French corporate debt as a share of GDP since 2010 can be explained mostly by an increase in intercompany loans and bond financing, especially between 2010 and 2016. Bank credit to nonfinancial firms, on the other hand, has increased more moderately, although the growth rate of these two sources of financing has been similar in recent quarters. A particularity of French firms' corporate debt is that intercompany loans and bonds account for about

[16] The release of the 2019 Household Finance and Consumption Survey will provide information in this respect.

[17] Subtracting cash holdings from consolidated debt, aggregate net consolidated debt has barely increased during the crisis and stands at 64 percent of GDP, close to the euro area average, suggesting that, in the aggregate, French firms used part of the proceeds to accumulate liquid financial assets, which also account for a larger share of their assets. For further details, please see Almeida and Tressel (2019).

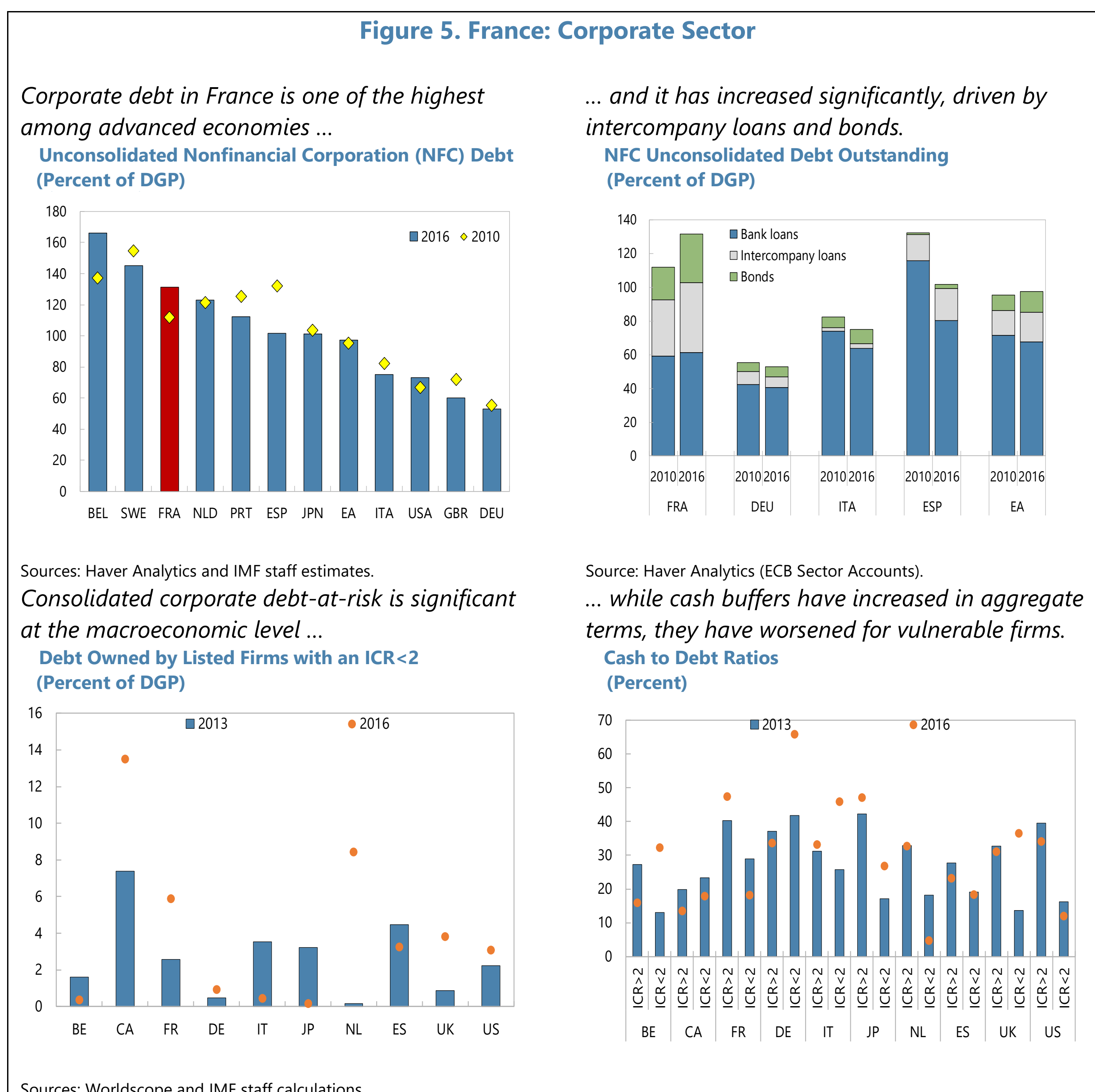
half of nonfinancial companies' debt, as of end 2016. This feature has been reinforced since the global financial crisis.

Corporate Debt Vis-à-Vis Other Institutional Sectors, 2018:Q2

	Banks	RoW	Corporates	Insurers & Pension funds	Other financials	Government	Households and NPISH	Non MMFs Investment funds	MMFs	Total
LT securities	72	364	3	145	3	5	1	41	5	639
ST securities	29	10	2	1	0	0	0	5	23	70
LT loans	819	36	819	3	21	12	8	0	0	1718
ST loans	166	360	403	3	0	0	0	0	0	934
Total	1086	771	1227	153	25	17	9	46	28	3361

Sources: Banque de France, sectoral financial accounts, 2018:Q2, and IMF staff.

Figure 5. France: Corporate Sector



29. Direct financial system exposure to corporates could generate spillovers under stress. While the impact will likely be most sizable for the banking book through credit risk exposures, indirect market risk through the bond market would be important for banks, insurers, money market funds (MMFs), and non-MMF investment funds, which hold corporate debt securities. Finally, potential shifts in investor sentiment among non-resident bond holders (that hold more than half of corporate bond debt securities) would also affect the bond market.

