



NORWAY

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE—SYSTEMIC RISK OVERSIGHT AND MACROPRUDENTIAL POLICY FRAMEWORK

August 2020

This Technical Note on Systemic Risk Oversight and Macroprudential Policy Framework for the Norway FSAP 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 July 7, 2020.

Disclaimer:

This document was prepared before COVID-19 became a global pandemic and resulted in unprecedented economic strains. It, therefore, does not reflect the implications of these developments and related policy priorities. We direct you to the [IMF Covid-19 page](#) that includes staff recommendations with regard to the COVID-19 global outbreak.

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July 24, 2020

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This Technical Note was prepared in October 2019, before the global intensification of the COVID-19 outbreak. It focuses on Norway's medium-term challenges and policy priorities and does not cover the outbreak or the related policy response, which has since become the overarching near-term priority

Prepared By
**Monetary and Capital Markets
Department**

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in Norway. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at

<http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
CAR	Capital Adequacy Ratio
CB	Central Bank
CCB	Capital Conservation Buffer
CCyB	Counter Cyclical Capital Buffer
CET1	Common Equity Tier 1 Capital Ratio
CFM	Capital Flow Management Measures
CISS	Composite Indicator of Systemic Risk
CRD IV	Capital Requirement Directive IV
CRE	Commercial Real Estate
CRR	Capital Requirement Regulations
DNB	Den Norske Bank
DTI	Debt-to-Income Ratio
DSTI	Debt Service to Income Ratio
EBA	European Bank Authority
ECB	European Central Bank
EEA	European Economic Area
EM	Emerging Market
ESRB	European Systemic Risk Board
EU	European Union
FSA	Financial Supervisory Authority (Finanstilsynet)
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSD	Norges Bank Financial Stability Department
FSR	Financial Stability Review
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GFSR	IMF Global Financial Stability Report
HK	Hong Kong SAR
HKMA	Hong Kong Monetary Authority
HQLA	High-Quality Liquid Assets
IMF	International Monetary Fund
IRB	Internal Ratings-Based
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
LTI	Loan to Income
LTV	Loan-to-Value Ratio
MoF	Ministry of Finance (Finansdepartementet)
MoU	Memorandum of Understanding

NBFI	Non-Bank Financial Institutions
NOK	Norwegian Kroner
NPL	Non-Performing Loan
NSFR	Net Stable Funding Ratio
O-SII	Other Systematically Important Institutions
ROA	Return on Assets
ROE	Return on Equity
RW	Risk Weights
SME	Small-to-Medium Enterprises
SPV	Special Purpose Vehicle
SRB	Systemic Risk Buffer
WEO	IMF World Economic Outlook

EXECUTIVE SUMMARY¹

While Norway’s institutional arrangement for macroprudential policy is uncommon, the authorities have shown strong willingness to act. The Ministry of Finance (MoF) is the sole macroprudential decision-maker in Norway, which is rare in international comparison. However, Norges Bank and the Finanstilsynet (FSA) play important advisory roles. In recent years, the authorities have taken substantive and wide-ranging macroprudential policy actions in response to growing systemic vulnerabilities—and these seem to have been effective in slowing down some of the riskier trends. The macroprudential policy toolkit is well stocked and actively used.

At the same time, financial sector vulnerabilities remain large. Household debt and house prices are at or close to all-time highs relative to disposable income, and commercial real estate (CRE) prices and banks’ exposures to the real estate sector are also at peak levels. The share of households with debt that exceeds five times their income is at a record level and so is their share in overall household debt. Covered bonds play a key role in banks’ funding of real estate loans, implying a heavy reliance of banks on wholesale funding.

To help ensure continued effective policy action, the institutional framework could be strengthened by developing a strategy, and closer interagency coordination. Publication of a macroprudential policy strategy can help further insure against inaction bias, foster accountability, strengthen external communications, and prepare the market for a possible relaxation of buffers in case of a sharp downturn. For instance, the authorities should clarify that the liquidity coverage ratio (LCR) in significant currencies is a buffer, which they could relax during foreign currency liquidity stress. Regarding the policy process, the semiannual triparty meetings should be used more effectively to reach agreement on risks and to jointly discuss the specific policy actions needed to address them. Norges Bank should be given recommendation powers over capital and liquidity tools that can be relaxed, in addition to those it currently has over the countercyclical capital buffer (CCyB).

Given persistent risks from housing debt, temporary household measures should be made permanent. The duration of these measures (such as the debt-to-income cap) should match the structural nature of the risks they address—which argues for making them permanent. Keeping the household tools in place (and adjusting them on occasion, if needed) would be more prudent and cost effective than removing and reintroducing them over the housing cycle. Speed limits are a useful feature that reduce the cost of mortgage restrictions on banks and households, and they should remain in place. There are also merits in considering options to broaden the toolkit for CRE vulnerabilities, including by sectoral capital tools, which might facilitate achieving the desired macroprudential policy stance in a more targeted manner.

¹ Prepared by Thorvardur Tjoervi Olafsson and Yuanyan Sophia Zhang (both IMF).

To facilitate systemic risk analysis and tool calibration, it would be desirable to further step up data collection. The Norwegian authorities have been publishing financial stability reports for decades, and systemic risk monitoring frameworks at Norges Bank and the FSA are well developed. Data quality and availability is generally good, and further progress was recently made with the establishment of a credit registry. Nonetheless, there are important remaining data gaps that should be addressed. Specifically, it would be useful to collect data on NPLs and financial distress for households and link these to existing micro-data sets, to guide calibration of borrower-based tools. Collecting more data on CRE (including micro-data on DRE companies) is also desirable, to facilitate monitoring and analysis as well as the possible development of new instruments.

Table 1. Norway: Key Recommendations on Macroprudential Policy

Recommendations	Agency	Timing¹
<i>Institutional Arrangements</i>		
1. Develop a macroprudential policy strategy in cooperation with Norges Bank and the FSA (Paragraphs 18–20; 22).	MoF	ST
2. The triparty meetings should be used more effectively to reach agreements on risks and policy action needed to address them (Paragraphs 15–17, 19, 23).	MoF, NB, FSA	I
3. Give Norges Bank recommendations powers over macroprudential policy tools that can be relaxed under stress with a ‘comply-or-explain’ mechanism (Paragraphs 11, 20, 24).	MoF	I
4. Publish a list of all recommendations made by Norges Bank and the FSA to the Ministry of Finance in the Annual Financial Market Report to Parliament (Paragraphs 17, 25).	MoF	I
<i>Systemic Risk Monitoring</i>		
5. Collect micro-data on NPLs and financial distress for households and link the information to existing micro-data sets to guide calibration of borrower-based tools (Paragraphs 33–34).	NB, MoF	ST
6. Collect micro-data on the CRE sector to facilitate risk assessment and guide the development and calibration of macroprudential policy tools (Paragraphs 32, 35).	NB	ST
<i>Toolkit</i>		
7. Make key parts of the household sector measures permanent, to be adjusted infrequently and subject to speed limits (Paragraphs 49–50, 53–54).	MoF	ST
8. Reduce tax preferences and relax supply constraints on housing (graphs 45, 56).	MoF	ST
9. Consider options to broaden the toolkit to mitigate CRE vulnerabilities, including sectoral capital tools (Paragraphs 61, 63).	MoF, NB, FSA	MT
10. Clarify that the liquidity coverage ratio in significant currencies is a buffer that could be relaxed during periods of foreign currency liquidity stress (Paragraphs 20, 66–68).	MoF	ST
¹ I Immediate (within 1 year); ST Short term (within 1-2 years); MT Medium Term (within 3-5 years)		

INTRODUCTION

1. The Norwegian institutional arrangements for macroprudential policy are uncommon, but the authorities have exhibited strong willingness to take action. The institutional framework with the Ministry of Finance (MoF) as the sole decision-making body remains relatively unique in international comparison. However, Norges Bank and the Finanstilsynet (FSA) also play important roles. Since [the 2015 Financial Sector Assessment Program](#) (FSAP), the authorities have continued to take wide-ranging macroprudential action. For years capital requirements on banks have been stricter in Norway than in many other countries, in particular as a result of lessons learned from the country's financial crisis in the early 1990s. Following the global financial crisis (GFC),² Norway has also been on the forefront of introducing Basel III requirements. That process has continued, and banks hold large capital buffers that provide valuable resilience against negative shocks. Bank profitability has remained strong, serving as a first buffer to absorb losses. Borrower-based tools have also been tightened since the 2015 FSAP, both with regard to mortgages and consumer loans.

2. However, financial sector vulnerabilities remain large. While the large post-GFC credit-to-GDP gap has been brought down, total credit-to-GDP, household debt-to-income, and gross corporate credit-to-GDP are all at or close to an all-time high. The same holds for commercial and residential real estate prices (the latter measured against household disposable income), even though their dynamics indicate a slow-down in the build-up of risk in line with the diminishing credit gap. The share of households, with debt that exceeds five times their income, is also at record levels and so is their share in overall household debt.

3. This note evaluates the institutional framework for macroprudential policy, the quality of systemic risk oversight, and the adequacy of the toolkit. It will also make recommendations on how to strengthen these key features of macroprudential policy making in Norway. The note is structured as follows: Section II assesses the strengths and weaknesses of the institutional arrangements for macroprudential policymaking. Section III discusses the existing systemic risk monitoring framework. Section IV maps an assessment of systemic vulnerabilities into recommendations for the macroprudential toolkit. Section V concludes.

INSTITUTIONAL FRAMEWORK

4. Strong institutional arrangements for macroprudential policymaking are vital to ensure that macroprudential policy can be effective. The institutional framework should promote the *willingness to act* and thereby overcome the underlying policy inaction bias that results from the cost of policy actions being earlier and more easily observable than their potential benefits. The arrangement should also foster *the ability to act* to increase the resilience of the financial system and mitigate systemic risk. Finally, the framework needs to promote *effective cooperation and*

² The Norwegian economy and financial system weathered the GFC relatively well, with only a short-lived recession and financial distress mostly in the form of liquidity pressures on banks, which was met with swift official domestic and foreign currency liquidity provision. Macroeconomic policies were also relaxed, and the economy recovered.

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 2014 IMF Staff Guidance Note on Macroprudential Policy](#).

5. From an international perspective, the institutional arrangements in Norway are almost unique with the MoF being the sole decision-making body.³ While it is fairly common to assign the macroprudential mandate to a single body, it is very rare that it is given to the MoF. Some two-thirds of countries opt for giving the central bank (which in some instances is also responsible for bank supervision) that responsibility (Figure 1 based on the [IMF Macroprudential Policy Survey](#)). That being said, it does not automatically entail that the framework cannot be suitable for Norway.

A. Principle 1: Willingness to Act

6. International experience has shown that certain institutional aspects can foster strong willingness to act ([IMF-Bank for International Settlements \(BIS\)-Financial Stability Board \(FSB\), 2016](#)). In particular, clear assignment of the macroprudential mandate, well-defined objectives for institutions involved in safeguarding financial stability, a strong role for the central bank, dedicated financial stability units, and adequate accountability and communication frameworks can all foster willingness to act and thereby overcome the inaction bias.

7. Several of these institutional features are in place in Norway. The MoF has a longstanding mandate to safeguard financial stability, which has its historical roots in the transfer of powers from Norges Bank to the MoF in the post-World War II period ([Skånland, 2004](#)) and the division of labor in the financial crisis in the late 1980s and early 1990s ([Gram, 2011](#), [Moe et al., 2004](#), [Haare et al., 2016](#)). In the public domain, it is clear that the MoF has the overarching mandate for financial stability, and that arrangement has enjoyed strong backing across the political sphere. It was in this context that the macroprudential mandate was assigned to the MoF.

“There is broad political agreement in Norway that our financial regulation must prioritize solvency and security for clients. It is noteworthy that the development of the financial regulatory framework—with few exceptions—has been passed unanimously in Parliament” [IMF staff translation].

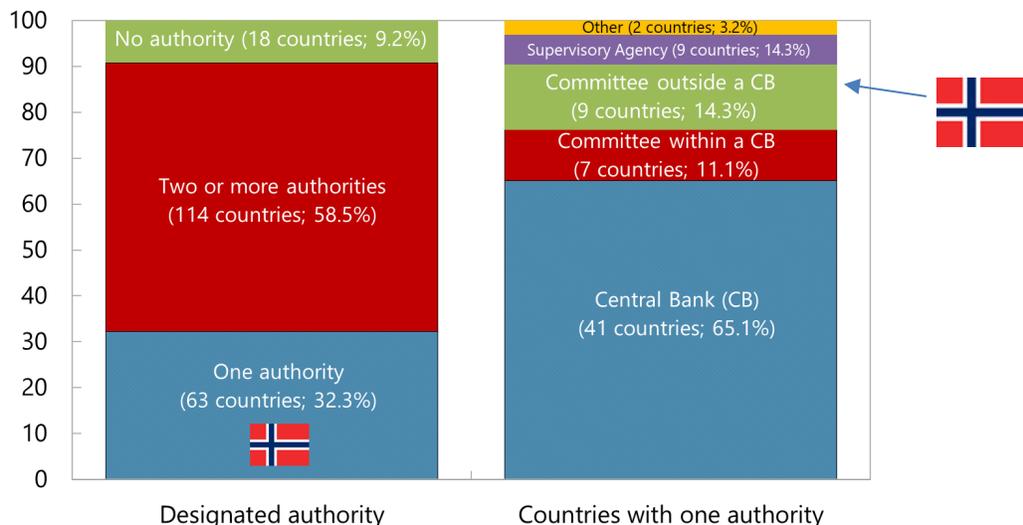
Finance Minister Siv Jensen, in a [speech](#) January 31, 2018

³ Denmark comes close to having a similar set-up, with the Minister for Industry, Business and Financial Affairs being the designated macroprudential authority with regard to [the CRD IV](#). However, Denmark’s Systemic Risk Council is the macroprudential authority established in accordance with [Recommendation ESRB/2011/3](#). As a result, [the ESRB](#) considers that Denmark has two macroprudential authorities, while Norway has only one. In practice the main decisions on macroprudential policy in Denmark appear to be taken by the Minister (similar to the practice in Norway) with the Systemic Risk Council having only semi-hard and soft powers.

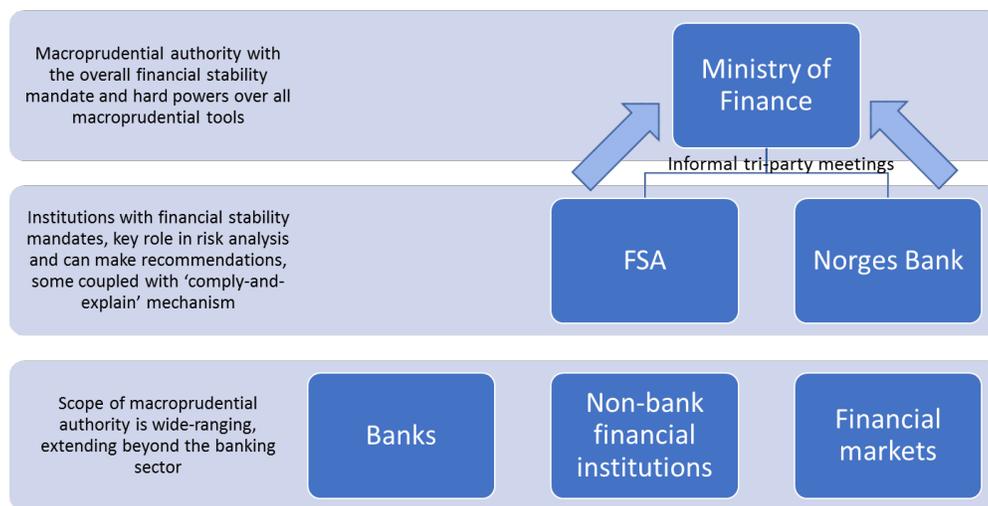
Figure 1. Norway: Institutional Arrangements for Macroprudential Policy

While having one macroprudential authority is fairly common, it is almost unique that the ministry of finance and not the central bank is in that position¹

(Share of countries)



The MoF is the sole designated macroprudential authority in Norway, while Norges Bank and the FSA provide systemic risk analysis and recommendations to the MoF based on their financial stability mandates



Sources: IMF Macroprudential Policy Survey, IMF staff calculations and illustrations.

¹ The central bank is also the banking/financial supervisor in some of these instances.

8. Norges Bank and FSA are the two other important players in the macroprudential landscape. Both have well-defined financial stability objectives (which have been strengthened in

the case of Norges Bank in the new central bank [Act](#),⁴ established track records in systemic risk analysis, and a role in providing policy recommendations to the MoF.⁵ Individually, all three institutions have dedicated accountability and communication frameworks on matters related to macroprudential policy and publish extensively on financial stability. However, gaps still remain as discussed in Section C below.

9. Generally, a dominant role of the MoF could risk delaying macroprudential action. This reflects that political agents can be particularly vulnerable to the inaction bias as they may be more worried than central banks or financial supervisors about the short-term costs of policy actions vis-à-vis their medium-term benefits. That being said, it must be recognized that the Norwegian political system has demonstrated strong ability to prioritize long-term benefits over potential short-term gains, in particular with regard to the management of the oil revenue, but also by taking decisive macroprudential policy actions in recent years.

10. While inaction risks have not materialized in Norway so far, there are no guarantees this will remain so and a more robust framework might be desirable. The question is therefore whether further reforms are needed to ensure that the willingness to take action is preserved going forward, without necessarily parting from the specific Norwegian set-up with the sole decision maker. For instance, the respective roles of Norges Bank and the FSA could be strengthened, and the coordination across the three agencies improved.