30. Macro-financial effects from corporate borrowing can go beyond the financial sector's direct exposure to the firms. This can work through a number of different channels:[18] (i) a macroeconomic channel through which corporate distress weakens investment, employment, and overall economic activity, as result of which financial distress arises in other sectors toward which the financial system is exposed, such as the household and public sectors; (ii) an uncertainty channel by which market uncertainty as to which financial institutions are exposed to distressed corporates leads to a general rise in banks' funding costs, reducing credit supply to either the corporate or other sectors; (iii) a liquidity channel where distressed corporates withdraw funds from the domestic banking system to service their external debt, by drawing down deposits or existing credit lines, and the resulting pressures on the banks' liquidity position lead to an economy-wide credit crunch.[19]

31. *Debt-at-risk* in France, defined in this context as debt owed by firms with an interest coverage ratio (ICR) less than 2, has risen significantly even if this is somewhat mitigated by increases in cash buffers. Debt owed by listed firms with an interest coverage ratio (ICR) less than 2 has doubled to nearly 6 percent of GDP by 2016. A similar trend is observed in several other advanced economies. This to some extent is mitigated by ample cash buffers. However, cash buffers are not uniformly distributed and have gone down for firms at risk (ICR < 2). A sudden increase in interest rates can significantly increase the debt burden of already vulnerable firms (see technical note on corporate vulnerabilities).

32. HCSF has been proactive in identifying and taking macroprudential measures to address risks from the corporate sector. In line with HCSF's diagnosis of risk concentration among large corporates, banks' LE limits to highly indebted corporates have been tightened. The French globally and domestic systemically important banks are required to set a five percent exposure limit (of their own funds) to highly indebted large corporations, effective July 1, 2018 (and lasting for two years).[20] An NFC is to be classified as highly indebted if its ultimate parent company has a net leverage ratio[21] greater than 100 percent and its interest coverage ratio[22] is below three. The

[18] Some of these channels are discussed in Committee on International Economic Policy and Reform (2015).

[19] Bruno and Shin (2017) show that nonfinancial corporations from outside the U.S. that issue U.S. dollar-denominated bonds tend to deposit a significant share of the resulting proceeds in local banks to accumulate financial assets. As a result, banks' loss of funding from such liquidity withdrawals could be substantial.

[20] The exposures are determined at the highest level of consolidation of the banking prudential perimeter of the institution concerned. An NFC is considered as large if these exposures are at least €300 million.

[21] Defined as total financial debt less outstanding liquid assets over total equity.

[22] Defined as earnings before interest and taxes/interest expenses.

measure is taken within the current CRD IV/CRR framework (Article 458 CRR) and is intended to target the nexus between systemic banks and large corporates. Since the measure is taken through LE regulation, it directly affects only exposures greater than 300 million euros (i.e., de facto large/medium size corporates) which is a subset of the debt at risk. A non-significant part of debt-at-risk (defined as debt owed by firms with ICR below 2) among listed firms in France is owed by smaller firms, which are outside the scope of this measure.

33. However, the LE limit suffers from some drawbacks: (i) while the LE limit would help contain risk concentration, it may not be able to prevent further debt accumulation of the targeted group from the banking system; (ii) a large part of the increase in debt for highly indebted large corporates is sourced from outside the banking system and hence the measure will be effective only through a signaling effect, i.e., if the market reduces its exposure to the identified highly indebted large corporates; and (iii) the measure may further enhance a shift towards market based funding, which is a dominant source of funding for large corporates in any case.

34. Risks from corporate exposures appear manageable, however should be monitored carefully. The solvency stress test shows that despite relatively high capital depletions over adverse scenario, no bank would face capital shortage below 6.5 percent of CET1 capital. However, some banks' exposures to large indebted corporates may increase notably under stress. Further, the balance sheets of corporates may further worsen if the low interest rate environment continues, which can have substantial spillovers in case of a stress event. The HCSF should evaluate the effects of LE limit and stand ready to act if corporate vulnerabilities increase.

35. The current toolkit is insufficient in effectively addressing risks associated with corporate exposure in France but also more broadly in international context. Rising corportate debt is increasingly becoming an emerging risk in both advanced and emerging market economies. Current tools available to macroprudential authorities are not sufficient and hence there is a need to engage discussion about expanding the toolkit in this area. In Annex 1, we discuss some potential policy options to deal with rising corporate vulnerabilties.

36. A sectoral systemic risk buffer, calibrated to corporate exposures, could be introduced to address corporate sector risks, if they intensify. The SRB, unlike the LE limit, could affect all corporate exposures, and provide for added resilience in the event of wide-spread corporate distress.

37. While designing an SRB, care can be taken to calibrate it to penalize the riskier corporate exposures more heavily. Further granularity can be introduced in calibration of the buffer by allowing differentiation across sectors (higher buffer for less resilient sectors). This may be desirable given the heterogeneity of corporates. Therefore, the measure would allow some flexibility in terms of calibrating the buffer to identified risks.

38. A fiscal option, by affecting the demand rather than supply of credit, would address both bank and market debt. Fiscal measures are outside the macroprudential toolkit of the HCSF. However, having the Minister for the Economy as chairman of the council should assist in the

complementary use of fiscal measures both for fiscal and macroprudential policy. The current reduction in marginal CIT (to 25 percent by 2022) could be complemented, if needed, with (i) an interest deductibility based on fixed debt-to-equity rule, i.e., denying interest deductibility if debt-to-equity exceeds some fixed value; and (ii) an allowance for corporate equity, which supplements deductibility of interest with a similar deduction for the normal return on equity (see Annex 1).

D. Vulnerabilities from Funding and Liquidity

39. The banking system has ample aggregate liquidity buffers however vulnerabilities remain. The LCR in total currencies is well above the phased-in regulatory requirement of 100 percent (Figure 6). The loan-to-deposit ratio has been on a declining trend standing at 97 percent in 2018:Q2. However, liquid assets as a share of short- term liabilities are significantly lower than euro area peers.

40. While the LCR in U.S. dollar has shown improvements and is above 100 percent on average, it continues to be volatile. Moreover, maintaining a net stable funding ratio (NSFR) in U.S dollars above 100 percent has been challenging for some banks although this is not specific to French banks among EU banks given that there is no regulatory constraint on the NSFR in USD at the European level.

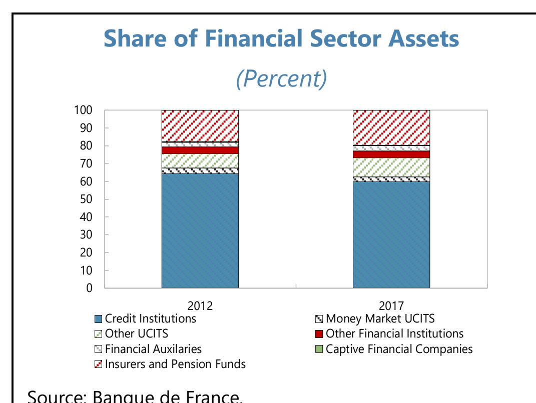
41. The authorities are encouraged to consider policies to minimize the impact of potential disruptions in wholesale funding markets, including in U.S. dollars. Cash-flow based liquidity analysis suggests that while liquidity buffers are adequate to absorb shocks over five-day and one-month time horizons, banks may face challenges in an event of large wholesale funding outflows. While the liquidity gap in U.S. dollars appears to be manageable (only up to 1 percent of total assets), it could result in contagion risks arising from short-term funding stress in the U.S. dollar market. Hence, authorities could consider holding of buffers by all applicable wholesale funding providers to cover at least 50 percent of outflows over a horizon of say up to five working days in all major currencies. These requirements may be linked with monitoring of banks' use of collateral swaps to improve their liquidity ratios.

E. Vulnerabilities from Nonbank Sector

42. Nonbanks are starting to play a bigger role in financial intermediation. The share of banking is down from 64 percent in 2012 to 60 percent in 2017, while insurers and investment funds expanded. Solvency II, which entered into force in 2016, has allowed a move towards a risk-based solvency regime for insurance at EU level while ACPR continues to be the competent authority for insurance supervision. The French asset management industry has become one of the largest in the EA and AMF has been proactive in monitoring risks and implementing Financial Stability Board (FSB), International

Share of Financial Sector Assets

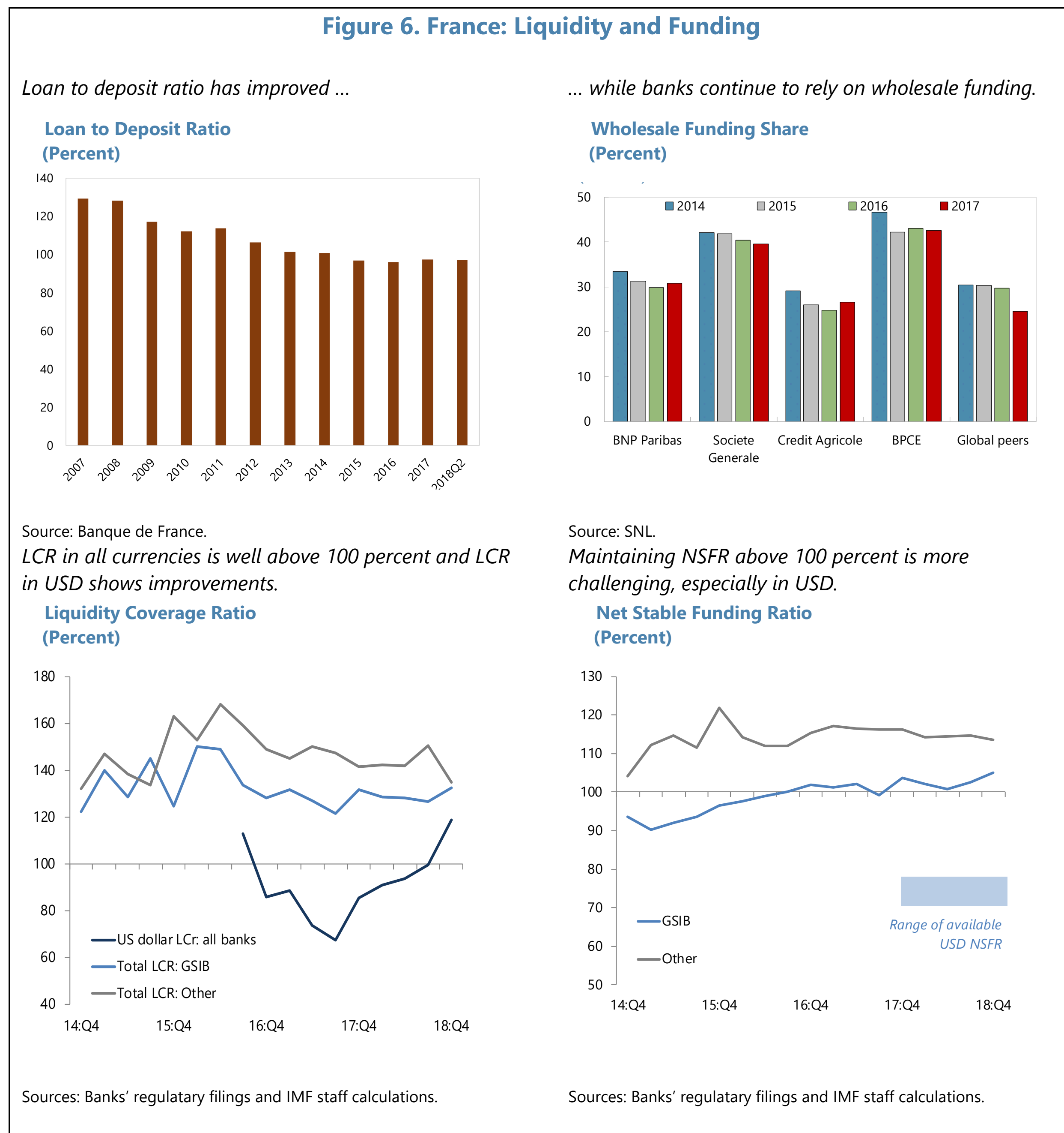
(Percent)



Source: Banque de France.

Organization of Securities Commissions (IOSCO) and ESRB recommendations on addressing potential risks.

Figure 6. France: Liquidity and Funding



Source: Banque de France.