B. Principle 2: Ability to Act

11. The Norwegian institutional arrangements for macroprudential policy are characterized by strong powers and thereby ability to act. Strong willingness to act—discussed above—is of limited use if not complemented with powers that enable taking action. In Norway, the MoF has a broad financial stability mandate and its regulatory perimeter extends beyond the banking system to include non-bank financial institutions (NBFIs) and financial markets. The MoF has hard (direct) powers over all macroprudential tools. Norges Bank and the FSA have both semi-hard and soft powers as they provide recommendations to the MoF on policy actions, in some instances with an explicit ‘comply-or-explain mechanism’ (i.e., regarding the countercyclical capital

⁴ In the 1985 Act, Norges Bank role with regard to financial stability was limited to promoting an efficient payment system (both domestically and vis-à-vis other countries), being the lender-of-last resort, and inform the MoF when, in the opinion of Norges Bank, there was a need for measures to be taken by others in the field of monetary, credit or foreign exchange policy. In the new Norges Bank Act (entering into force January 1, 2020), the objective of promoting financial stability is explicit (¶1-2) and a new Committee for Monetary Policy and Financial Stability is established (¶2-6).

⁵ Further information on the role of the FSA and their institutional mandate can be found in the Technical Note on Banking Regulation and Supervision.

buffer (CCyB) and identifying systematically important institutions, but not for the SRB. In practice, the FSA has also provided ‘comply-or-explain’ advice on the mortgage regulation.⁶

12. The authorities have made active use of their powers and taken more action in recent years than what has typically been observed in other advanced economies. Figure 2 (based on the IMF [iMaPP database](#)) shows that the Norwegian authorities have tightened macroprudential policy on a number of occasions in recent years—and more so than most other advanced economies—to strengthen financial sector resilience and reign in financial imbalances, in particular relying on broad-based capital tools and borrower-based household sector tools. The frequent actions indicate strong willingness and ability to take macroprudential policy action.

13. Information powers over the financial sector have been strong for years, but Norges Bank’s information power has been strengthened and broadened. The FSA can require all institutions it supervises to provide any information that the FSA needs to fulfill its mandate. In the previous Norges Bank Act, the central bank could through the MoF also attain any information from the financial sector necessary to fulfill its mandate. Furthermore, Norges Bank has been able to attain access to micro-level data from Statistics Norway for research purposes. Importantly, the information powers of Norges Bank have been strengthened in its new Act (115-3) and extended beyond the financial sector, which could facilitate closing existing data gaps. Norges Bank is now also able to attain information directly from the tax authorities, Register of Company Accounts, and the Register of Bankruptcies, as well as the Norwegian Labor and Welfare Administrations. This could reduce the lag with regard to attaining micro-level data on households and businesses.

C. Principle 3: Effective Coordination and Cooperation

14. Cooperation across the MoF, Norges Bank and the FSA has a long tradition. Even prior to the financial crisis in the late 1980s and early 1990s, there were regular bilateral meetings between the MoF and Norges Bank, in particular following the 1985 Norges Bank Act (Skånland, 2004). On some occasion, tri-lateral meetings were held between the MoF, Norges Bank and the FSA. During the systemic financial crisis in the early 1990s, the MoF took the lead in crisis management, though the FSA and Norges Bank also played important roles. Following the crisis, there were discussions about changing the institutional arrangements—for instance merging Norges Bank and the FSA—but it was decided to continue having the MoF bearing the ultimate responsibility for financial stability and to strengthen the two other institutions individually rather than merging them.

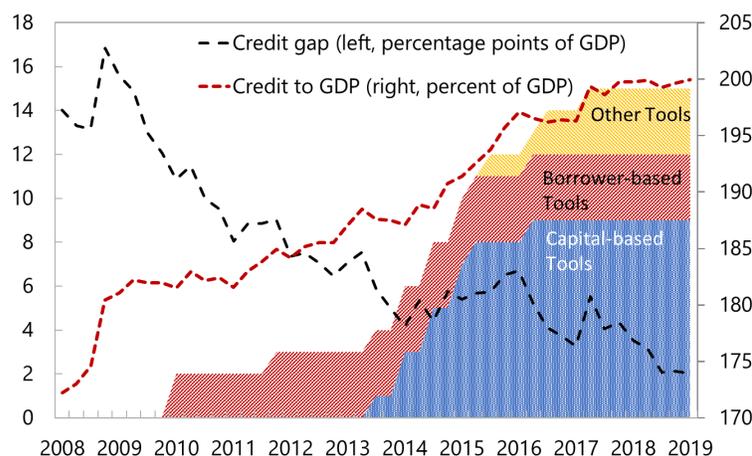
⁶ The MoF usually asks the FSA to provide advice on macroprudential policy action and to collaborate with Norges Bank in that endeavor. This practice reflects that the MoF does not want to be seen as tasking Norges Bank directly since that could be seen as infringing on its independence. However, the CCyB framework explicitly assumes a role for Norges Bank to provide the MoF with advice on setting the buffer rate.

Figure 2. Norway: Macroprudential Policy Actions Since 2008

The Norwegian authorities have taken considerable policy action since the GFC to enhance the resilience of the financial system and reign in financial imbalances, in particular relying on broad-based capital tools...

Norway: Use of Macroprudential Tools and Credit to GDP

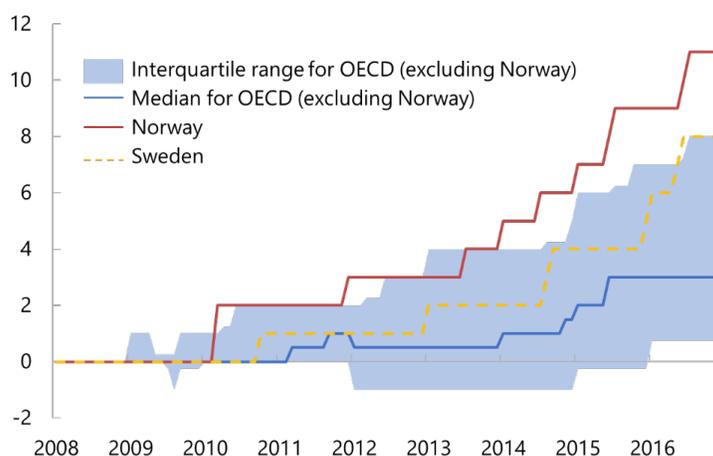
(Left Axis: Cumulative Net Number of Tightening Macroprudential Policy Actions)



... which exceeds the degree of policy actions typically observed in other advanced economies

Use of Macroprudential Tools in OECD countries 2008-2016

(Cumulative Net Number of Tightening Actions)



Sources: [Alam et al., 2019](#), IMF Macroprudential Policy Survey, IMF staff calculations.

15. Since 2006, regular informal tri-party meetings have been held to discuss risks and exchange information—not to take policy actions. The establishment of the, usually bi-annual, meetings was a partial implementation of the 2005 FSAP recommendation to formalize more regular high-level meetings between the three institutions. The meetings can take place more frequently, if needed, as was the case during the GFC. In addition, there are informal quarterly bilateral meetings (Box 1). Minutes of these meetings are written and approved by participants, but no records of meetings are published.

16. The Minister of Finance—the decision maker on macroprudential policy— does not attend the tri-party meetings, and policy deliberations are scarce. While the tri-party meetings could serve as an important venue for policy discussions and coordination, in practice, they are set up only to exchange information and views. Discussions on policy options are limited. This may well reflect that the ultimate decision maker on macroprudential policy—the Finance Minister—does not participate. In addition, limited efforts are made during the tri-party meetings to reach a consensus on the key overall risks, which could otherwise serve as an important basis for policy deliberations.

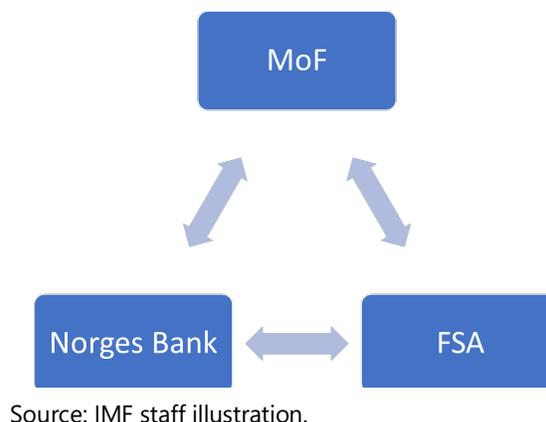
Box 1. Bilateral and Tri-party Meetings Between the MoF, Norges Bank and the FSA

Tri-party meetings: Informal bi-annual (more frequently if needed) meetings between the Permanent Secretary of the MoF, Norges Bank Governor, and the FSA Director General (usually in June and December). The meeting is a venue for discussion of risks and exchange of information and views, not a decision-making body. Norges Bank and the FSA usually present their most recent financial stability reports, and both parties can suggest specific topics to be discussed.

Bilateral meetings on the CCyB: Quarterly high-level meetings between the Minister of Finance and Norges Bank Governors, which take place a day before the CCyB decision is announced. A day earlier there is a meeting at the technical level between the MoF and Norges Bank. A week or two before the decision, there is a bilateral meeting between the Norges Bank Governor and the FSA Director General, again with a meeting at the technical level taking place before.

Bilateral meetings between the FSA and the MoF: Quarterly meetings between the Head of the Financial Market Department of the MoF and the Director General of the FSA on financial supervision and regulation.

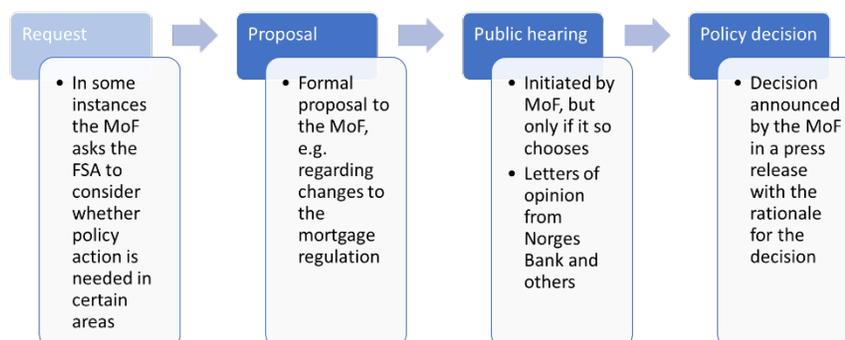
Bilateral meetings between Norges Bank and the FSA: Bi-annual high-level meetings between the Norges Bank Governors and the Director General and the Chairman of the FSA (usually August and January). Quarterly meetings are usually held at the technical level.



17. Policy discussions among the three key institutions mainly seem to take place through the exchange of formal letters as part of public hearings initiated by the MoF. A characteristic of the Norwegian macroprudential policy process is the important role played by public hearings and the letters—used to express opinions on specific policy proposals—relative to the bilateral and tri-party meetings. While both the FSA and Norges Bank may suggest policy actions to the MoF (in a formal letter or via their flagship publications), it is up to the MoF to decide whether it initiates a public hearing on the proposal or not (Figure 4). Indeed, there is no mechanism that ensures that the MoF has to take a public position on all recommendations made by the FSA or Norges Bank.

Figure 3 Norway: The Macroprudential Policy Process¹

The FSA and Norges Bank can recommend policy action, but the MoF decides which go to a public hearing process and makes the ultimate decision



¹ The process for setting the countercyclical capital buffer is different due to the explicit role of Norges Bank.

Source: IMF staff illustration.

18. Public hearings have sometimes revealed fundamental differences of opinion among the three institutions—e.g., regarding borrower-based tools for the housing sector. In the discussion on borrower-based tools, differences regard (i) whether the tools should be temporary (MoF) or permanent (FSA and Norges Bank); (ii) mostly structural (Norges Bank) or adjusted over time (FSA)—although all three institutions seem to agree on avoiding too much fine-tuning; (iii) whether speed limits should be applied (MoF and Norges Bank) or not (FSA); (iv) whether the tools should vary across regions (MoF) or not (Norges Bank and FSA); and (v) whether tighter LTV caps should apply to secondary properties (MoF vs. FSA). Several of these differences reflect a disagreement on the strategic approach to these tools and highlight that the three authorities have not developed an overall strategy for macroprudential policy.

19. While the transparency of the existing policy formulation process is commendable, exclusive reliance on letter correspondence risks weakening policy coordination. This is perhaps in particular so when the different strategic views of the three institutions are repeated time and again. Some of that debate could take place at the tri-party meetings and the strategical aspects could usefully be sorted out by developing a joint macroprudential strategy.

20. Some market participants are uncertain under what circumstances macroprudential policy would be relaxed and to what extent the authorities would coordinate. Key market participants emphasized uncertainty regarding if, and under what circumstances, macroprudential policy could potentially be relaxed. In addition, they wonder to what extent a relaxation of some buffers might be counteracted by stricter requirements of the FSA if banks would at the same time ‘eat into’ other buffers (e.g., the capital conservation buffer (CCB)). It is also uncertain whether the authorities would consider relaxing other buffers than the CCyB, in particular the SRB and the Liquidity Coverage Ratio (LCR) for significant currencies. As noted above, there is no ‘comply-or-explain’ mechanism set up for the SRB, and from the perspective of possible relaxation, that is

unfortunate as it is important to have a strong macroprudential perspective prevailing at times of systemic duress.

21. In view of the strong international dimension of the Norwegian financial system, cooperation across borders also plays an important role. Foreign bank branches constitute around 35 percent of total bank assets, Norwegian financial institutions also rely heavily on foreign funding and have operations abroad (in particular DNB). Cross-border memorandums of understandings (MoUs) have therefore been agreed to strengthen cooperation, support enforcement, and reduce risks of leakages. A MoU between the Finnish, Norwegian and Swedish MoFs and the Danish Ministry of Business on cooperation regarding significant branches of cross-border banking groups has been signed to arrange for mutual recognition of macroprudential measures—also when this is not compulsory by the European Union (EU)/European Economic Area (EEA) regulation. A MoU between the Nordic supervisory authorities and the European Central Bank (ECB) has also been signed regarding host country regulation. It stresses that the supervisory authorities should strive to ensure that banks follow the rules and regulations in the host country. Norway also participates in the European Systemic Risk Board (ESRB), which promotes reciprocity of macroprudential measures and is an arena where cross-border macroprudential measures are discussed and coordinated at the EU/EEA level.

D. Recommendations

22. The MoF should develop a macroprudential policy strategy in cooperation with Norges Bank and the FSA. Although the MoF has provided important insight into some aspects of its macroprudential policy strategy—in particular in its [semi-annual National Budget White Paper in 2016](#) (in Norwegian only)—it has fallen short of developing a fully-fledged strategy and communicating its key components to the public. A strategy would elaborate the ultimate and intermediate objectives of macroprudential policy, explain the decision-making process leading up to macroprudential action, and set out the expected transmission of macroprudential tools and relates them to particular intermediate objectives. Macroprudential policy does not lend itself to mechanical policy rules, and the potential for new data, analytical insights, and changes in the toolkit means that any policy strategy needs to be flexible and is likely to evolve. This will likely require that strategy is updated periodically. Publication of an ex ante strategy, with these caveats, has several important benefits, including in the Norwegian context—it can help:

- **Continue overcoming the inaction bias going forward.** Where the policy strategy identifies intermediate objectives and indicators that will guide the use of macroprudential tools, it can strengthen the anchoring of macroprudential policy-making and establish a degree of commitment to tighten policy settings when indicators are signaling the need for action. That said, decision to take action can never be mechanical and needs to be guided by judgment, based on analysis.
- **Foster accountability and anchor/strengthen communication.** A clear policy strategy would make it easier to hold the MoF accountable with regard to how it conducts policy against the

principles set out in the strategy. This should support the authorities in continuing taking decisive policy action and demonstrating their willingness and ability to act. In its flagship publications, the MoF could explain how its policy actions relate to the strategy it has set out ex ante. Similarly, Norges Bank and the FSA could anchor their communications to some extent on the strategy, which they have taken part in developing. By clarifying the strategy—and thereby settling whether the borrower-based tools should be permanent or temporary, adjusted or remain broadly unchanged, include speed limits or not, and vary across regions or not—the three institutions could escape from the public exchange of letters defending their ‘long-standing’ position with regard to these three strategical aspects. That being said, it remains important that the authorities can continue to raise their independent opinions on macroprudential policy.

- **Prepare market participants and the public for a relaxation of macroprudential buffers.** By setting out ex ante that buffers are there to be relaxed to avoid a disruption of credit, the MoF can condition the market to expect a relaxation of tools. This can reduce the potential for adverse confidence effects in instances when the tools can safely be relaxed. Relaxation will, of course, always entail judgement (IMF, [2014](#), [2017](#)) and the published strategy would have to be communicated carefully to avoid being interpreted as an unconditional commitment. A published and carefully-drafted strategy could nevertheless provide valuable insight into the authorities’ approach. This is particularly important in the Norwegian case where large buffers have been built up and there is considerable room to relax them when needed.
- **Facilitate coordination across the MoF, FSA and Norges Bank.** Developing a clear strategy could also strengthen coordination between the MoF, FSA and Norges Bank to reduce the risk of micro- and macroprudential policies providing conflicting signals to banks, both with regard to capital and liquidity requirements.

23. The triparty meetings should be used more effectively to reach agreement on risks and policy actions to address them. The role of the triparty meetings—and thereby coordination and cooperation on macroprudential policy—could be strengthened by (i) the MoF being represented by the Minister, which would facilitate meaningful policy discussions. The meetings would also benefit from (ii) closer cooperation on risk assessment ahead of the meetings, (iii) efforts to reach an agreement on a summary of key risks, and by (iv) publishing the summary in a public record of the meetings. An assessment of systemic risks is a natural starting point for a debate on the appropriate policy actions. Norges Bank and the FSA should prepare an overview of the key risks ahead of triparty meetings, which would be discussed at the meetings, and a summary of which would be agreed on and made public in meeting records. Such records can help the authorities establish a narrative that prepares the market and the public for macroprudential action. Further down the road, the authorities might opt for transforming the more effective triparty meetings into a formal macroprudential policy committee, bringing the institutional arrangements even closer to the Danish model.