Source: SNL.

Sources: Banks' regulatary filings and IMF staff calculations.

Sources: Banks' regulatary filings and IMF staff calculations.

43. The increasing prominence of the insurance industry, combined with market-wide developments including the search for yield and close ties with rest of the financial system, suggests greater attention to insurance from macroprudential perspective. Efforts are underway both at international (IOSCO, 2017; IOSCO, 2018) and EU level (ESRB, 2015; ESRB 2016) to understand potential sources of systemic risks from insurance. According to the IOSCO 2017 paper—systemic risk driver in insurance can be entity based (e.g., size or substitutability of the

failing company of companies) or activity based (e.g., involvement in the so called non-traditional and non-insurance (NTNI) activities or, more broadly, activities with greater potential to pose systemic risk as well as dangerous interconnections) or behavior based (e.g., risky behavior when searching for yield, excessive concentrations and inappropriate provisioning via underpricing as a result of competitive dynamics).

44. **While Solvency II framework does not include explicit macroprudential measures, some of its mechanisms can have a macroprudential effect.** For example, it includes two formulaic countercyclical valuation measures—volatility adjustment and matching adjustment. These have the effect of allowing certain types of insurance companies (subject to them meeting given criteria) of looking through a portion of risky asset price movements when valuing their liabilities. Hence, the measures have the effect of limiting falls in solvency when asset prices fall and therefore reducing the likelihood of fire sales in times of stress. In addition, the symmetric adjustment mechanism for equity risk has the effect of lowering the equity risk stress applied following a fall in equity markets and vice versa. This countercyclical adjustment is intended to avoid price spirals occurring from reactionary sales in falling markets. While the volatility adjustment and symmetric equity adjustments are relevant tools for France, matching adjustment cannot be used as the insurance products in French market do not qualify for that. All these measures however work mostly mechanistic and without discretion of the supervisory authorities in most cases. Another measure is the extension of the recovery period, which works as a forbearance tool by easing capital requirements for a limited period of time. Hence, currently Solvency II does not have any measures to for preventative buildup of systemic risks.

45. **French insurers are resilient against market shocks however the structural features of the French life insurance market call for vigilance regarding liquidity shocks.** Insurance solvency stress test reveals that the solvency coverage ratio does not drop below the 100 percent regulatory threshold for any company. However, French insurance groups are more vulnerable to a combination of higher interest rates and a mass lapse event due to specific combination of features of the French life insurance market whereby (i) the savings product is redeemable; (ii) the tax advantage is fully beneficial after eight years and for inheritance; and (iii) policy holders have full and entire ownership of past returns (except for unit-linked liabilities). These features may make the sector vulnerable to systemic surrenders or redemptions. French insurers however have significant liquid reserves in comparison to historical outflow pressures.

46. **The lapse rates and associated liquidity risks are monitored by ACPR through a weekly reporting.** Lapse rates in France are a bit higher than the EU average. Nevertheless, in 2018, lapse rates were lower than in previous years, and since 2013 no major spikes have been observed. In the past, outflows related to lapses could easily be covered by regular investment income from coupon payments, dividends and rents. While for a large mass lapse event, the need for a sale of some investment assets cannot be excluded, the amount of cash, cash equivalents and highly-liquid sovereign bonds held by insurers is likely sufficient to meet any liquidity need. However, insurance groups that are part of a conglomerate typically have large exposures towards other entities in the conglomerate, which represents a major channel of spillover of systemic risks (see Section F).

47. To further enhance the resilience of insurance companies, HCSF has been granted new powers in the insurance sector. Effective December 2016, HCSF was granted power to set up the technical provision for profit-sharing for the insurance sector as a whole or a subset of it. Moreover, the HCSF can take preventative macroprudential measures to preserve the stability of the financial system. In particular, on proposal of the BdF Governor following consultation of the supervisory college of the ACPR, the HCSF can temporarily (i) limit certain operations and activities, including the writing of premium; (ii) restrict the free use of all, or a subset of, portfolio assets; (iii) limit, for the whole portfolio or a subset of it, redemption payments; (iv) limit or delay, for the whole portfolio or a subset of it, the ability of policyholders to arbitrage between funds or to receive contract prepayments; and (v) limit the distribution of dividends to shareholders. These powers can only be activated for a maximum period of three months, which can be renewed, if needed.[23]

48. The AMF is actively monitoring liquidity and leverage related risks from French alternative investment funds. The main macroprudential risk that can arise in the investment fund industry is from (i) excessive leverage; and (ii) potential mismatch between asset liquidity and redemption terms.[24] On a global level, efforts are underway to operationalize the management of potential risks from leverage of investment funds (FSB, 2017 (recommendations 10, 11, and 12) mandates IOSCO to define relevant leverage indicators for investment funds and collect data accordingly; ESRB, 2017 (recommendations E) recommends ESMA to provide guidance on the design, calibration and implementation of macroprudential leverage limits in the alternative investment fund (AIF) sector in EU), and their management of liquidity risks (IOSCO, 2018[25]; ESRB, 2017). French AIFs main risk indicators (liquidity, leverage, type of investor) appear to be consistent, on a fund by fund basis, with the strategies employed (AMF 2019). AMF should continue to work together with ESRB and ESMA for enhancing data quality and design of macroprudential limits for AIFs. Finally, macroprudential risks could also arise in the presence of links between investment funds and rest of the financial system, most notably banks and insurers (see Section F).

49. The AMF should develop capacity to undertake stress tests from a systemic perspective and, especially, for risky segments of the investment fund industry. In particular, the AMF should develop, including in the context of the work program at the FSB, IOSCO, and the ESRB, stress-test capacity to assess resilience to liquidity risk, market risk, or credit risk. Given the size of the industry, it is not sufficient that asset managers alone perform stress tests; while they typically undertake stress tests from a consumer-protection perspective, they cannot, in contrast to

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[23] The temporary suspension of redemptions can only be imposed for a maximum of six consecutive months.