24. Norges Bank should be given recommendation powers over macroprudential policy tools that can be relaxed, with a ‘comply-or-explain’ mechanism. The SRB is a key example of such a buffer. While the MoF takes decisions on its use, the recommendation process for the SRB is unclear. Since the SRB can be relaxed (see Chapter 4 of [the ESRB Handbook](#))—either when motivating risks dissipate or in periods of financial distress (to avoid a vicious feedback between financial conditions and economic activity)—it would be appropriate that Norges Bank provides ‘comply-or-explain’ recommendations on its use. The same should apply to the LCR in significant currencies and to other releasable tools that might be introduced later on, such as a sectoral CCyB. Giving Norges Bank semi-hard powers over the SRB is particularly important in the Norwegian context where the high and concentrated exposures of banks to the real estate sector is an important motivation for the buffer. In a severe downturn, that concentration might further fuel the procyclical feedbacks between real estate prices and credit, and relaxing the SRB on top of the CCyB might be needed.⁷ Financial supervisors, such as the FSA, are usually not in charge of tools that can be relaxed, because it is exactly at times when a relaxation should be considered that micro- and macroprudential considerations tend to be in conflict ([IMF, 2013](#)). The fact that the SRB is the flexible capital-based tool in the CRR/CRD-IV, and that it is being considered to be applied to mitigate sectoral risks in the future (such a buffer could still be relaxed), further supports giving Norges Bank semi-hard powers over it. This would also strengthen the role of the central bank, in line with general recommendations in the Fund’s macroprudential policy framework.

25. A comprehensive overview of recommendations made by Norges Bank and the FSA should be included in the MoF’s Financial Market Report to Parliament. Norges Bank and the FSA normally make their recommendations to the MoF publicly available, but there is no comprehensive overview available on to what extent the MoF follows their advice. To fill this gap, it would be useful to, on an annual basis, gather all recommendations from Norges Bank and the FSA in a table in the MoF’s flagship publication to Parliament, together with explanations about how the MoF has followed, or deviated from, the advice. This would foster transparency on the advice provided and facilitate accountability with regard to policy actions taken (or not taken) by the MoF.

SYSTEMIC RISK MONITORING

26. Macroprudential policy cannot rely on automatic rules and must be based on continuous assessment of evolving risks. This may entail ‘guided discretion’ where key indicators are used to generate signals of when policy action might be required, but the ultimate decision is based on judgement that takes into account all relevant information. Such judgment requires access to data, as well as the analytical capacity to assess systemic risks and effectively map risk assessment into policy recommendations and action.

⁷ The strategy could clarify that a relaxation of the SRB would likely only take place in a severe downturn and only after the release of the CCyB has been exhausted.

A. Systemic Risk Assessment Frameworks

27. Norges Bank and the FSA were pioneers among advanced economies in publishing systemic risk assessments and, as a result, have sophisticated risk monitoring frameworks.

Both institutions have been publishing financial stability reports since the mid-1990s. Their systemic risk assessment capacity has therefore evolved over more than two decades and both institutions devote considerable resources to this activity. The MoF also publishes risk assessments (mostly in Norwegian only), but relies heavily on inputs from Norges Bank and the FSA (Figure 4).



28. Norges Bank uses a broad set of tools and indicators to monitor systemic risk, and continues to develop its approach, in particular to guide its CCyB recommendation. Norges Bank's Financial Stability Department (FSD) plays a key role in the central bank's systemic risk monitoring and assessment of the need for policy action. In addition, there are also resources specifically allocated to systemic risk assessment in the research and market departments. The FSD relies on a number of models,⁸ indicators, micro data sets, and empirical approaches in its risk assessment. In addition, a GDP-at-risk framework, macro-contagion stress tests, and structural ways to measure financial cycles are currently under development (Figure 5):

- **Four indicators traditionally played a key role for CCyB advice.** These four indicators were (i) credit-to-GDP ratio for Mainland Norway; (ii) ratio of house prices to disposable income; (iii) estimated CRE prices; and (iv) banks' wholesale funding ratio. These indicators were emphasized as they have historically been found to rise ahead of periods of financial instability. The key indicators are compared with historical trends. The gap between the key indicators and the estimated trends can serve as a measure of financial imbalances.
- **But a new framework focuses rather on four areas of assessment.** Norges Bank recently [revised its approach](#) to derive its recommendations on the CCyB and reduced the emphasis on the four indicators. Instead, it relies on four assessments: First, an assessment of financial

⁸ The NEMO model is the main work-horse macro model and includes financial frictions ([Gerdrup et al., 2017](#)).

imbalances to assess cyclical systemic risk that may trigger or amplify a pronounced downturn. The assessment comprises three main elements: (a) pricing of risk and lending conditions; (b) real estate market vulnerabilities; and (c) vulnerabilities in the household and corporate sectors. Second, as assessment of access to credit to assess whether there is or could be a need to reduce the buffer rate because creditworthy enterprises and households cannot access credit. In this assessment, Norges Bank uses information (a) financial market stress; (b) developments in credit and credit practices; and (c) banks' profitability. Third, an assessment of banks' capacity to absorb losses to assess whether the level of the buffer is sufficient given the assessments of imbalances. That assessment is based on banks' capital adequacy, earnings and loss prospects in a cyclical downturn, for example through the use of stress tests. Finally, an assessment of the effects of a change in the buffer requirement on banks and the economy. When the buffer is being raised, banks' needs are assessed for raising capital, adjusting their dividend policy or increasing earnings by raising the pricing of loans. With a reduction in the buffer, it assessed whether the reduction can be expected to have the intended effect and increase banks' willingness to lend to households and enterprises.

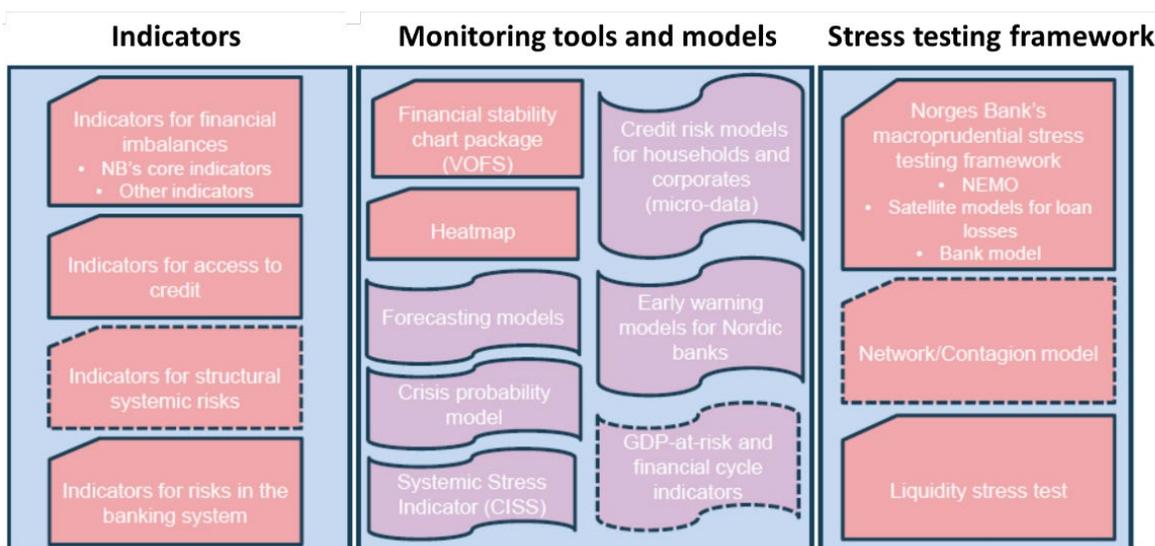
- Micro household and corporate sector data sets:** Norges Bank has access to detailed micro data on households and enterprises (for research purposes), but with considerable lag (close to two years). The household-level database⁹ collected by Statistics Norway includes information on income, debt, financial and real estate assets, and age (see [here](#) and [Lindquist et al., 2014](#)). The corporate-level data include annual balance sheets for all enterprises, quarterly balance sheets and stock information for listed companies, and annual loan level data from banks. Despite enhanced digitalization of the tax returns and the corporate data, the lags until Norges Bank receives the data has yet not become much shorter. Micro data on non-performing loans (NPLs) and credit ratings from the largest credit reporting company (Bisnode) is also used, but only for corporates. However, due to limited availability on data for the CRE market, both Norges Bank and the FSA make use of information from market participants, in addition to some statistics on rents and implied yields and sales prices for some segments of the market.
- Heatmap, composite indicator of systemic risk (CISS), and crisis probabilities:** Norges Bank has developed a heatmap as a tool for assessing systemic risk ([Arbatli and Johansen, 2017](#)) (Figure 5). The heatmap tracks developments in a broad range of indicators for three main areas: (i) risk appetite and asset valuations; (ii) non-financial private sector vulnerabilities; and (iii) financial sector vulnerabilities. Developments in each individual indicator are mapped into a common color-coding scheme, where green (red) reflects low (high) levels of vulnerability. The heatmap thus provides a visual summary of current vulnerabilities in the Norwegian financial system compared to historical episodes. The CISS provides an overall measure of the stress level in the financial system and has demonstrated promising ability to be a good indicator for signaling systemic banking crises. The indicator is based on five submarkets that comprise the

⁹ For the period 1987-2003, the data are based on the Income Distribution Survey, which is a representative sample survey based on tax return data. From 2004, the statistics are based on administrative register data, as tax returns, that cover all Norwegian residents as of 31 December of the fiscal year.

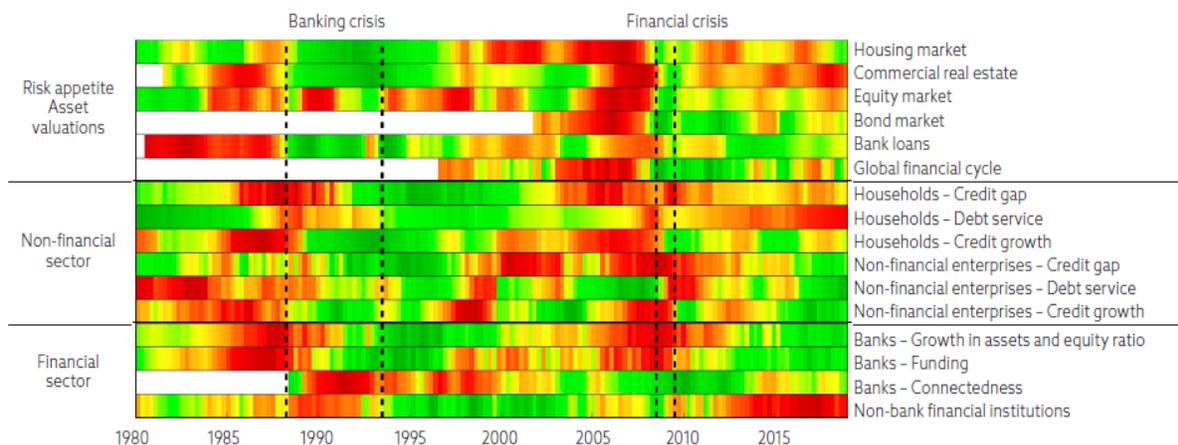
core of the financial system: The money, bond, equity, banking, and commodity and foreign exchange markets (Hagen and Pettersen, 2019). Models on crisis probabilities are also used.

Figure 5. Norway: Norges Bank’s Analytical Approach to Systemic Risk Assessment¹

Norges Bank uses a broad set of tools and indicators to monitor systemic risk, and continues to develop its approach



Norges Bank’s heatmap tracks developments in a broad range of indicators for three main areas and provides a visual summary of current vulnerabilities in the Norwegian financial system compared to historical episodes



Sources: BIS, Bloomberg, CBRE, Dagens Næringsliv, DNB Markets, Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), OECD, OPAK, Real Estate Norway, Statistics Norway, Thomson Reuters and Norges Bank

¹ Broken line indicate that the indicators and models in question are still under development.

Source: Norges Bank.

- **Stress tests:** In the 2018 and 2019 Financial Stability Reports, a macroprudential stress test framework was used. This framework assesses macroeconomic consequences of the impact of banks' adjustments to capital requirements. The primary focus is not on whether or not banks

"pass" the test, but on how macroprudential policy tools can prevent a deterioration of macroeconomic developments (see [Andersen et al, 2019](#)).¹⁰

29. The FSA has a long tradition of doing their own risk assessment and uses three quantitative models in its yearly top-down stress tests. The macro-model NAM-FT is used for economic projections, which are then used in the so-called Sebra model to allocate banks' total corporate loan losses to individual banks. Finally, output from both models is used in the Bank model to generate bank-specific profit and capital projections in the annual stress test. The stress test results are used in risk-based on-site inspections and constitutes part of the decision basis when determining Pillar 2 (guidance) requirements. The models are also used for the preparation of advice on mortgage lending regulation and in the assessment of the CCyB.

30. The FSA also relies on survey data. FSA's yearly mortgage survey is used to evaluate borrower-based macroprudential measures. The sample of banks covers approximately 90 percent of the total lending market. The survey is on sample basis and covers approximately 12 percent of the banks' new lending in the current quarter.

31. The MoF is in the process of enhancing its own monitoring capacity, which risks reducing the efficiency of the overall risk monitoring framework. The MoF is developing its own quantitative models for assessing systemic risk, including a heat-map. However, while having two institutions like Norges Bank and the FSA devoting considerable resources to systemic risk assessment may reduce risk of any one model or one 'institutional view' becoming dominant, it seems inefficient to build-up yet another assessment framework at the MoF.

B. Data Gaps

32. Data quality is generally good, but there are some important data gaps. The authorities have closed various data gaps in recent years, including recently with respect to micro-data on unsecured household debt and cross-holdings of securities between financial institutions. Work is underway to address some remaining gaps, focused on the following areas:

- **Micro data on households:** The new debt registries, that have been established in accordance with the debt information act of 2017, will only cover unsecured household loans. The working group on the now adopted legislation recommended that the information services should be extended to include collateralized household debt (e.g., mortgages and car loans). The debt information act has a provision for including collateralized debt at a later stage, which entails that only a change in the regulation is needed to add them. In addition, Statistics Norway has

¹⁰ Previously, in 2013 a new model framework for stress testing was introduced comprising the NEMO model, simple relationships for developments in banking groups' problem loans and a model for projecting banking groups' earnings, balance sheets and capital adequacy. The latter projection model is referred to as "the bank model." The projections in the bank model are based on developments in the macro scenario and projected developments in problem loans in the corporate and household sectors ([Syvertsen et al, 2015](#)).

launched a new website *microdata.no* that provides researchers with access to various micro-data, including some financial data.

- **Corporate data, in particular for the commercial real estate (CRE) market:**¹¹ A working group established by the MoF, with participants from Norges Bank and the FSA, recommended that Norway should not establish a full credit registry for corporate loans (like AnaCredit in the Euro-area) at the current juncture. Instead, it was recommended that the current reporting of banks' lending to the corporate sector (as collected by the FSA) be changed from annual to quarterly frequency, at least for the largest banks. Another working group with participants from Norges Bank and the FSA is being prepared to look at different alternatives to close identified data gaps in the CRE market, including in light of concerns raised by the ESRB.¹² These data gaps cover four dimensions (i) market information on prices, transactions, rentals, yields, etc.; (ii) bank exposure in terms of size and risk distribution; (iii) CRE companies' financial conditions including debt service capacity ratio (DSCR), LTV ratio, profitability, and etc.; and (iv) terms of financing (e.g., yield spread, size) through bond markets.

33. An important data gap that has not been emphasized thus far is the missing micro data on households' NPLs that could be linked to existing data to guide policy settings. The new credit registries do not include any information on payment history, but the credit reporting companies attain those data from banks and use for their credit scoring for both individuals and corporates. Norges Bank has bought data from the largest credit reporting company, but only for corporates. Hence, despite having a wealth of micro-level data for households (including daily data from the credit registries), it cannot identify the households with NPLs and their key characteristics (in terms of indebtedness, income profile, etc.), nor can it perform analysis using such information to guide the calibration of macroprudential tools—for instance, whether the current DTI limit of 5 is an appropriate level.

C. Recommendations

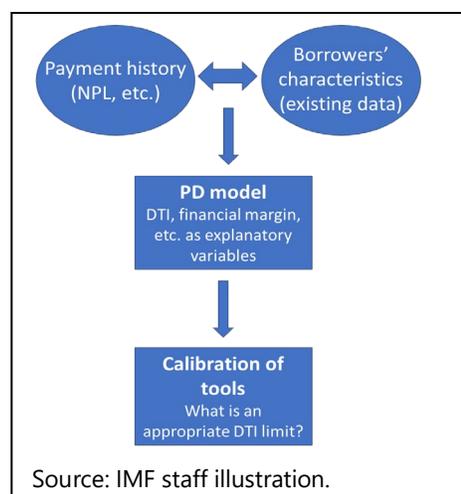
34. Collect micro-data on NPLs and financial distress for households and link the information to existing micro-data sets to guide calibration of borrower-based tools.

Norges Bank should use the enhanced information powers in the Norges Bank Act and request the MoF to require credit reporting companies to provide the Norges Bank with micro-level data on

¹¹ There is no common definition of CRE. The ESRB has defined CRE as any income-producing real estate, either existing or under development, excluding social housing, property owned by end-users, and buy-to-let housing. This definition implies that CRE premises encompass a wide range of different uses, including offices, retail properties, manufacturing facilities, and even some type of residential property, such as multiple dwelling units. Data on bank lending for CRE is often only available based on a broader definition of CRE (either CRE-collateralized loans or loans to non-financial companies involved mainly in real estate activities and construction (ESRB, [2016](#), [2018](#)).

¹² ESRB Warning on Commercial Real Estate Risks.

household NPLs (which should also be shared with the FSA). By linking the NPL data with existing micro-data sets, an analysis of important determinants of financial distress can be performed. In particular, Norges Bank could establish a model for the probability of default (PDs) based on a number of explanatory variables, including the debt-to-income (DTI) level of the borrower and their financial margins.¹³ That could guide the setting of borrower-based tools, such as the DTI limit which has been the subject of considerable debate (see [IMF, 2018](#) for an example of use of such data to guide the calibration of a debt-service-to-income (DSTI) cap in Romania).