[24] The microprudential risk of liquidity mismatches can become a macroprudential risk in the presence of price externalities and market imperfections. Price externalities can become acute when asset returns are correlated across investment funds, or when liquidity of assets is low. Market imperfections include (i) herding behavior that can lead to correlated exposures to certain asset classes, including illiquid ones; and (ii) first mover advantages (which can create risks of a run) and the resulting fire sales that may have spillovers to the rest of the financial system.

[25] IOSCO recommendations, which aim to provide a diversity of tools to asset managers for liquidity management, have been incorporated in France. The legislative changes clarify the conditions for implementation of introduction of (i) subscription and/or redemption notices, (ii) redemptions in kind, and (iii) partial or total closing of subscriptions.

the regulator, take a financial stability and systemic perspective, and cannot internalize the impact of their actions on how other asset managers manage their investment funds.

F. Structural Vulnerabilities

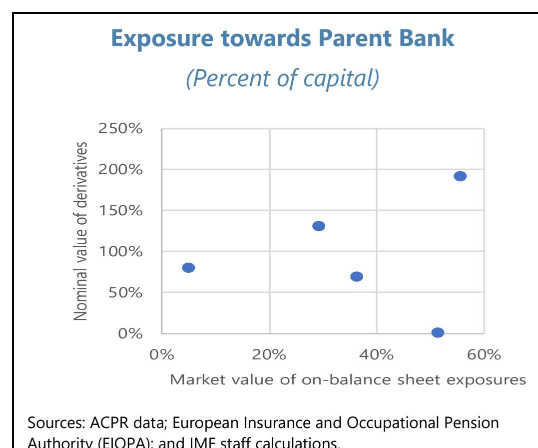
50. The French financial system is dominated by large financial groups, which are active across business lines. The banking sector is highly concentrated by large financial groups, with BNP Paribas, Groupe Credit Agricole, Societe Generale and Groupe BPCE—four Global Systemically Important Banks (G-SIBs)—holding 78 percent of the sector's assets on a consolidated basis (Figure 7); Groupe Credit Mutuel holds further 9 percent of total assets. These groups are also active in insurance sector, cumulatively accounting for 47 percent of life insurance market share (in 2017). These insurers operate through bancassurers and take advantage of the branch networks of their affiliated universal banks. Finally, some of these banking groups also have active asset management operations. For example, Amundi—the largest asset manager—was formed in 2010 by Credit Agricole and Societe Generale regrouping their asset management operations into a single company. Similarly, BNP Paribas Investment Partners is one of the top four asset managers in France (see the technical note on Financial groups).

51. FSAP analysis suggests increasing interconnectedness across sectors. Funds have large direct exposures with banks on the asset side and insurance companies on the liabilities side. Analysis based bilateral dataset on marketable securities suggests that the network is relatively sparse but clustered around a few important banks and insurance companies (see Technical Note on Cross Sectoral Interactions). In addition, there are large common exposures between banks and insurers both domestically via marketable securities and through cross-border asset holdings.

52. The exposures are often concentrated within the bancassurance groups. The market value of on-balance sheet exposures toward the parent bank can reach more 50 percent of the insurer's eligible capital. The concentration in deposits held with the parent bank can be very substantial for some insurers. In addition, further financial interlinkages exist, e.g., via derivatives or securities financing transactions. Insurers also rely heavily on asset managers to manage their assets, which in most cases are 'in-house' asset management companies. These concentrated exposures may result in amplification mechanisms that should be accounted for in systemic risk monitoring. To this end, the HCSF should:

Exposure towards Parent Bank

(Percent of capital)



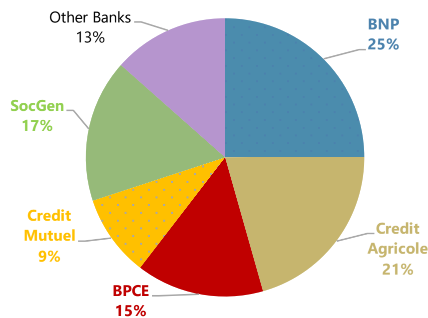
Sources: ACPR data; European Insurance and Occupational Pension Authority (EIOPA); and IMF staff calculations.

- recommend reporting flow data on intragroup transactions in a conglomerate at a quarterly frequency;
- develop capacity for liquidity stress tests at the conglomerate level;
- consider development of specific guidance to address direct exposures and common exposures of entities in a conglomerate; and
- undertake preemptive planning through development of liquidity risk management plans, at least for large insurers in the context of the work program of EIOPA.

Figure 7. France: Structure of the Financial System

The banking sector is highly concentrated by large financial groups …

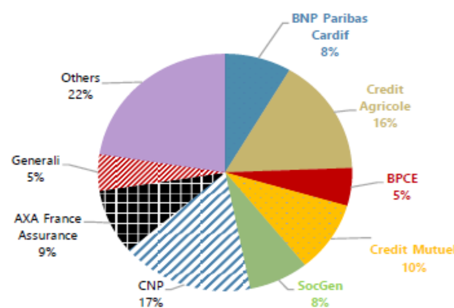
Banking Sector
(Market shares (assets) as of June 2017)



Source: BMI Research.

… and they also have an active insurance sector.

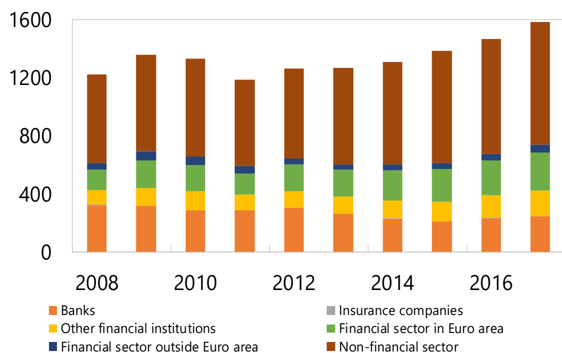
Life Insurance Sector
(Market shares (premiums) as of June 2017)



Source: BMI Research

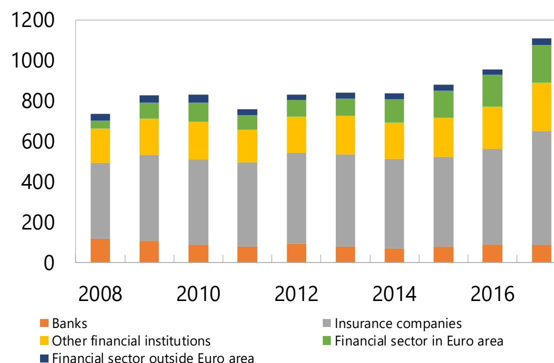
On the asset side, French funds have strongest list to banks.

Exposure of Fund Assets to the Rest of the Financial System
(Billions of euros)



On the liabilities side, a large part is held by French insurers.

Exposure of Fund Liabilities to the Rest of the Financial System
(Billions of euros)



Source: Banque de France.

53. Six banks are assessed by ACPR to be systemically important and therefore subject to O-SII/G-SII buffer. The ACPR has been assessing the designation systemically important institutions in France since 2014. The identification methodology relies on a two-step process.[26] The first step relies on the calculation of a score indicating the systemic importance of each bank, based on mandatory indicators listed in the European Banking Authority (EBA) guidelines. The second step enables to complete this list with the supervisory judgment based on a closed list of optional indicators set forth in the guidelines (see Table 5). From January 1, 2019 six banking groups are assessed to be O-SII or G-SII by the ACPR (Table 4).

54. The capital conservation buffer is fully phased-in. All credit institutions are subject to the capital conservation buffer to improve their capacity to absorb losses that may arise from banking activities. Its phase-in began in January 2016 with equal increments of 0.625 percent each year, resulting in the buffer to reach the uniform 2.5 percent level on January 1, 2019.

CONCLUSIONS AND RECOMMENDATIONS

55. The institutional arrangements for macroprudential policymaking provide adequate powers to ensure HCSF's ability to act, though some tools remain outside its legal domain. The HCSF's financial stability mandate includes the power to formulate macroprudential policy, and HCSF can employ a broad range of macroprudential tools to help mitigate and prevent systemic risks. It has hard powers over a wide range of macroprudential tools, as well as soft powers to issue opinions or warnings. However, there are some tools that are entrusted with HCSF's member institutions, with HCSF having the power to issue recommendation to them however without a formal 'comply or explain' mechanism.

56. The HCSF's member institutions have strong analytical capacity and framework for monitoring systemic risks however it's largely oriented towards the banking system. The risk statements discussed in HCSF's meetings encompasses risks both in the time and structural dimension and incorporates risk identification (through leading indicators), impact assessment (through risk models), and resilience analysis (through structural models). The analytical tools (and models) are however largely to assess risks in the banking sector. Given the concentration and dominance of financial groups and bancassurance model, analytical capability should be deepened to understand (i) transmission of shocks between financial balance sheets within a group; and (ii) extending macro stress testing to nonbank entities, notably asset management industry and insurance.

57. A sectoral SRB, calibrated to corporate exposures, could be considered if vulnerabilities intensify. While the LE limit helps contain a potential rise in the concentration of individual banks' exposure to large indebted corporates, it may be unable to prevent further debt accumulation of the targeted group (as corporates could diversify their exposures among banks).

[26] For more details, see the ACPR methodological note on the webpage dedicated to systemic entities of the banking sector (https://acpr.banque-france.fr/en/prudential-supervision/banking-supervision/systemic-entities-banking-sector).

The sectoral SRB, unlike the LE limit, would affect all corporate exposures, and provide for added resilience in the event of wide-spread corporate distress. The SRB should be calibrated such that it penalizes the riskier corporate exposure more heavily. The well targeted SRB would enhance resilience through increased loss absorbing capacity however it may still fall short of limiting risks from rising market debt issued by corporates.

58. Fiscal measures that incentivize corporates to finance through equity rather than debt, can complement measures focusing on banks. The measures taken by the HCSF, while welcome, are largely focused on the banking system. However, since a large part of the recent increase in corporate debt is driven by market debt, HCSF could recommend to the Ministry of Finance to take measures, if needed, to further incentivize corporates to finance through equity rather than debt (beyond the planned reduction in CIT). This would have the widest reach affecting both bank and market-based finance, by affecting the demand for credit, rather than its supply.

59. The macroprudential policy toolkit could be strengthened further. Currently, the macroprudential framework at the European level is insufficient to appropriately address corporate sector risks in a targeted way. Thoughts should be given at the EU level to broaden the toolkit, for example by developing analytical framework to introduce borrower-based tools for corporates. Further, a concerted effort is needed both at EU and the national level to effectively monitor and limit risks related to concentrated exposures within a financial conglomerate.

Table 4. France: Systemically Important Institutions as of January 1, 2019

Institution	O-SII Buffer (Phase-In) (Percent)	
	2018	2019
BNP Paribas	1.125	1.5
Groupe Credit Agricole	0.75	1
Societe Generale	0.75	1
Groupe BPCE	0.75	1
Groupe Credit Mutuel	0.375	0.5
La Banque Postale	0.1875	0.25

Source: ACPR

Table 5. France: Criteria for Designation of O-SII and Calibrating Buffers

Step 1: Mandatory Indicators

Criterion	Indicator	Weights (Percent)
Size	Total assets	25
Importance (Substitutability/ Financial System Infrastructure)	Value of domestic payment transactions	8.33
	Private sector deposits from depositors in the EU	8.33
	Private sector loans to recipients in the EU	8.33
Complexity/Cross Border Activity	Value of over-the-counter derivatives (notional)	8.33
	Cross-jurisdictional liabilities	8.33
	Cross-jurisdictional claims	8.33
Interconnectedness	Intra-financial system liabilities	8.33
	Intra-financial system assets	8.33
	Debt securities outstanding	8.33

Institutions with an O-SII score higher than 350 basis points—the default threshold is set by the EBA guidelines—are automatically identified as O-SIIs. Institutions with an O-SII score lower than 4.5 basis points—the threshold is set by the EBA guidelines—are automatically excluded from a potential identification as O-SIIs.

Step 2: Optional (Country-Specific) Indicators

Market share in retail loans (corporates and individuals) living in France, with a minimal threshold of 350 basis points.