35. Collect micro data on the CRE sector to facilitate risk assessment and guide the use and calibration of possible macroprudential policy tools. Although a more frequent reporting by banks on their corporate exposures, including in the CRE sector, would be useful as a first step, further information is likely to be needed (see also [the 2019 Article IV Staff Report](#)). First, centralized collection of market data with better coverage is important for regular risk monitoring and assessment of valuation gap and demand-supply imbalances. Second, data on bank exposure should cover both the size of exposure and risk characteristics of underlying CRE properties (e.g., by region, segment) to better monitor risk concentrations and guide targeted calibration of sectoral tools. Third, regular reporting of CRE companies' financial conditions is useful for monitoring and assessing repayment risks to banks. Lastly, data on CRE companies' bond financing, given its rising importance, is also important for monitoring risks outside the banking system as a result of policy leakages. Norges Bank should use the new information power granted by the new Norges Bank Act to improve the data collection in the areas as mentioned above, with collaboration from the FSA and Statistics Norway.

36. In addition to the ongoing work on the GDP-at-risk analysis, consider implementing at-risk-analyses for wholesale funding and house prices. Norges Bank could follow the IMF's example of expanding the use of its at-risk-analysis framework to, in addition to applying to GDP growth, also cover other important aspects such as foreign wholesale funding ([2019 Singapore FSAP](#)) and house prices ([April 2019 GFSR](#)).

¹³ The Norwegian authorities require that households' financial margin (i.e., what is left of households' monthly disposable income after serving their debt and paying for standard living costs) is positive even if interest rate were to increase by 5 percentage points (see Annex 2).

SYSTEMIC RISKS AND MACROPRUDENTIAL TOOLS

37. This section maps an assessment of systemic vulnerabilities into recommendations for the macroprudential policy toolkit. Systemic vulnerabilities are assessed based on developments in various indicators, following an approach suggested in the 2014 IMF SGN. Recommendations are subsequently provided for the macroprudential policy toolkit.

A. Broad-Based Vulnerabilities: Assessment, Tools, and Recommendations

38. Norway is a small resource-rich open economy and as such its broad macrofinancial developments tend to be strongly affected by external conditions, in particular oil prices.

After a temporary yet substantial decline in oil prices in 2014, the economy has recovered and enjoyed robust GDP growth, relatively low and stable inflation, and a downward trend in long-term interest rates. A recovery in oil prices supported these developments (Figure 6).

39. Credit developments continue to signal broad-based financial imbalances, even though the credit gap has decreased from its high level a decade ago. Total credit continues to gradually grow more rapidly than GDP, and the credit ratio stands at its highest ever level. However, credit growth has somewhat lost momentum and is now more in line with estimated trend level. As a result, the credit gap—which was around a very high 15 percent a decade ago—has been brought down. Overall, bank assets, profitability and reliance on wholesale funding have remained stable, while leverage has improved (Figure 6).

40. Broad-based capital tools have been actively used to increase resilience and reign in financial imbalances—as a result capital buffers are high in international comparison. As discussed above, the authorities have been at the forefront of introducing Basel III and its European counterpart into law, as well as actively applying the capital buffers in those regulations. The CCyB will increase to 2.5 percent by end-2019. As a result, Norway has some of the largest capital buffers in international comparison (Figure 6). These buffers provide valuable resilience against shocks given the extensive imbalances in the financial system.

41. Two questions are particularly relevant: (i) are required capital buffers adequate; and (ii) could the desired stance of macroprudential policy be achieved more efficiently? The former questions will be addressed here, while the latter will be considered after sectoral vulnerabilities

have been identified below. The tightening of macroprudential policy levers has benefits as well as costs, which need to be weighed against each other to address the question of whether broad-based tools have been excessively used. In our cost-benefit analysis, we find that there are ample indicators of the benefits of the existing capital buffers, and limited evidence of excessive costs:

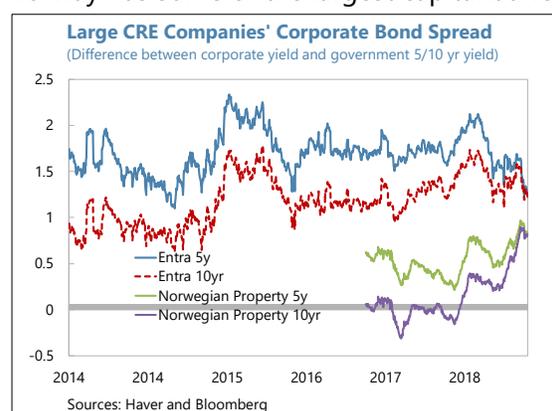
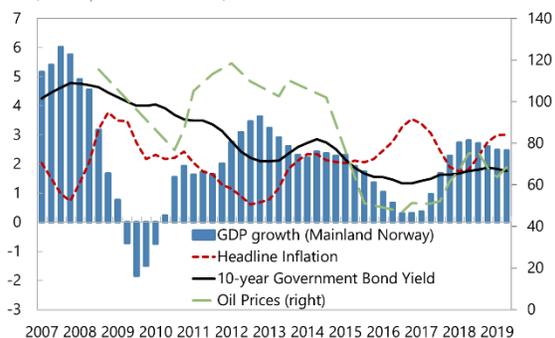


Figure 6. Norway: Broad Macroeconomic Developments

The economy has recovered from the oil price decline, inflation remained low, and long-term interest rates too...

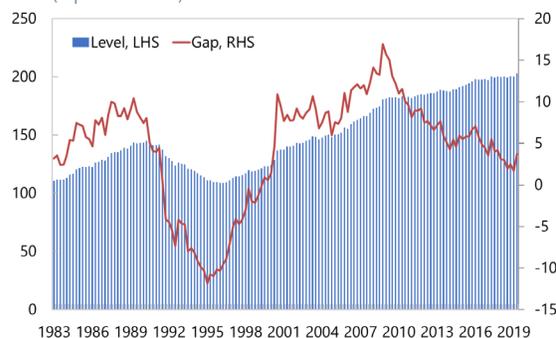
GDP growth, inflation, bond yields, and oil prices
(LHS, in percent; RHS, levels)



Sources: Haver, IMF Staff Calculations.

... the credit-to-GDP ratio remains at an all-time high while the credit gap has been on a sustained downward trend...

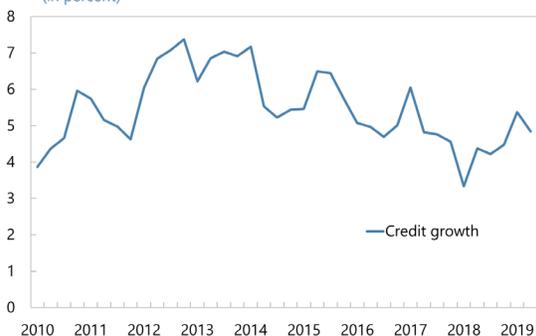
Total Credit
(in percent of GDP)



Sources: Norges Bank, IMF Staff Calculations.

Credit growth has been on a downward trend, albeit remaining somewhat volatile.

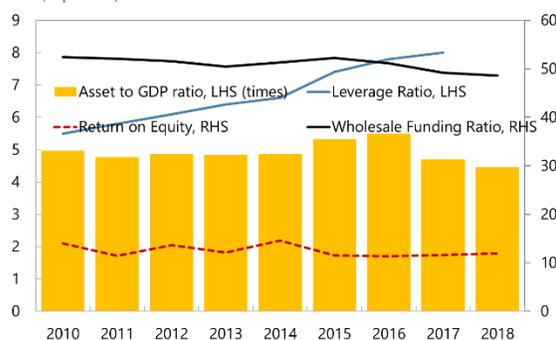
Credit Growth
(in percent)



Sources: Norges Bank, Statistics Norway, IMF Staff Calculations.

Banks' size, profits, and reliance on wholesale funding have been fairly stable, while leverage has reduced ...

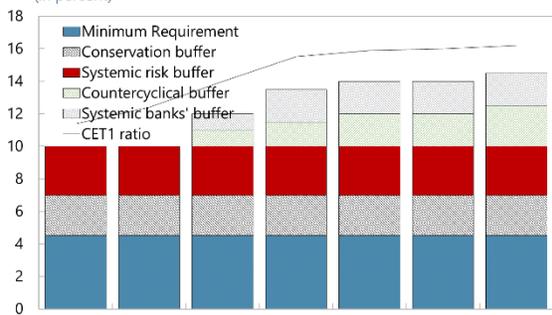
Banks' Balance Sheet Indicators
(in percent)



Sources: Haver, FSI, IMF Staff Calculations.

... as banks have increased their capital ratios in tandem with the introduction of capital buffers ...

Large Norwegian banks CET1 ratios and capital buffers
(in percent)

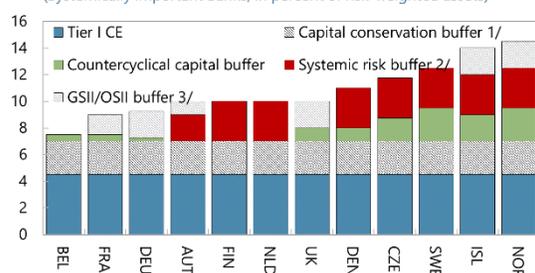


Sources: Norges Bank.

... which are sizeable in international comparison

Basel III CET1 Capital Requirements

(Systemically important banks, in percent of risk-weighted assets)



1. For countries with SRB on all exposures, the higher of GSII/OSII buffer and SRB can add up to 3 percent. If SRB is on domestic exposure, e.g. Iceland, the sum can exceed 3 percent. In Norway, OSII buffer add on SRB even though the latter is on all exposures. 2. SRB covers all exposure except in Iceland. Sources: ESRB.

- **Stress test results indicate that the extra loss absorbing capacity provided by the existing capital buffers could be needed in a severe scenario:** The FSA's 2019 stress test results indicate that six (three) major banks would have a common equity tier 1 (CET1) capital (leverage) ratio below overall requirements when the hurdle rates are assumed to only relax the CCyB by setting it to zero. However, if banks would be assumed to also be allowed to make use of the CCB (as the framework for the buffer assumes), a maximum of three banks would fail the test. If part of the SRB would also be released (as discussed above), the number of banks failing—and the need for recapitalization—would fall further. Hence, these results indicate that the existing buffers (portrayed in Figure 6) would provide valuable resilience in a severe downturn.
- **There is limited evidence of excessive costs resulting from broad-based capital tools:** Bank profitability has remained strong (even compared to other countries where requirements are lower); interest margins have stayed relatively stable (even declined somewhat for mortgages); credit, consumption and output growth have not been subdued. More broadly, the design of the macroprudential toolkit also suggests that it has been cost effective. The toolkit is dominated by capital tools, which are empirically found to be less costly than borrower-based tools, while speed limits and regional variations for borrower-based tools reduce their output and efficiency costs. The 85 percent cap on the loan-to-value (LTV), enforced by the authorities, is also in line with median calibrations in a large country sample, which are found to be associated with limited costs in the form of reducing consumption growth (Almer, et al, 2019).

42. The MoF has announced an increase in the SRB and an introduction of sectoral risk weight floors. The forthcoming transposition of the European regulations into Norwegian law through the EEA agreement will lead to a reduction in capital requirements compared existing Norwegian regulations. This reflects that the so-called Basel I floor for banks using the internal rating based (IRB) approach will be removed and the so-called small-to-medium size enterprise (SME) discount factor will be introduced in line with the European regulatory framework.¹⁴ The MoF has [announced](#) it will raise the SBR from 3 percent of *total* exposures to 4.5 percent of *domestic* exposures (see further information [here](#)), effective from end-2020 for IRB banks and would be phased-in gradually for banks applying the standardized approach.¹⁵ Furthermore, risk weight floors will be introduced for mortgages and CRE loans at 20 and 35 percent, respectively, and the MoF plans to request other countries to reciprocate those floors. The proposals aim to safeguard the strong capital position of Norwegian banks and to harmonize risk weights for Norwegian and foreign banks operating in Norway. As discussed below, foreign bank branches have been able to operate with lower risk weights for CRE loans.

¹⁴ See chapter 3 in [the FSA Risk Outlook from June 2019](#).

¹⁵ There is a specific procedure needed in the European framework when the SRB is higher than 3 percent (see Table 4.7 in [the ESRB Handbook](#)).

B. Household Vulnerabilities: Assessment, Tools, and Recommendations

43. Household vulnerabilities played an important role in the early 1990s' financial crisis and have remained a key concern. Household debt fell relative to income throughout most of the 1990s but surpassed their pre-crisis level in the early 2000s. The build-up has continued ever since. At 230 percent of disposable income, household debt is all-time high and close to peak levels observed in other crises, e.g., in Iceland in 2008. The aggregate debt service ratio is also at historic peak, even as the interest-rate burden is far below its peak in the 1990s' crisis. Mortgage loan growth has been relative strong, yet stable, for years, while consumer loan growth exhibited strong growth in recent years but has been brought down and remains only a small share of overall household debt. The rising share of mortgage loans in overall credit, signals continued risks in the housing sector (Figure 7).

44. Residential house prices fell by over a third in the 1990s' crisis but have been on a strong upward trend since—though momentum has weakened somewhat recently. When measured against disposable income, residential house prices have been on an upward trend for close to 30 years, with some short-lived setbacks underway and regional differences (Figure 7). Given the length of the upswing in the cycle, structural features are likely to have played an important role. Domestically, the 1990s' crisis paved the way for important and wide-ranging structural reforms (monetary and fiscal policy, tax system, labor market settlements, financial supervision and regulation, and oil fund management to name a few) that are likely to have improved economic fundamentals and thereby supported the continued increase in house prices. Internationally, the trend decline in long interest rates and unconventional monetary policy is likely to have further fueled these developments.

45. The Norwegian tax system provides strong incentives for house ownership and household leverage.¹⁶ There are two types of recurring tax on residential properties in Norway—net wealth tax and property tax. The net wealth tax is levied on wealth exceeding a certain threshold, including the residential properties. However, a discount is applied on the assessed value of residential properties—75 percent on primary residences and 10 percent on secondary houses, creating strong incentives to accumulate wealth through house ownership. The threshold is also high, hence only 11 percent of taxpayers pay this tax.¹⁷ In addition, the collection of property taxes is very low due to discounted assessed values, basic allowances, and partial participation from municipalities, although tax rates are comparable to the peers. Moreover, interest on mortgages is fully tax deductible, effectively reducing the debt serving costs, incentivizing households to finance house purchases through mortgage financing.

46. The key concern is that credit—including through its feedback into prices—has fueled an excessive increase in systemic household sector risk. In particular in the form of households' balance sheet vulnerabilities and elevated house price levels, likely exceeding what is justified by the improvement in economic fundamentals. This raises the question of what the impact would be of an eventual tightening of global financial conditions.

¹⁶ Zhang (2017), "Closer to Best Practice—Tax Reform in Norway", IMF Selected Issues Paper.

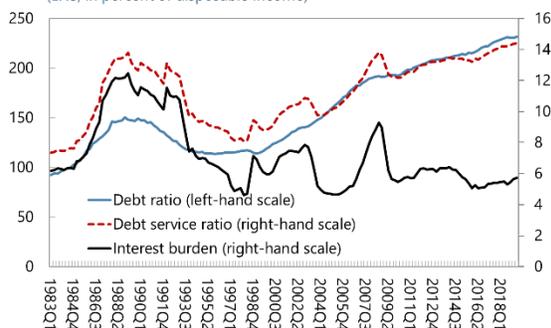
¹⁷ Threshold is NOK 1.48 million (€158,000).

Figure 7. Norway: Household Sector Vulnerabilities

Household debt and debt service burden are at an all-time high, while the interest burden is low

Household Debt

(LHS, in percent of disposable income)

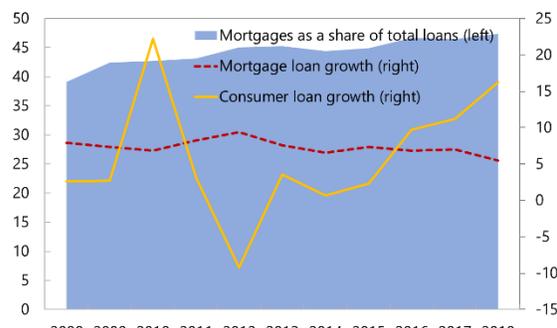


Sources: Norges Bank, Statistics Norway.

Mortgage loan growth has been stable, but increasing as share of total loans—consumer loans have been volatile

Mortgage and Other Consumer Loans

(Percent)



Sources: Norges Bank, Statistics Norway.

House prices to disposable income are close to record levels—and higher in relevant per capita terms.

House Prices

(in ratios)

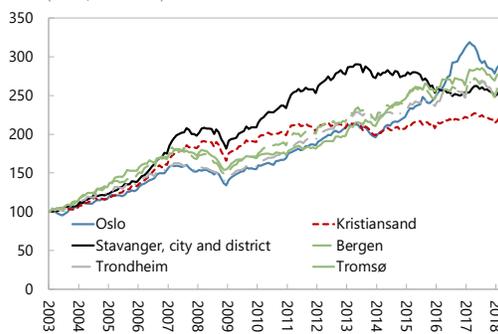


Sources: Norges Bank and Statistics Norway.

Real house prices growth has been somewhat uneven across regions, with most pronounced increased in Oslo.

Regional House Prices

(Index, 2003=100)

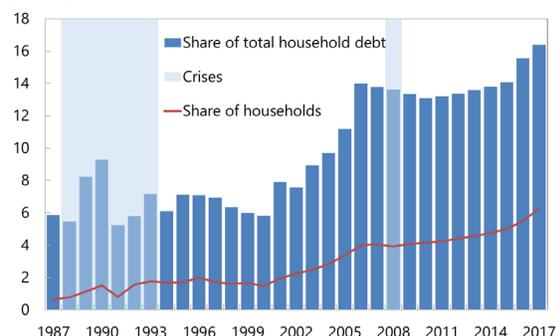


Sources: Finanstilsynet, and Thomson Reuters.

The share of household with a DTI exceeding five is at an all-time high and so is their share in total household debt.