Market share in retail deposits (corporates and individuals) living in France, excluding centralised deposits at the Caisse des Dépôts et Consignations, with a minimal threshold of 350 basis points.

All institutions with systemic score between 4.5 and 350 basis points based on step 1, are submitted to an additional examination based on these two optional indicators. Each institution exceeding the score of 350 basis points for one of these optional indicators is assessed as O-SII, even if it does not reach this score for mandatory indicators.

Determination of O-SII Buffers Based on Scores (Bucketing Approach)

Bucket	O-SII Buffer (Percent)
<500 bps	0.25
500 bps – 1000 bps	0.5
1000 bps – 2000 bps	1
2000 bps – 3000 bps	1.5
>3000 bps	2

Source: ACPR.

Annex I. Macroprudential Policy Options to Address Corporate Vulnerabilities[27]

A. Capital-Based Tools

1. The most direct capital-based macroprudential tool would be to increase risk weights on corporate exposures. However, this is not feasible under the CRDIV/CRR framework. Article 124 CRR allows competent authorities to impose higher risk weights on banks (under pillar 1) to their exposures secured by real estate. Similarly, Article 164 of the CRR allows for an increase in the minimum loss given default for exposures secured by real estate. Finally, Article 458 of the CRR allows for increasing risk weights on property-related exposures across a wider group of institutions or on intra-financial exposures.[28] All these measures are targeted largely to the real estate sector and are therefore not available to address risks from rising NFC indebtedness.

2. Sectoral counter-cyclical capital requirement is another possible capital-tool but is also not available in the current framework. As mentioned earlier, CCyB is a broad-based tool and does not adequately target risks in the corporate sector. A sectoral CCyB targeted to corporate exposure would therefore be preferable. A sectoral CCyB could aim to increase resilience against risks in particular sectors in order to maintain credit provision to these and other sectors in a downturn, and to lean against the cycle in the targeted sectors. Elliott (2011) notes that sectoral capital requirements have a direct impact on the area of concern, stronger signaling power and smaller effects on the wider economy. The potential scope of sectoral CCyB is being considered by the Basel Committee on Banking Supervision (BIS, 2018). However, currently only Switzerland has an active sectoral CCyB, with a 2 percent buffer for the residential mortgage market. While a sectoral CCyB is not currently envisaged in the CRD framework, countries may still introduce it in their national legislation. For example, in December 2018 Spain instituted sectoral CCyBs as a national flexibility measure. However, the effectiveness as a national measure maybe limited by lack of reciprocity, and there are doubts on whether the measure conflicts with the common capital framework established under CRDIV/CRR.

3. A sectoral systemic risk buffer will be available in CRDV but sub-sectors still need to be defined by EBA guidelines. Without prejudging of the EU implementation of sectoral SRB, the (SRB) has a larger scope than the LE limit and add resilience, in the event of wide-spread corporate distress. Being used as a cyclical instrument, the resilience benefit of the SRB can be realized by turning it off in the event of stress, allowing losses to be absorbed and credit to flow when it is most needed. The main drawback being the lack of delineation between cyclical and structural instruments and therefore potential inconsistent implementation.

4. While designing an SRB, care can be taken to calibrate it to penalize the riskier corporate exposures more heavily. Like in the case of LE limit, one way forward would be to use

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[27] Prepared by Umang Rawat and Erlend Nier (Both MCMMP).

[38] See Romania: Technical note on macroprudential policy framework and tools.

balance sheet variables such as net-debt to equity or the interest coverage ratio as conditioning variables to calibrate the buffer. This maybe desirable given the heterogeneity of corporates. Therefore, the measure allows ample flexibility in terms of calibrating the buffer to identified risks.

B. Borrower-Based Tools

5. Borrower based tools are well established and frequently used in the household sector. For example, loan-to-value limits on residential mortgage loans are active in 55 countries (IMF, 2018). Similarly, debt-service-to-income limits are binding in 39 countries. These measures directly target the source of risk and are found to be more effective than capital-based tools in controlling credit growth and house prices (Alam et. al. 2019).

6. Borrower based tools are activity-based and hence can in principle affect corporate leverage beyond the banking system. This is important as (i) market-based credit is a substantial driver of the growth of corporate debt in France; and (ii) as noted earlier, since macro-financial effects from corporate borrowing can go beyond the financial sector's direct exposure to the firms, leverage outside the banking system can also lead to systemic risk. Theoretically, borrower-based measures can be applied to all providers of credit (and not just banks)—as is the case in Finland, Hungary, Latvia, and the Netherlands—where LTV limits are imposed to all providers of credit to households. In practice, borrower-based tools for corporates could be extended to loans provided by insurance companies and investment firms. However, it is more challenging to impose it on market finance (asset managers and private investors investing in market debt issued by corporates).

7. An example of borrower-based tool in the corporate sector is the interagency guidance on leveraged lending issued by regulators in the United States.[29] The guidance describes expectations for the sound risk management of leveraged lending activities. As per the guidance, transactions where the borrower's total debt divided by earnings before interest, tax, depreciation and amortization (EBITDA) exceeds six would generally raise concerns for most industries. The guidance however applied to supervised financial institutions, and therefore seems to have led to substitution effects towards less-regulated forms of intermediation (Solomon, 2015). A similar guidance is also issued by the ECB.[30]

8. There are other advantages of borrower-based tools over capital measures. First, capital measures typically apply to the stock of exposure while borrower-based measure apply to the flow. Hence, they allow for acting at an earlier stage of the cycle and are therefore less procyclical.

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[29] Other examples include Indonesia and China that have both introduced measures to mitigate risks associated with corporates' external borrowing, including from non-banks. In the case of Indonesia, corporates with external debt have to fulfill certain minimum hedging, liquidity, and credit rating requirements, and in China corporations' face a risk-weighted ceiling on the amount of cross-border funding they can attain, which is calculated based on the composition and degree of leverage of their external liabilities. As both prudential measures discriminate based on residency, they are classified as both capital flow management and macroprudential measures (i.e., CFM/MPMs).