Households with Debt in Excess of Five Times their Income

(Percent)

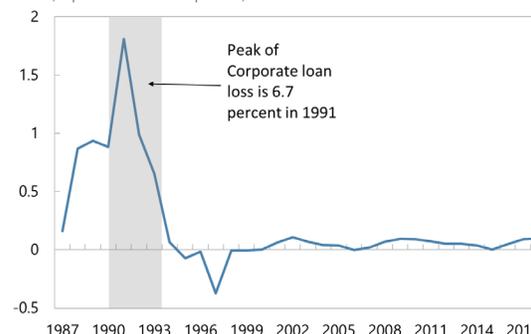


Sources: Statistics Norway, FSA and Norges Bank.

Household loans losses have remained very low since the 1990s' crisis—even then they were relatively low.

Household Loan Losses

(in percent of loan exposure)



Sources: FSA.

47. The distribution of household debt signals an increase in systemic risk as the share of household with excessive debt levels continues to rise. In particular, the share of households

with debt levels exceeding five times their gross income has continued to rise, as has the share of total debt held by such vulnerable households (at least to year-end 2017). This implies that financial institutions have become more exposed to a downturn in the housing market. As experience shows, losses can take place on other exposures but still be driven by households trying to make end meets on their mortgage loans by cutting back on other expenditures (Figure 7).¹⁸

48. Household assets are relatively large but unevenly distributed and concentrated in housing, thus providing limited comfort. Large household assets may counter the risks associated with high household debt to some extent. However, while both assets and debt are unevenly distributed across households—e.g., with high income households holding a large share of both assets and liabilities—the distribution across age groups differs markedly. The youngest age groups account for the largest share of the debt, while the older age groups have a relatively high proportion of the assets. Furthermore, household assets are concentrated in real estate, which is relatively illiquid—and more so in the event of a housing crisis—and thus difficult to convert to cash to meet payment difficulties. Moreover, the value of these assets will decline (possibly quite sharply) if house prices fall.

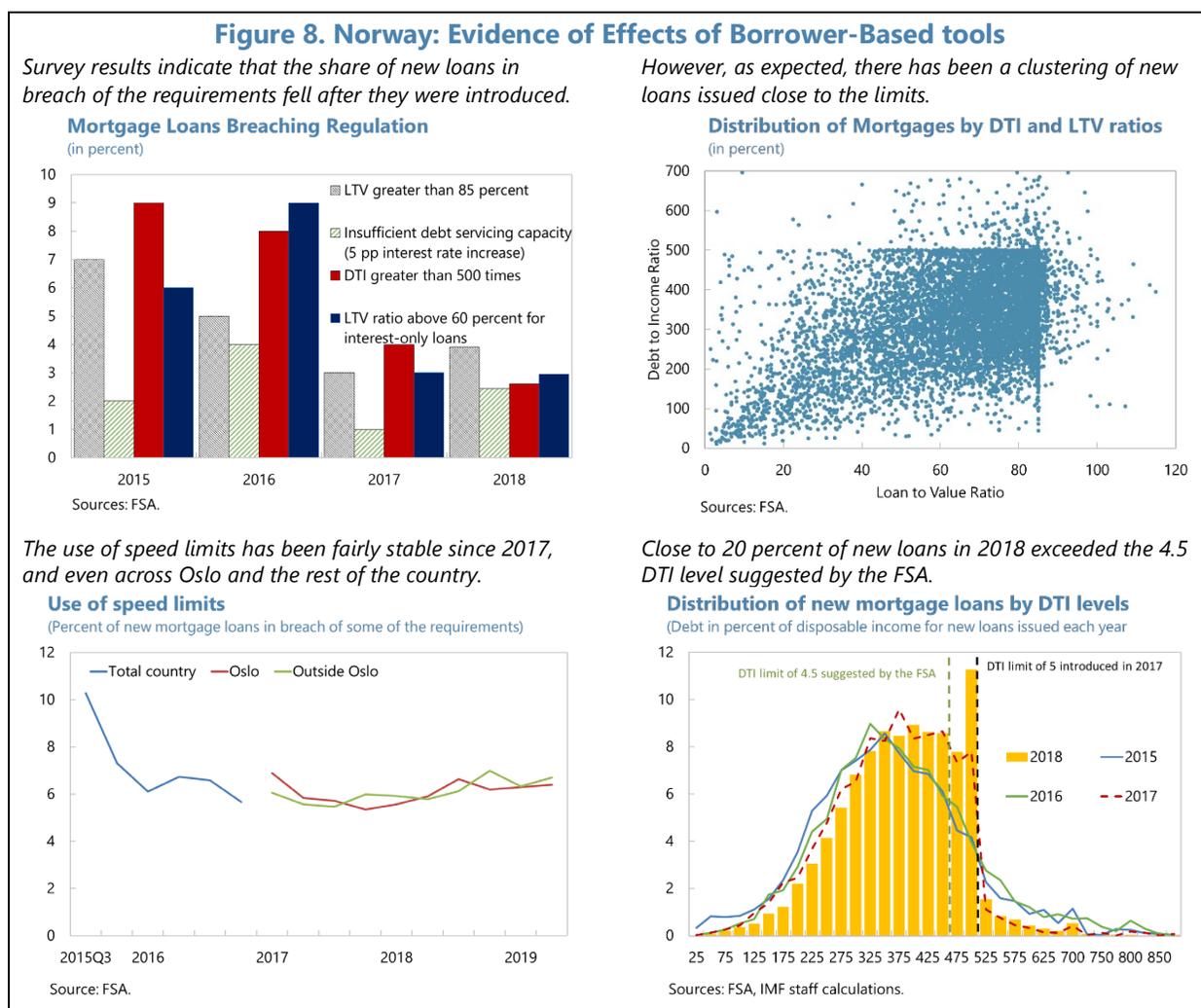
49. The authorities have gradually tightened household sector tools since 2010 and the build-up of household sector risk has gradually lost momentum. Housing tends to be the most important investment for households—economically as well as culturally—and restrictions in the housing market are often politically sensitive. Hence, countries often start by issuing guidelines to financial institutions before turning to outright restrictions. This was the case also in Norway. The FSA started issuing guidelines on mortgage lending in 2010, but when these tended to have poor traction, the FSA recommended the MoF to issue binding—yet temporary—regulations in 2015. These regulations pertained to loan-to-value (LTV) caps, stressed financial margins, and minimum amortization requirements (with some regional differences). Risk weights on mortgages were also doubled in 2014. In 2017, a DTI cap of five times gross annual income was introduced. A ten percent ‘speed limit’ is allowed where new lending can deviate from one or more of these requirements each quarter (the limit is eight percent in Oslo). While these restrictions were introduced as temporary, they have been extended several times (and remain in effect to date). Dynamics in both mortgage credit growth and house prices indicate that they have been somewhat effective in undermining the strong momentum in the build-up of risk. Measures related to consumer credit were introduced in 2017, also to reduce potential leakages. Further details on these measures are provided in Appendix 2.

50. FSA surveys indicate that the borrower-based tools have been effective. As expected, there has been a clustering of new loans close to the requirements, in particular just below the DTI and LTV caps. The use of the speed limits has been fairly stable over time and interestingly, despite the differentiated speed limits, the actual percentage of mortgages exceeding requirements has also not varied much between Oslo and the rest of the country (Figure 8).

¹⁸ In the crisis in the early 1990s, only one-fifth of bank losses came from residential property mortgages despite the leading role that the housing market played in the crisis ([Aamo, 2018](#)).

51. In September 2019, the FSA proposed a tightening of borrower-based tools, i.e., a lowering of the DTI cap, tightening of the speed limits, and removal of regional differences. The FSA proposed an extension of the borrower-based tools as well as a tightening of most of its key aspects. In particular, that the DTI limit should be reduced from 5 to 4.5; the general speed limit lowered from 10 to 5 percent, and regional differences in speed limits removed. The FSA also suggested to remove the lower LTV limit on second homes in Oslo. Figure 8 reveals that the reduction in the DTI level represents a considerable tightening in light of the distribution of new loans in 2018. The tightening of the general speed limit would also represent somewhat of a tightening as banks are reluctant to stay too close to the limit.

52. Norges Bank, however, did not see a reason to tighten the DTI cap or the general speed limit, and while expressing support for the removal of regional differences, it opened the door extending the lower LTV limit on second homes to the whole country instead of removing it fully.



53. Five questions seem key: (i) should the use of borrower-based tools be temporary; (ii) adjusted over time; (iii) subject to speed limits; (iv) distinguish between first and second properties; and (v) regionally differentiated? Important considerations are the following:

- **Household sector risks have played a prominent and continuous role in Norway.** While the use of tools should be guided by both their potential benefits and costs, it would be prudent to have tools in place that address long-standing or semi-permanent concerns for financial stability. The household sector, in particular the residential housing sector, has been a key concern for decades in Norway. While capital-based tools can provide valuable resilience for financial institutions regarding developments in the household sector, experience has shown that households' financial distress can have widespread economic repercussions, and result in broader losses on other related exposures (e.g., the corporate loan book). Empirical research has shown that borrower-based tools, such as LTV and DSTI caps, are effective in reducing the build-up of vulnerabilities over time (IMF-BIS-FSB, 2016), while providing households with valuable buffers. So, it is useful to have these measures in place. Also, given the political costs of introducing such measures, keeping them in place and adjusting their calibration over time (if needed) seems not only prudent, but also less costly than removing them and later having to go through the process of re-introducing them.¹⁹
- **Speed limits can attain a more favorable cost-benefit trade-off with the use of borrower-based tools.** Borrower-based tools can be intrusive, both with regard to households' demand for credit and banks' risk management. Hence, some countries have opted to introduce a certain degree of flexibility where banks can deviate from some or all of the requirements on a share of their new loans. This can allow for the key benefits of the tools to be attained, while reducing their associated costs. Although it is difficult to compare calibrations across countries, the 10 percent speed limit in Norway appears broadly in line with other countries (Box 2).
- **Tighter restrictions on investments apart from the first property can mitigate risks of speculative investments driving up house prices and credit.** Tighter LTV caps on second, third, etc., properties are common to reduce risk of speculative demand driving up house prices and causing households to take on increased leverage. The Norwegian authorities could make the Oslo-specific LTV limit on second properties a nationwide restriction.
- **While regional differences in macroprudential restrictions can achieve a desirable trade-off between benefits and costs, they have to be justified:** Generally, macroprudential tools should be implemented in a manner that recognizes their relative costs and benefits. Regional differences can achieve a more optimal trade-off between benefits and costs, when regional dynamics indicate that the build-up of systemic risk is particularly regional, e.g., related to the

¹⁹ Some market participants mentioned that a benefit associated with the existing sunset clauses is that they ensure that a debate takes place on whether they should be extended and/or adjusted. However, this could also be achieved by performing regular assessments on the need for adjustments.

country's metropolitan area. This has been the case in Norway. However, regional differences in macroprudential regulations also entail implementation costs.

Recommendations:

54. Key elements of the household sector measures should be made permanent, to be adjusted infrequently, and include speed limits. The duration of the measures should match the structural nature of the risks it addresses—which argues for making them permanent. It also seems more prudent and cost effective to keep these tools in place (and adjust them on occasion if needed) than to remove and reintroduce them over the housing cycle. Speed limits are a useful feature that reduce the cost of the mortgage restrictions on banks and households, and they should remain in place.

Box 2. International Comparison of Debt Limits and the Use of Speed Limits

As of now, there are five high-income countries that have introduced DTI/LTI caps as a complement to their LTV caps (UK in 2014, Ireland in 2015, Norway in 2017, and Czech Republic and Slovakia in 2018).

The DTI (Norway, Slovakia) or LTI (Czech Republic, Ireland, and UK) caps are calibrated between 3.5 (Ireland) to 9 (Czech Republic). It is hard to compare the magnitudes across countries due to differences in the coverage of the measure (e.g., overall debt (Norway and Slovakia) vs. a mortgage loan (UK, Czech Republic, and Ireland)), and gross income (Norway, UK, Ireland) vs. net disposable income (Czech Republic and Slovakia)).

The DTI/LTI limits allow certain flexibilities, with speed limits ranging from 5 (Czech Republic) to 20 (Ireland, Slovakia) percent of newly approved loans. The speed limits are also used on other borrower-side macroprudential measures, e.g. on LTV ratios in New Zealand and Malta, ranging from 5 to 20 percent.

Table. Use of DTI/LTI Caps and Speed Limits

	Norway	UK	Czech Republic	Slovakia	Ireland
<i>Measures</i>	DTI	LTI	LTI	DTI	LTI
<i>Numerator</i>	All debt	Mortgage loan	Mortgage loan	All debt	Mortgage loan
<i>Denominator</i>	Gross annual income	Gross annual income	Net annual disposable income	Net annual disposable income	Gross annual income
<i>Limit</i>	5	4.5	9	8	3.5
<i>Exemptions</i>	10 percent of new loans per quarter	Up to GBP 100 million per annum or extending fewer than 300 mortgages	5 percent	10 percent	20 percent

Source: IMF Macroprudential Policy Survey.

55. At the current juncture, further tightening of borrower-based tools does not appear to be urgent and should be better grounded by an overall strategy and further analysis. Although household indebtedness remains high, the mortgage and consumer lending is losing momentum. Thus, a further tightening does not seem urgent for cyclical reasons, and the MoF did not follow the advice of the FSA. Although it can certainly be argued that the DTI should be set at a lower rate for structural reasons, such a recalibration should be better grounded in data analysis. The analysis suggested above, linking micro data on NPLs to household debt characteristics (including their DTI levels), could facilitate identifying an appropriate structural level for the DTI.

56. Further reforms are needed to reduce the tax preferences and relax supply constraints:

- **Tax incentives** have somewhat declined after the recent tax reform, which reduced the valuation discount on houses in the calculation of the net wealth tax. However, the discount is still sizable, and further alignment of the valuation discounts between houses and other forms of wealth is needed. Norway may also consider gradually phasing out mortgage interest deductibility, for example by lowering the cap on mortgage interest deduction and applying deduction only on the primary residence.²⁰ Reforming interest deductibility requires a cautious and gradual approach as house prices can respond rapidly with consequent risks to economic stability. The current low interest rate environment provides a good opportunity to act ahead of the curve before higher interest rates pose an additional debt burden on mortgage holders.
- **Supply Constraints:** Norway's construction and urban planning regulations are perceived as quite strict, especially in the Oslo area. Several measures aimed at lowering construction costs and time have been taken. However, more active use of region-specific housing policies, including relaxing local regulations where they are excessively stringent, should be considered.

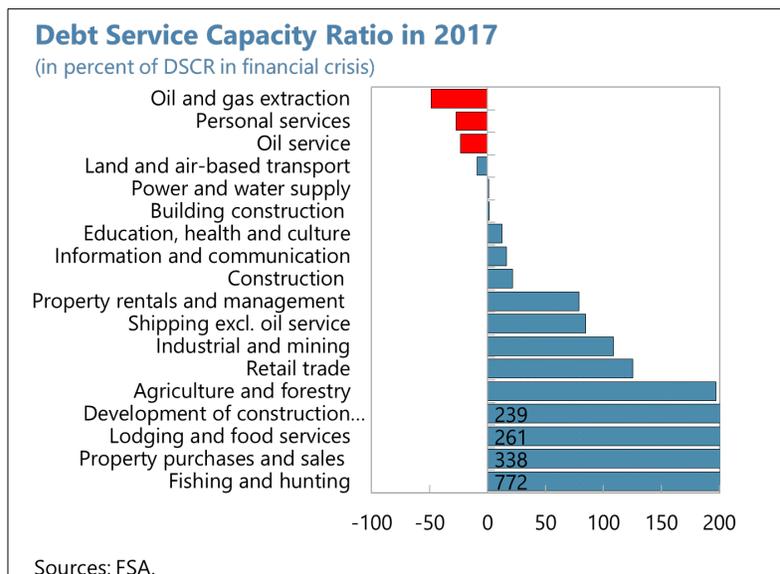
C. Corporate and CRE Vulnerabilities: Assessment, Tools, and Recommendations

57. Corporate indebtedness in Norway is not particularly high. Although gross corporate debt is relatively high, a significant portion is intercompany debt and the net corporate debt in Norway, at around 80 percent of GDP, is lower than in many peers (e.g., Sweden and Denmark; Figure 9). Credit growth has slowed since the GFC and is now more in line with operating revenue, with corporate loans falling as a share of total banks loans. Although banks remain the main source of corporate financing, there has been a change of composition with rising issuance of corporate bonds and reduced reliance on bank loans, which could be due to tighter capital requirements on banks and also on some types of corporate loans.²¹ This change has diversified the funding structure but has also resulted in policy leakages which could make bank's capital requirements less effective.

²⁰ Sweden applies deduction of 30 percent of interest up until 100 000 SEK (€10,438). Ireland and Spain have eliminated mortgage interest deductibility on new loans, while Denmark and the Netherlands are gradually reducing them (IMF Cross-Country Report, 2015).

²¹ Norges Bank, 2018, Financial Stability Report.

58. Most corporates appear to be in sound financial condition, with the exception of some oil-related industries. Debt servicing capacity is high in most industries; and bank losses on overall corporate loans have been low even in the aftermath of the GFC and the 2014 oil downturn. Although the oil-related industries suffered big losses as a result of the oil downturn, the losses on banks have fallen after the restructuring in the oil service industries took place in 2017. Spillovers to other sectors have been limited (Figure 7). In some highly-leveraged oil service industries, e.g., drilling and supply, debt serving capacity continues to weaken.

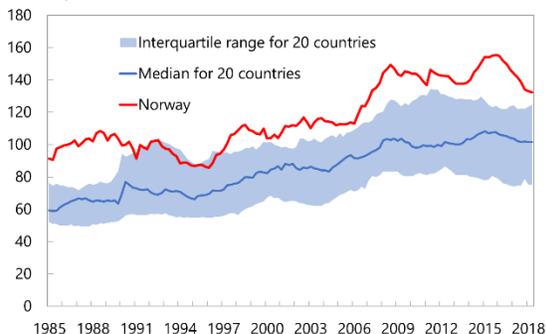


59. Key risks stem from CRE, which accounts for the largest part of the corporate loan book; while exposures vary significantly across banks. Corporate credit has been largely driven by the CRE sector, which has increased from 25 percent of overall corporate bank loans in 2000 to its current level of 40 percent. CRE prices have risen rapidly in the last decade, surpassing many of its peers. Yields have fallen to historic-low levels, particularly in the Oslo prime office segment, which accounts for a large part of the CRE market in value term. Banks' large exposure to CRE loans and strong cyclical in the CRE sector pose risk of substantial loan losses with sharp correction of prices. It is also worth noting that the level of banks' exposure to CRE-related risks vary significantly in terms of the size of exposure and the underlying risk (e.g., location, size, and segment) (Box 3).

Figure 9. Norway: Corporate Sector Vulnerabilities

Gross corporate debt is high by international standards, ...

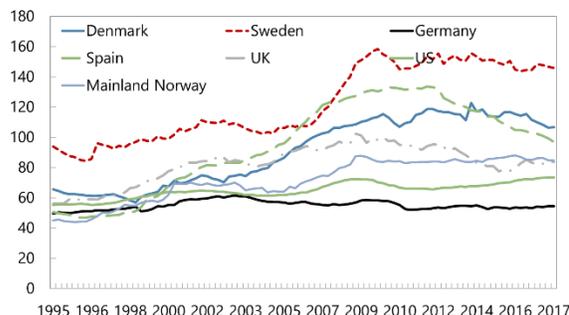
Total Credit to Non-Financial Corporation
(in percent of GDP)



Sources: BIS, IMF Staff calculations.

... but a large portion is intercompany debt—the net debt level is lower than among many peers.

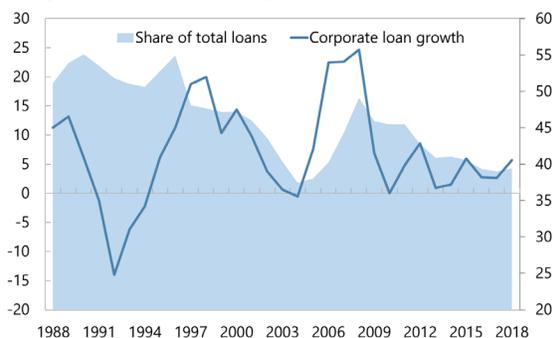
Net Debt of Non-Financial Corporations¹
(in percent of GDP)



1. Net of intercompany loans.
Sources: Norges Bank.

Corporate loan growth has been moderate since the GFC; and has fallen as a share of total loans.

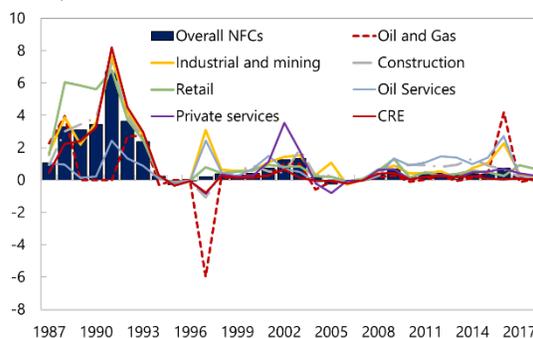
Corporate Loans
(Growth rate, share of total loans)



Sources: Norges Bank, FSA.

Bank losses remained low even during the GFC and the 2014 oil price downturn.

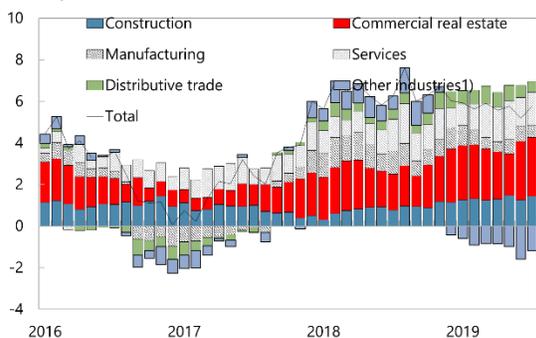
Bank Losses, by Industries
(In percent)



Sources: FSA.

Corporate credit growth has been largely driven by the CRE and the construction sector.

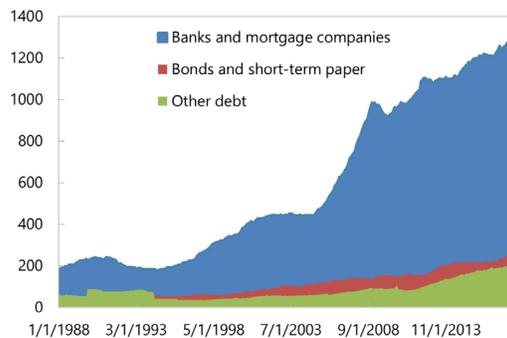
Contributions to NFC Credit Growth, by industry
(in percent)



Sources: Norges Bank.

Market financing is becoming increasingly important, although bank financing remains dominant.

Corporate Loans by Lenders
(in million NOK)

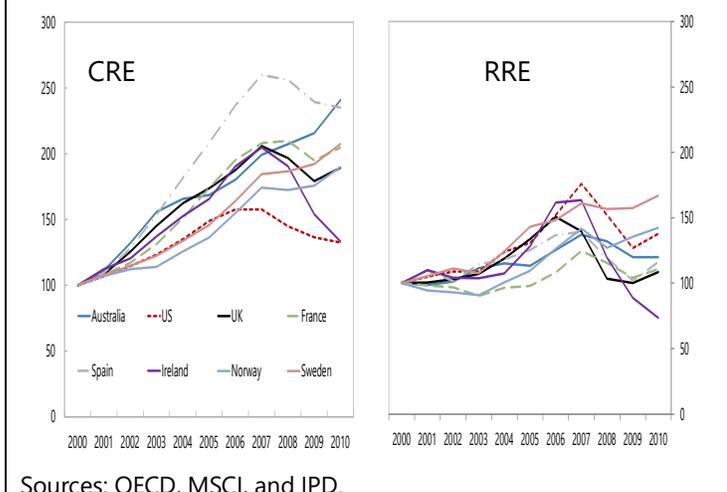


Sources: Norges Bank.

Box 3. International Comparison of CRE Vulnerabilities

History has shown strong cyclicity and cross-border correlations of CRE markets, creating risks to financial stability and economic growth. CRE prices more than halved in past crises in several countries (e.g., Norway and Sweden in late-1980s/early-1990s financial crises; Ireland, Iceland, UK, and US during the GFC). The boom-bust cycle in the CRE sector has been highly correlated with the residential real estate (RRE) sector; although the price effect tends to be much stronger in the CRE sector. For many countries, domestic CRE markets are also highly synchronized with the global/regional CRE markets, given cross-border capital flows, global search for yields, and interconnectedness of financial institutions, which may further amplify boom-bust cycles, resulting in substantial losses to financial institutions. The subsequent impact on investment and GDP growth due to the credit crunch has also been significant— investment fell by more than 10 percent in Sweden and Norway during the banking crisis, around 25 percent in the US and more than 10 percent in the Euro Area during the GFC.

Commercial and Residential Real Estate Prices (Index, 2000=100)



Sources: OECD, MSCI, and IPD.

Many economies are experiencing a combination of high prices and low yields in the CRE sector, making them particularly vulnerable to a repricing of risk premia. ECB scoreboard and ESRB survey results signaled more pronounced risks with high and still rising CRE prices in Germany, France, Finland, the Netherlands, and Norway. And in some of these countries, risks are particularly concentrated among well-located and high-quality properties. For example, in Norway, price pressures are most pronounced in Oslo's prime office market. Some economies outside Europe, e.g., Australia, Hong Kong SAR, and Singapore, are also experiencing price booms in the CRE sector.

CRE markets marked by concerns about revenues and profits tend to be more vulnerable. Such markets can be excessively leveraged or have a poor track record of repayment capacity. For example, Belgium, Denmark, Finland, Germany, UK, and the Netherlands (along with stressed Euro Area countries and newer EU member states) have high vacancy rates (signs of return at risk).¹ The stressed euro area countries are still suffering from legacy NPLs associated with their CRE exposure since the GFC. Such concerns are less prominent in Norway, however, given the low vacancy rates and NPLs. In addition, the pre-lease requirement to qualify for VAT deduction effectively limits speculative construction of commercial buildings and underpins occupancy rates.

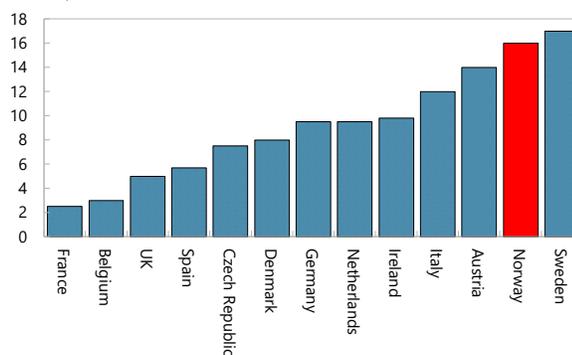
In many countries, banks are highly exposed to the CRE sector, although exposures vary across countries. Among the advanced European countries, Norway has one of the highest exposures to the CRE sector (16 percent in total lending), followed by Austria, Denmark and the Netherlands. France, Belgium, Spain, and the UK have relatively less exposure. Bank lending to the CRE sector is still growing in Norway, though the pace is not particularly fast compared to its peers (e.g., growth is comparable to that in Sweden but much slower than in Finland).

Box 3. International Comparison of CRE Vulnerabilities (Concluded)

In some economies, foreign investors are increasingly important. Although the diversification of CRE financing sources across borders increase risk sharing, the presence of foreign investors can amplify boom-bust cycles through higher synchronicity with global CRE markets and generate contagion risks for across international banking system. Foreign intra-regional (within the EU) and cross-regional (from outside the EU) investments accounted for an average of 42 percent of CRE investments between 2006 and 2015. The share is larger particularly in the CEE, Baltics countries and Luxembourg. Many small open economies that are regional trade and financial hubs also tend to attract sizable foreign investments (e.g., Hong Kong SAR, Singapore (90 percent)). For others, the shares are relatively lower, but foreign investors are playing an increasingly important role in these markets (e.g., increased from below 20 percent in early 2000 to 30 percent in 2018 in Sweden). In Norway, 18 percent of the investments are foreign (Box 3), which is not particularly high compared to its peers.

CRE companies are also becoming more reliant on non-bank financing. Although this helps diversify the funding structure, investors' attempts to quickly withdraw capital from the bond market in stressed conditions could lead to fire sales of underlying assets and to a sudden decline in CRE prices, in particular if banks are not willing or able to replace the dried-up bond financing. Although the existing exposures of non-banks (e.g., insurance companies, investment funds, bond markets) are small; the exposures are growing rapidly in many countries. The exposure of insurance companies to CRE now represents more than 5 percent of their total assets in Cyprus, Croatia, Finland, Sweden, and the Netherlands. The investment funds are growing at rates exceeding 10 percent in Finland, France and several emerging European countries. In the case of Norway, financing to CRE only account for 3 percent of insurance companies' total portfolio. The bulk of the non-bank financing is through bond issuance, which has increased from 2 percent in early 2000 to 8 percent in 2017.

Bank Exposure to CRE Loans
(in percent of total bank loans)



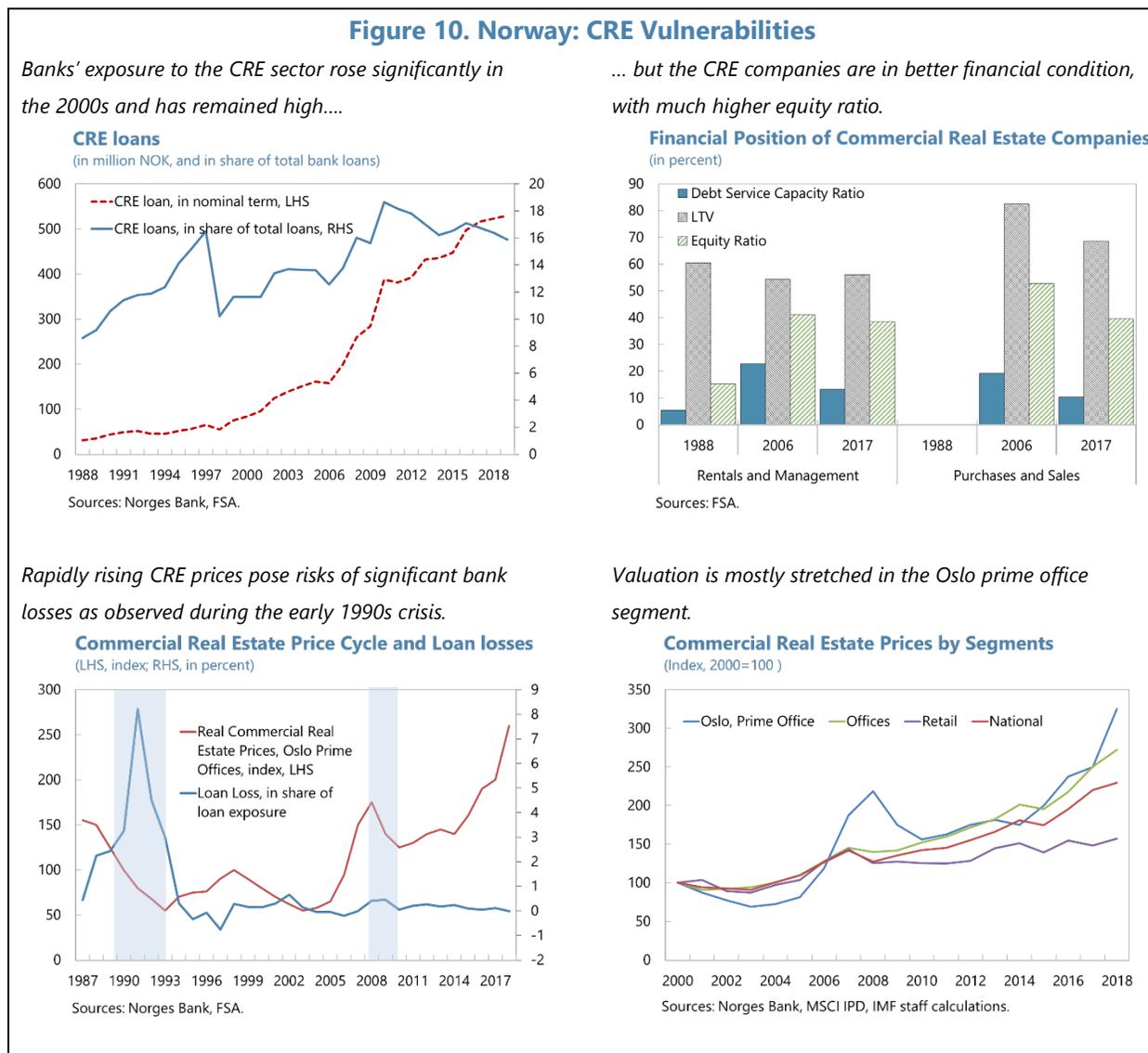
Sources: ESRB

¹ ECB scoreboard and ESRB survey results.

60. As a result of the importance of CRE risks, many capital-based prudential measures have been introduced for the sector. Norwegian banks adopted the risk weight floor of 100 percent on CRE exposures for banks using the standardized approach in 2014 under the European framework. But with further buildup of vulnerabilities in the CRE sector, the authorities introduced intensified oversight and Pillar II capital add-ons for banks with concentrated exposures in 2018. In the same year, the FSA also conducted a thematic inspection on bank loans to CRE companies, covering eight Norwegian banks and three foreign branches. As discussed above, the MoF has announced a temporary risk weight floor of 35 percent for IRB banks to become effective end-2020.²² The increase of the countercyclical buffer from 2 to 2.5 percent, effective at end-2019,

²² This will also apply to foreign bank branches. Hence, this is another example of the authorities responding to policy leakages. Other examples include new measures on consumer loans in 2017.

also reflected risks in the CRE sector. All of these measured have been important and provide valuable resilience against CRE risks.



61. Corporate debt bias remains an issue but has been mitigated by recent corporate income tax rate cuts and the risk-free allowance for taxes on dividends. First, the debt bias is mitigated by lowering the taxation on dividends through risk-free return allowance on shares. Second, recent reduction of tax rates from 28 percent in 2013 to 22 percent in 2019 significantly reduced the debt bias for Norwegian companies whose shareholders are not subject to Norwegian capital income tax, e.g. foreign institutional investors. Third, the interest deduction limitation rule²³ now applies to all debt instead of only on related parties. This measure is found to be effective in curbing the debt bias, although it was primarily aimed to reduce tax avoidance through cross-border profit shifting.

²³ 25 percent of taxable EBITDA, if a threshold amount of MNOK 25 in net interest expenses is exceeded.

Recommendations

62. There are merits to start considering options to broaden the toolkit for CRE vulnerabilities. The existing broad-based capital measures are helpful in safeguarding bank resilience; however, the sole reliance on them may not be effective in containing price and credit booms as holds for capital-based tools more generally ([IMF-FSB-BIS, 2016](#)). In addition, they may be too blunt tools for targeting the very specific risks in the CRE sector, in particular when developments in CRE are out of synch with the buildup of vulnerabilities in other sectors. Such circumstances have not yet materialized, as CRE risks and broad-based risks have mostly coincided. However, that may change in the future and therefore it is useful to consider broadening the macroprudential toolkit to facilitate a more targeted and comprehensive approach. Specific avenues to be explored include:

- **Sectoral capital measures.** Unlike broad-based measures, sectoral capital measures target banks with higher exposures to riskier sectors. This would be particularly important for CRE exposures, which vary widely across Norwegian banks and are systematically important for the system as a whole (Box 5). The recently announced temporary risk weight floors on IRB banks is an example of a sectoral capital measure and will be a useful tool. Similar measures have been proposed in Sweden and implemented in the UK (Box 4). However, in the UK risk weights on the CRE sector are further calibrated based on regional risk levels—such additional differentiation could potentially be useful in Norway too as well but would have to be justified. In addition, sectoral CCyB/SRB, with their advantage of being adjustable over the cycle—in particular that they can be relaxed—, could also be considered (see the [ESRB](#) and [BIS](#) reports) even though, for now, there may still be tensions with the European framework.
- **Borrower-based measures.** Further down the line, if combinations of other measures—including sectoral capital measures—prove insufficient to contain CRE risks, borrower-based measures could also be considered. Such circumstances have not yet materialized as CRE risks are mostly reflected in price developments, while sectoral credit and in particular balance sheet indicators are still more benign (Figure 10). Such borrower-based measures would directly target reducing excessive credit growth and stretched valuations, while increasing borrowers' resilience. Although such measures may imply larger distortions in the economy, they could be particularly effective since they will prevent borrowing once the limit is binding—in contrast to the capital-based measures, which only affect the borrowing costs at the margin ([France FSAP](#)). They also have the benefits of being applied on the flow of credit, which entails that they can be implemented faster and may be less procyclical than some capital tools (although relaxation of buffers is countercyclical). However, effective implementation of borrower-side measures requires addressing several substantial operational challenges with regards to sectoral heterogeneity and data limitations (Box 4).