[30] https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.leveraged_transactions_guidance_201705.en.pdf

Second, they are likely to be more effective since they prevent lending to borrowers once the limit is binding unlike in the case of capital-based measure that builds buffer for potential risks and changes the price of borrowing only on the margin.

9. Notwithstanding the possible benefits, there are several challenges with regards to the design of borrower-based instruments for corporates. Unlike households where the borrowers and loans are fairly homogenous, there are several layers of heterogeneity in the case of corporates. One approach is to set one set of limits for all corporates. However, given corporate heterogeneity, there may be a need for differentiated limits. Here, we discuss three forms of heterogeneity (i) sectoral heterogeneity; (ii) heterogeneity regarding corporate structure; and (iii) heterogeneity of loans.

- ***Sectoral heterogeneity.*** Sectoral heterogeneity is important as the leverage dynamics and cash flow may structurally differ substantially across sectors. Overall, the ability to repay is likely to be a more important metric than a measure of indebtedness or leverage based on a financial ratio. As a starting point, one could consider two complementary measures of leverage (i) flow-based measure which accounts for the debt service capacity such as the interest coverage ratio, and (ii) a stock-based measure that covers the overall debt of a firm such as debt to equity. Using these indicators, different limits may be applied to corporate sub-sectors, taking into account their structural features.

- ***Corporate structure related heterogeneity.*** Another challenge would be heterogeneity with regards to the corporate structure. For example, should the borrower-based limit be same for old v/s new firms (and start-ups) in the same sector. Further, should the limit be same for stand-alone corporates v/s corporates that are part of a larger group?

- ***Heterogeneity of loans.*** Should the limits be applied to both long term and short-term loans? Should they be differentiated by the loan-tenor?

10. While differentiation of limits may have benefits of greater efficiency, they may also invite criticism of "fine-tuning" and return to credit policy in disguise, limiting the political feasibility of such an approach. Further thinking may therefore be required before implementing these approaches in practice.

C. Fiscal Tools

11. The policy options discussed above are broadly restricted to the banking sector, with an exception of borrower-based tools that may have a slightly wider reach. However, they still do not cover market-based finance, which has been a primary driver of the growth in corporate debt in France. A fiscal measure that incentivizes corporates to finance through equity rather than debt would have the widest reach affecting both bank and market-based finance, by affecting the demand for credit, rather than the supply (IMF, 2014a).

12. The tax bias favoring debt to equity finance in France, as elsewhere, is a major distortion. While there are various factors that determine the level of credit to the nonfinancial sector, including the low-interest environment in recent years, the relatively high CIT rate at 33.3 percent in 2017 makes deduction of interest expenses in France particularly attractive. The debt bias encourages borrowing (from banks or unrelated parties) to benefit from interest deductions under the CIT, ultimately increasing corporate leverage and thus risks of instability (IMF, 2016). Reduction of corporate tax rate to 25 percent (passed in the 2018 Finance Act) will lead to lower incentives to leverage, through lower interest deductions.

13. One way to reduce debt bias is to increase the interest deduction disallowance. France has already introduced several restrictions on the deductibility of interest on loans. Since 2013, only 75 percent of the financial expenses are deductible. Another set of limitations on deductibility of financial expenses were passed in the 2019 budget plan via an earning stripping rule[31] whereby net financial expenses are deductible from the taxable income of a company up to the maximum of €3 million or 30 percent of EBITDA. A similar measure became effective in Portugal in 2013 whereby the deductibility of net financial expenses from the taxable income of a company was limited up to the maximum of €1 million or 30 percent of EBITDA. Given the €3 million interest deductible, only the medium and large companies would be directly affected by the limitation in France.

14. Earnings-stripping rules have a major drawback as a way to addressing the risk of financial distress from debt bias. Action 4 of the G20/OECD project on base erosion and profit shifting (BEPS) proposes an earnings-stripping rule for debt shifting.[32] It is also a part of the EU 2016/1164 Anti-Tax Avoidance Directive (ATAD). Such rule is however not specifically targeted to financial distress risks from debt bias. An earnings stripping rule, which disallows interest deductions if total net interest expense exceeds a certain percentage of earnings (such as EBITDA) will be binding not only for firms with a structurally high debt ratio, but also for firms with temporarily low earnings. The denial of interest deduction for these firms can reinforce financial constraints during periods of weak cash flow and magnify business cycle contractions (IMF, 2016).[33]

15. Hence, an interest deductibility rule based on fixed debt-equity ratio is preferable as it is less sensitive to cyclical fluctuations. Under a fixed rule, firms with debt-to-equity above a certain threshold would be denied interest deductibility. This rule is less sensitive to cyclical fluctuations and might thus avoid creating a new source of financial distress.

[31] An earning stripping rule is one where interest deductibility is based on interest-to-earning (in contrast with debt-to-equity in case of a fixed rule).

[32] Debt shifting refers to multinational companies lending from low-tax countries to related entities in high-tax countries or by locating external borrowing in high-tax countries.

[33] The rule in the BEPS Action 4 proposal recommends introducing carry forward of disallowed interest expense to mitigate this effect. Under the proposed French scheme, the unused deduction capacity may be used during the following five financial years. However, this will not eliminate the impact on liquidity.

16. Another way to eliminate debt-bias is by introducing an allowance for corporate equity (ACE). To introduce a level playing field, ACE supplements deductibility of interest with a similar deduction for the normal return on equity. ACE is straightforward to implement and several countries, including many in Europe, have applied variants of ACE without any operational difficulties.[34] Hebous and Ruf (2015) find that the implementation of ACE in 2006 reduced the average debt ratio for nonfinancial firms in Belgium by almost 20 basis points. However, compared to an earning stripping rule, it can have a significant negative impact on fiscal revenues.

17. The revenue cost of ACE can however be mitigated. There are several ways to reduce revenue losses from ACE. These include (i) An incremental application of ACE, i.e., applying it only to equity increases relative to some base year; and (ii) combining it with a limitation to interest deductibility, whereby revenue losses from ACE are, completely or partially, neutralized by gains from disallowance of interest deductibility.

[34] Some of the countries where ACE is currently applied include Belgium, Cyprus, Italy, Portugal, and Turkey (IMF, 2016).