Box 4. Use of Macroprudential Tools Geared Towards the CRE Sector

There is a broad range of macroprudential instruments available to address CRE-related vulnerabilities. EU legislation, through CRR/CRD-IV, provides some capital-based instruments that target CRE-related vulnerabilities in the banking sector, including increased risk weights, and tighter loss given default (LGD). In some cases, the CCyB or SRB can also be adjusted to address CRE risks. Depending on individual national legislation, borrower-side measures such as caps on LTV and DSTI can also be used. Beyond macroprudential measures, countries can use other measures, such as microprudential measures including intensified oversight or Pillar II add-ons—or taxes to influence the relevant parties' incentives (e.g., interest deduction limitation rules).

Objective	Target	Measures
Excessive credit growth and leverage Borrowers' resilience	Borrowers	Limits on loan to value (LTV) Limits on debt service coverage ratio (DSCR) or interest coverage ratio (ICR) Mortgage lending value requirement
Bank Resilience	Banks	Risk weight (SA Banks) Risk weight (IRB Banks) Loss given default (LGD) Systemic risk buffer (SRB) Countercyclical risk buffer (CCyB) Pillar 2 requirements [Sectoral CCyB/SRB]
Exposure concentration	Banks	Exposure limits
Indirect exposure	Non-banks	Leverage limits, suspension of redemptions.

Each set of measures has its own advantages and limitations.

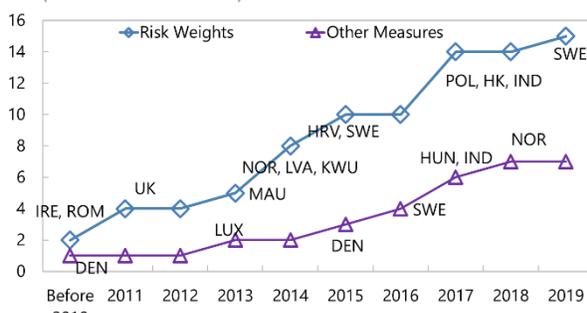
- **Capital measures** mainly aim at safeguarding bank resilience. They have the advantage of covering both existing and new loans. Countries can raise risk weights on banks using standardized approach based on Article 124 of CRR, though there are fewer possibilities to raise risk weights for IRB banks. Article 164(5) of the CRR also allows national authorities to set higher LGD values for CRE. Use of broad-based tools such as the CCyB or SRB helps increase bank's overall resilience but are less targeted to sector-specific risks. Another general limitation associated with bank capital measures is that risks arising from non-bank exposures or foreign investments are not addressed, potentially leading to policy leakages.
- **Borrower-side measures** could be used to complement the capital measures as they directly target reducing excessive credit growth and valuation stretch and increasing borrowers' resilience. The latter is particularly important from the macrofinancial stability perspective given CRE's interconnectedness with other industry activities and the potential spillover implications to the rest of the economy (e.g. developers of the RRE sector). They also have the advantage of covering both bank and non-bank domestic borrowers. But like the capital measures, risks from foreign investors would still not be addressed. Another key challenge is the calibration, which is complicated by the sector's heterogeneity (Box 3).
- **Tax and capital flow management measures (CFMs)**, in some specific circumstances, it can be useful to disincentivize speculative short-term investments (though this does not seem to be of direct relevance for Norway at the current juncture). Although stamp duties are quite effective in Hong Kong SAR and Singapore in terms of mitigating excessive growth in property prices and complementing otherwise tight macroprudential measures, it is not possible to implement such stamp duties that vary across residents and nonresidents.¹ In EEA countries due to the regional agreements. Interest deduction limits, on the other hand, have proven to be quite effective in reducing the debt bias, particularly for highly leveraged CRE firms.²

Box 4. Use of Macroprudential Tools Geared Towards the CRE Sector (cont'd)

In practice, capital-based measures have been implemented in several advanced economies. A risk weight floor of 100 percent has been applied on CRE exposure among banks applying the standardized approach in many European countries (including Norway) in line with national discretion in the CRR (ESRB Macroprudential Policy Survey). Only a few countries apply risk weight floors on IRB banks. UK has a slotting system with risk weights ranging from 50 to 250 percent based on the risk level for the IRB banks. More recently, Sweden and Norway are proposing to impose the risk weights on CRE exposures for IRB banks. Hong Kong SAR also has differential risk weights for IRB banks depending on the property characteristics. In addition to risk weights, some countries also justified their activations of the SRB (Croatia and Hungary), and the CCyB (Norway, the Netherlands, Australia, and Ireland) to partly address CRE-related vulnerabilities.

Macroprudential Measures on CRE, Evolution¹

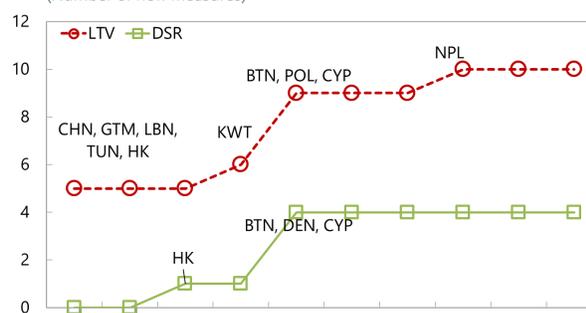
(Number of new measures)



1. UK, HK risk weights are on both SA and IRB banks; WE is planning to add risk weight on IRB banks in 2019; other measures include limits on bank loan exposure to CREs in Denmark, and Luxembourg; lending growth caps on lending segments in Denmark; and Pillar II capital add-on/maturity cap in Norway and Sweden.
Sources: MCM Macroprudential Survey, 2018 ESRB CRE Report.

Macroprudential Measures on CRE, Evolution

(Number of new measures)



Sources: MCM Macroprudential Survey, 2018 ESRB CRE Report.

Very few advanced economies have used the borrower-side measures for CRE-related risks. Denmark, Hong Kong SAR, and Cyprus are the only examples based on the IMF and ESRB macroprudential policy surveys. Emerging markets have been more active. Hong Kong SAR has the tightest LTV (30-40 percent) and DSTI limits (20-30 percent) among those that applied the borrower-side measures, with values depending on the size of the loan and borrower characteristics (first-time, foreign or not). Since 2012, the Hong Kong Monetary Authority (HKMA) has tightened the limits on a number of occasions from 50-60 percent for DSTI limits and 50 percent for LTV limits. Most LTV and DSTI limits in other countries range between 55-65 percent and 60-80 percent, respectively.

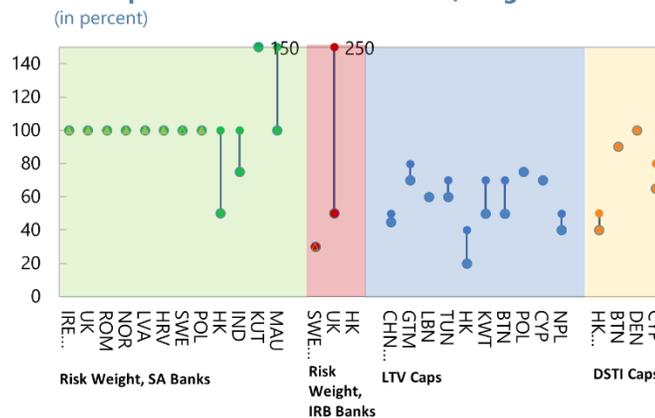
There has been limited evidence on the effectiveness of these measures in managing CRE cycles, given the short history of use and policy leakages, for example to international investors in the case of Hong Kong SAR and Singapore.

The limited use of borrower-side measures may reflect operational challenges. First, the valuation of CRE properties is more challenging than for residential properties; hence more due diligence is needed in assessing and updating valuations. This needs to be either conducted internally by banks and/or by external agencies, which can use different methodologies with potentially wide-ranging results. In the case of Hong Kong SAR, if valuations are done by banks, period checks (preferred quarterly) are required by external agencies to ensure they remain prudent. If the valuation is done by external agencies, banks need to establish policies and procedures to ensure the reliability of the valuation. Second, sectoral heterogeneity (Box 3) may complicate the calibration of limits, and one universal limit is unlikely to be appropriate. However, in the case of Hong Kong SAR, and many other places with borrower-side measures, no differential limits were applied for different sectors.

Box 4. Use of Macroprudential Tools Geared Towards the CRE Sector (concluded)

Other measures have also been used. For example, in Denmark, lending growth to each individual sector is limited to 15 percent (mortgage banks) and 20 percent (deposit banks) and banks' CRE exposure is limited to 25 percent of their total lending. Stamp duties were introduced in Singapore, Hong Kong SAR, Australia, Canada, and the UK to limit speculative foreign investments. Other possibilities are increased property taxation, reduced tax deductibility of interest payments or higher capital gains taxes, which lower the return on CRE investments and better align demand and supply in the market. Many countries, including Norway, have limits on interest deductions.^{2/} In addition, reforming land and urban planning policies could help improve the elasticity of supply and contain CRE price growth (ESRB report 2018).

Macroprudential Measures on CRE, Magnitudes¹



1. IND, KUT, and MAU are for all banks. Sources: 2017 IMF Macroprudential Policy Survey, 2018 ESRB Report.

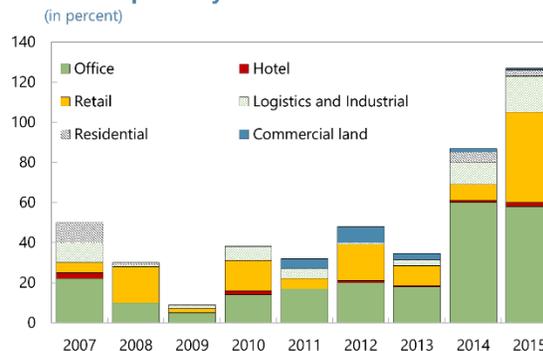
¹ The stamp duties in Hong Kong SAR and Singapore, which discriminate between residents and nonresidents, are considered both CFMs and macroprudential policy measures under [the IMF Institutional View](#).

² De Mooij and Hebous, 2017, Curbing Corporate Debt Bias: Do Limitations to Interest Deductibility Work?

Box 5. Key Characteristics of the Norwegian CRE Market

The CRE market is rather heterogenous in terms of business activities and property types. There are three main business types—*rentals and management, purchases and sales, and development of construction projects*. The rental management companies account for a majority of the CRE market—some 83 percent of net debt and 86 percent of earnings. Many large CRE company groups involve multiple lines of business simultaneously (i.e., both development and rental of properties). The CRE companies can own or manage properties for use as office or retail space, hotels, manufacturing, and logistics. In the past ten years, the office segment has accounted for around half of the total value of transactions in the CRE market, followed by the retail segment that accounts for 1/3. Close to 60 percent of all offices (in terms of square meters), which have been built in Norway in the past decade, were in Oslo. This figure is likely higher in value terms.

CRE Companies by Sector



Source: Marius Hagen, 2016, Commercial Real Estate in Norway, Economic Commentary.

Box 5. Key Characteristics of the Norwegian CRE Market (Concluded)

The investor base is mostly domestic. CRE investors in Norway include property companies, property funds, syndication companies, life insurance and pension fund companies, private investors and companies, some of which are wholly or partially publicly owned. As of 2018, foreign investors account for less than 20 percent of total investments, somewhat lower than in peer countries (Box 1). There was a sharp inflow of international investors in 2014/15 to the Norwegian CRE market, but the surge subsided afterwards. Most foreign participants invest through syndicates or funds, and the largest investors are from Finland, Sweden, the UK and the US.^{1/}

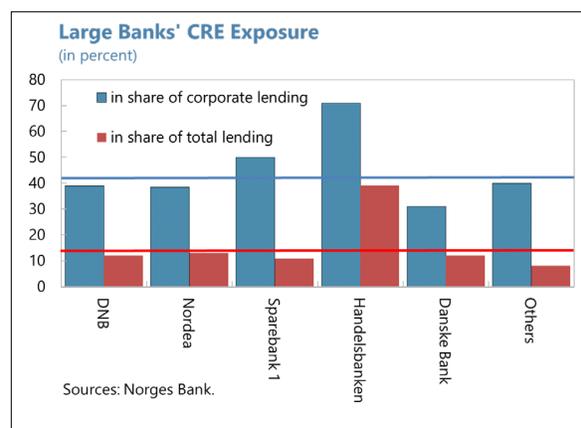
CRE companies finance themselves mostly through banks, but some large listed players are relying increasingly on bond markets. Equity accounts for a third of total funding to CRE companies, and bank debt for another third. The remainder consists of other debt and a small but rising share of bond debt.^{2/} The financing structure varies across CRE companies. Smaller CRE companies rely almost entirely on bank financing. They set up special purpose vehicles (SPV) for individual properties as collateral for bank loans. Larger groups, however, are becoming increasingly reliant on bond financing due to more competitive terms and rates there. They continue to also finance themselves through banks, but loans are normally backed by a pool of properties as collateral (i.e. a number of SPVs).

¹ Pagnea Research.

² [Marius Hagen, 2016](#), Commercial Real Estate in Norway, Economic Commentary.

63. Banks have significant exposure to CRE loans; but with large differences across banks.

Handelsbanken has the largest relative CRE exposure among all the banks. Most Norwegian banks have CRE loans. The banks' share of loans granted to commercial property as a share of all granted loans to nonfinancial firms varies from 15 to 93 per cent. Generally speaking, small banks have the highest relative (but often low absolute) CRE exposure. The exposure of the seven largest banks, which combined account for just over three-quarters of Norwegian banks' loans granted to the property industries, varies from 26 to 68 percent. Banks are also exposed to different types of CRE companies. Smaller and regional banks lend mostly to hotels, retails, and logistics buildings where prices are broadly stable. In contrast, larger banks are more exposed to the Oslo's prime CRE market where valuations are most stretched. Banks are also indirectly exposed to the CRE sector through lending to other sectors.



D. Funding and Liquidity Vulnerabilities: Assessment, Tools, and Recommendations

64. Banks continue to rely heavily on wholesale funding, in particular covered bond issuance in both domestic and foreign currency. Wholesale funding provides close to half of all funding for banks and mortgage companies and a large share than deposits (at 40 percent). About

two-thirds of wholesale funding is comprised of covered bonds collateralized by mortgages, half of which is foreign-currency denominated and swapped into domestic currency through the foreign exchange swap market.²⁴ The importance of unsecured senior bonds has remained stable in recent years—after falling following the GFC—and they provide a third of wholesale funding, 40 percent of which are issued in foreign currency (Figure 11).

65. Banks are also large investors of covered bonds, in particular to fulfill LCR requirements as government bond issuance is relatively small. Covered bonds are classified as high-quality liquid assets (HQLA) and constitute the largest category of outstanding HQLAs as low fiscal debt has limited the issuance of government securities.²⁵ As a result, banks invest in each other's covered bonds to fulfill LCR requirements. Banks also hold foreign currency deposits at central banks against their short-term foreign currency funding. Banks and mortgage companies must maintain a minimum LCR of 100 percent for all currencies in total and for each significant currency. In addition, banks with EUR and/or USD as significant currencies must maintain a minimum LCR in NOK of 50 percent. Banks fulfill these requirements, as well as the net stable funding ratio (NFSR), although that is still only monitored (Figure 11).

66. Liquidity in the covered bond market could be reduced in a systemic event, compounding banks' risks from exposures to the real estate market. Concerns about covered bonds could impose higher refinancing risks for banks, banks could be constrained in their ability to post additional collateral to maintain the bonds' cover ratios (although they are relatively high), and mark-downs of covered bonds could hurt the solvency of banks, life insurance companies and pension funds (see discussion on interconnectedness below). Further analysis is provided in the Technical Note on Systemic Liquidity.

67. The LCR in significant currencies provides an important buffer against foreign currency liquidity risks—one that can be relaxed in periods of financial distress. Experience from the GFC demonstrated that foreign currency liquidity can dry up in periods of market turmoil, leaving central banks with limited capacity to provide foreign currency funding in a challenging situation. This is the reason behind the LCR in significant currencies being enforced in Norway, not just monitored. Hence, the LCR provides an important buffer that can be relaxed in periods of stress. However, this relaxation potential has not been emphasized in the Norwegian context, leaving banks uncertain whether the authorities would consider freeing up these liquid assets under stress.

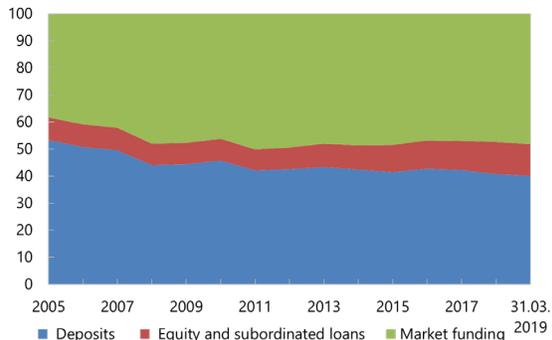
²⁴ The resilience of the foreign exchange swap market—and systemic liquidity more broadly—is covered in the Technical Note on Systemic Liquidity.

²⁵ Covered bonds are treated more beneficially in the European LCR framework, compared to the Basel framework (see [here](#)).

Figure 11. Norway: Funding and Liquidity Vulnerabilities

Banks' continue to rely heavily on market funding ...

Funding of banks' and covered bond mortgage companies
(Percent of total funding)

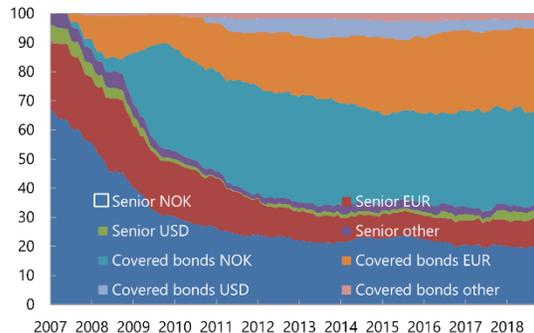


Source: FSA.

... mainly covered bonds in NOK and foreign currency ...

Outstanding market funding

(Percent of market funding for banks and covered bond mortgage companies)

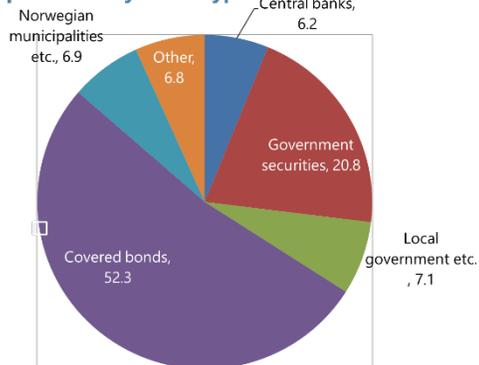


Source: Norges Bank.

... which also make up the lion share of banks' liquid assets in NOK as government bond issuance is small.

NOK liquid assets by assets type

(Percent)

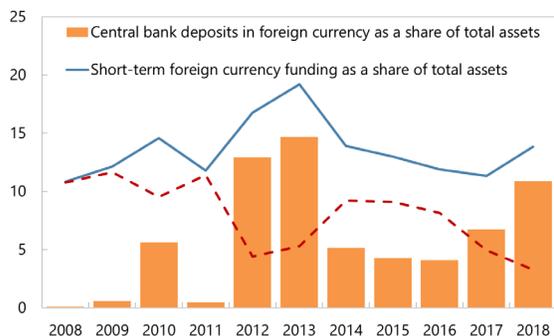


Sources: Norges Bank, IMF staff calculations.

Banks hold foreign currency central bank deposits against the bulk of all short-term foreign currency funding.

Short term foreign currency funding

(Share of total assets in percent)

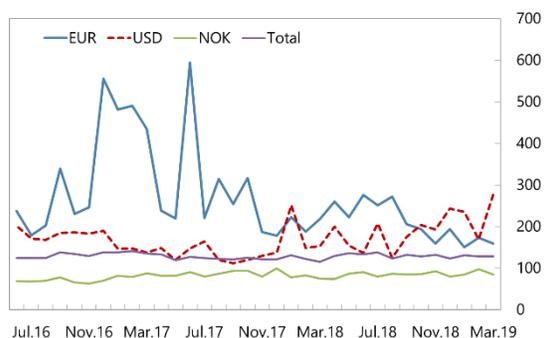


Source: Norges Bank.

Banks fulfil LCR requirements in total and large banks also in significant currencies.

Total LCR and in significant currencies for large banks

(Percent)

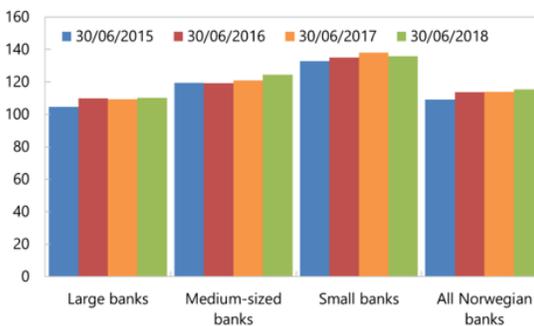


Source: FSA.

Banks also fulfil the NSFR, which is still only monitored, not enforced.

NSFR for all Norwegian banks

(Percent)



Note: Consolidata where available, otherwise parent bank.
Sources: FSA and Norges Bank.

Recommendations

68. The authorities should clarify that the LCR in significant currencies is a buffer they could consider relaxing in periods of foreign currency liquidity stress.²⁶ While practical experience with relaxation is accumulating only slowly, a relaxation of macroprudential policies can be useful to help counter financial stresses arising from foreign currency liquidity pressures. This would help maintain the provision of financial services to the real economy. However, liquidity pressures do not mechanically call for a relaxation of macroprudential tools and careful judgement is needed. Application of existing principles suggests that three conditions should be satisfied. (IMF, 2014; and IMF-FSB-BIS, 2016): (i) buffers are in place; (ii) foreign currency liquidity pressures are generating financial stress; and (iii) relaxation is expected to relieve stress and thereby contribute to containing adverse procyclical dynamics. When these conditions are fulfilled, a relaxation may be useful. This is illustrated by the experience of Croatia, which in the context of the GFC could relax various foreign currency liquidity asset requirements and release liquid asset amounting to over 14 percent of GDP (Box 4 in [IMF, 2017](#)).

E. Structural Vulnerabilities: Assessment, Tools, and Recommendations

69. The financial system is large, at about 270 percent of GDP, and concentrated in banking. Banks represent over half of the financial system (in terms of assets) and the largest commercial bank, DNB, constitutes over 40 percent of the banking sector. Other Norwegian-owned commercial banks are small in comparison, and smaller than the three largest foreign bank branches (Nordea, Danske Bank, and Handelsbanken). The second largest Norwegian bank is Kommunalbanken, but it is a state-owned financing vehicle for Norwegian municipalities with very limited relations to other banks (Figure 12). As other banks, it does, however, rely heavily on foreign wholesale funding.

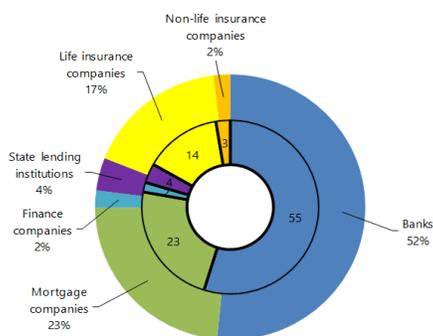
70. Bank exposures are highly concentrated in real estate and their interconnectedness is extensive through cross-holdings of covered bond. Banks' loans to the residential and commercial real estate sectors comprise over two-thirds of their private sector loans. As a result, all the banks would be affected by a downturn in the real estate market. Furthermore, direct interconnectedness is also extensive as banks and mortgage companies hold over half of issued covered bonds in NOK. The high SRB rate is explicitly mitigating these risks, and stress test results seem to indicate that they are sufficiently high. Also, as discussed above, the authorities have recently announced that the buffer rate will be increased.

²⁶ While it is explicitly assumed that banks can 'eat into' their overall LCR requirement in [the CRR](#), the LCR in significant currencies is an additional requirement (based on Article 105 on specific liquidity requirements in the [CRD-IV](#)) and can therefore be explicitly released by the authorities. Such a release could prove more beneficial than merely allowing banks to 'eat into' their buffers, as the latter gives rise to necessary reactions by the supervisors in the form of more frequent reporting and requiring plans to fulfill the requirements within a specific timeframe. Such repercussions could give rise to more procyclical behavior compared to an explicit release of the buffer.

71. The MoF has identified DNB and Kommunalbanken as the systematically important institutions. Every year, the FSA provides a recommendation to the MoF on the identification of systematically important institutions. The FSA mainly relies on two criteria: (i) total assets exceeding 10 percent of GDP and (ii) lending exceeding 5 percent of domestic loans (including to municipalities); but also looks at the EBA guidelines. In October 2018, the FSA proposed to introduce an additional criterion of at least 10 percent market share in corporate lending in one or more regions. The MoF sent the proposal to public hearing but decided not to follow FSA’s advice. Systematically important institutions, i.e. the DNB and Kommunalbanken, are subject to a 2 percent O-SII buffer and an additional leverage ratio requirement of 1 percent.

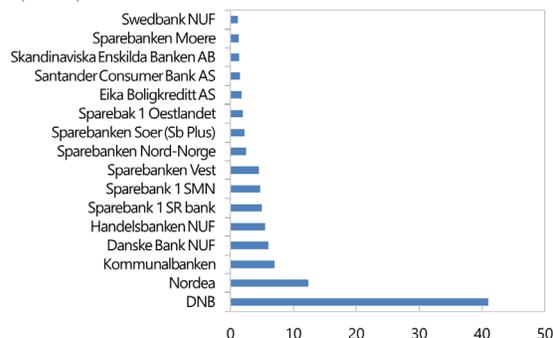
Figure 12. Norway: Structural Vulnerabilities

The Norwegian financial system is fairly large and concentrated in banking (inner 2014, outer 2018).



The largest bank constitutes over 40 percent of total bank assets—foreign bank branches are also sizeable

Bank's total assets as a share of total banking sector (Percent)

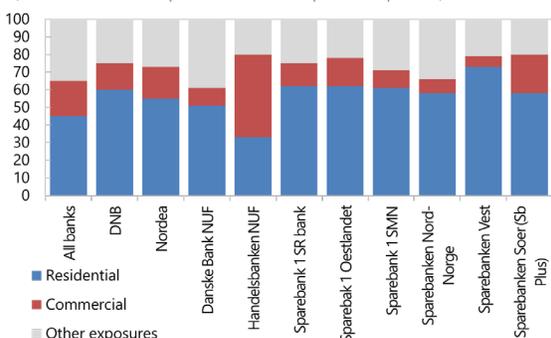


Sources Norges Bank.

Source: Statistics Norway.

Banks' exposures are highly concentrated toward the residential and commercial real estate sectors.

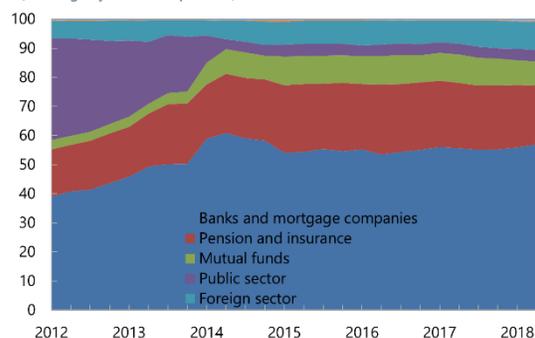
Banks lending to households and corporates (Share of real estate exposures and other exposures in percent)



Sources Norges Bank.

Direct interconnected of banks is also large through cross-holdings of covered bonds.

Bonds issued by mortgage companies (Holdings by sectors in percent)



Source: Norges Bank.

Appendix I. 2015 FSAP Recommendations on Macroprudential Policy

Recommendation	Implementation Progress
<p>Improve the existing institutional structure</p> <ul style="list-style-type: none"> - More standardized and transparent procedures for giving advice to the MoF, - More transparent “comply or explain” approach by decision-makers (MoF) - Annual broader overview assessments, including on the need for further tools - Enhance FSA independence - Greater delegation of powers over time to Norges Bank/FSA <p>Alternatively, set up a formal Committee</p> <ul style="list-style-type: none"> - Based on the core membership of the MoF, Norges Bank, and the FSA - Could include external members - At least have semi-hard powers and even some hard ones - However, it may be too early to introduce potentially disruptive change to a set-up that has worked reasonably well. 	<p>No change</p> <p>The institutional arrangements have remained unaltered.</p>
<p>Produce a more comprehensive and coordinated framework for macroprudential policy in Norway.</p> <ul style="list-style-type: none"> - a clear specification of the overall objectives of macroprudential policy; - the intended objectives of macroprudential instruments, both individually and collectively; - the expected benefits and costs of using these instruments; - post-implementation reviews of the effectiveness of these instruments. 	<p>Some progress.</p> <p>The 2016 Budget Report from the MoF included a discussion of the objectives and instruments of macroprudential policy. However, it fell short of describing a fully-fledged strategy for macroprudential policy.</p>

Recommendation	Implementation Progress
<ul style="list-style-type: none"> - could also include the setting of medium to long term broad ranges for key financial stability ratios as a communication tool to explain the actions of the authorities 	
<p>The authorities should take additional measures to contain systemic risks from the growth of house prices and household indebtedness.</p> <ul style="list-style-type: none"> - Measures could include stricter LTV and amortization guidelines; and adding loan-to-income or debt service ratio limits to supplement the affordability (interest rate stress test) guideline. - should consider structural measures such as a reduction in the tax incentives for home ownership and a relaxation of planning and building requirements to stimulate the supply of new housing units. 	<p>Significant Progress</p> <ul style="list-style-type: none"> - Adopted a regulation on requirements for residential mortgage loans, which also introduced a debt-to-income limit, tighter down-payment requirements, a lower “speed limit” for Oslo, and a tighter LTV limit for secondary housing in Oslo. - Also, introduced restriction on consumer lending, which was a potential avenue for leakage of the mortgage regulations. - The CCyB has also been tightened and will reach 2.5 percent at year-end 2019. - Tax reform lowered valuation discount on houses in calculation of net wealth tax. The authorities have taken several efficiency measures aimed at lowering construction costs and time, including simplified construction permit application process, tightened deadlines for public authorities to approve applications, a digital platform for submission and approval of construction applications. As a result, the supply of new housing in Oslo is now increasing considerably after lagging population growth for several years.
<p>Continue to make progress on establishing and implementing reciprocity agreements.</p> <ul style="list-style-type: none"> - In particular, reciprocity arrangements for the systemic risk buffer await EEA agreement on the adoption of the EU capital requirements legislation. 	<ul style="list-style-type: none"> - MoU are in place and the CRR/CRD-IV is expected to enter into law in the coming months through the EEA agreement.
<p>Take additional measures to limit banks’ wholesale funding.</p>	<p>Limited Progress.</p> <ul style="list-style-type: none"> - LCR regulation was introduced in Norway in 2015, and the phase-in period was completed by the end of 2017. The

Recommendation	Implementation Progress
<ul style="list-style-type: none"> - Consider whether, in addition to the implementation of the LCR and the NSFR, limits (either overall, or more bank-specific) should be placed on the proportion of short-term wholesale funding, in particular from abroad; and on the mismatch between the maturity of currency swaps (and other hedging techniques) and the maturity of the underlying exposures. - Running more severe stress tests, with a greater emphasis on adverse funding and liquidity scenarios, could help the authorities to identify the most effective measures here, and to avoid imposing too many simultaneous restrictions on banks' funding and liquidity structures. - Implement their proposal to increase transparency about asset encumbrance, continue close monitoring of banks' issuance of covered bonds, and consider the point at which such issuance should be limited, while also recognizing the benefits of covered bonds as a source of long-term funding. 	<p>regulation imposes LCR requirements for all currencies in total (of 100 percent), In addition, LCR requirements for significant currencies have been introduced. Banks and mortgage companies with EUR or USD as significant currencies must have LCR in NOK of at least 50 percent. In addition, a NSFR requirement is expected to be introduced in 2021 in accordance with EU regulations.</p> <ul style="list-style-type: none"> - Even though the NSFR requirement has not yet been introduced, the NSFR is implemented as a reporting requirement. All Norwegian banks had a NSFR ratio of at least 100 percent as of now. - Liquidity stress tests have been conducted by Norges Bank and the FSA.

Appendix II. Macprudential Policy Measures, 2010–19

Time	Descriptions
2010	<p>Guidelines on Mortgage Lending</p> <ul style="list-style-type: none"> - LTV limit on mortgages at 90 percent - LTV limit on home equity credit lines at 75 percent - Amortization required if LTV exceeds 70 percent. - 5 percent interest rate stress test
2011	<p>Guidelines on Mortgage Lending</p> <ul style="list-style-type: none"> - LTV limit mortgages lowered to 85 percent - LTV limit on home equity credit lines lowered to 70 percent
2013	<p>Systemic Risk Buffer (SRB): Introduced for the first time and set at 2 percent.</p>
2014	<p>SRB: Increased to 3 percent.</p> <p>Risk weight for IRB banks: LGD floor increased from 10 to 20 percent on mortgage exposure</p>
2015	<p>CCyB: Introduced for the first time and set at 1 percent</p> <p>Other systemically important banks buffer (OSII-B): Introduced for the first time and set at 1 percent</p> <p>Guidelines on mortgage lending changed to regulation</p> <ul style="list-style-type: none"> - LTV limit at 85 percent on mortgages - LTV limit at 70 percent on home equity credit lines - Amortization of 2.5 percent annually required if LTV exceeds 70 percent. - 5 percent interest rate stress test - Speed limit of 10 percent
2016	<p>CCyB: Increased to 1.5 percent</p> <p>OSII-B: Increased to 2 percent</p> <p>Liquidity coverage ratio (LCR) all currencies: Introduced and set at 100 percent</p>
2017	<p>CCyB: Increased to 2 percent</p> <p>Guidelines on Mortgage Lending changed to Regulation</p> <ul style="list-style-type: none"> - LTV limit on mortgages kept at 85 percent - LTV limit on equity credit lines lowered to 60 percent - Amortization of 2.5 percent annually required if LTV exceeds 60 percent (lowered from 70 percent). - DTI limit introduced and set at 5 times gross annual income

	<ul style="list-style-type: none"> - LTV limit on secondary homes in Oslo introduced at 60 percent - Speed limit lowered to 8 percent in Oslo and kept at 10 percent for other regions. <p>Guidelines on Consumer Credit</p> <ul style="list-style-type: none"> - DTI limit of 5 times gross annual income - 5 percent interest rate stress test - Amortization requirement of 5 years. <p>LCR Requirements</p> <ul style="list-style-type: none"> - For all currencies, increased to 80 percent - For significant currencies, introduced and set at 50 percent
2018	<p>Mortgage Regulations renewed with no changes.</p> <p>LCR Requirement: For all currencies, increased to 100 percent</p>
2019	<p>Guidelines on consumer credit changed to regulation.</p> <p>CCyB: Increased buffer to 2.5 percent</p>