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TECHNICAL NOTE ON MACROPRUDENTIAL POLICY FRAMEWORK

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May 28, 2024

TECHNICAL NOTE

MACROPRUDENTIAL POLICY FRAMEWORK

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 the Netherlands during November 2023. It was led by Ms. Naomi Griffin. This note 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

AIFMD	Alternative Investment Fund Managers Directive
AFM	*De Autoriteit Financiële Markten* (the Authority for the Financial Markets)
ATC	Advisory Technical Committee
BKR	*Bureau Krediet Registratie* (Credit Registration Bureau)
BTL	Buy to Let
CBS	Statistics Netherlands
CCoB	Capital Conservation Buffer
CCyB	Countercyclical Capital Buffer
CPB	Bureau for Economic Policy Analysis
CRD	Capital Requirements Directive
CRE	Commercial Real Estate
CRR	Capital Requirements Regulation
DNB	*De Nederlandsche Bank*
DTI	Debt to Income
DSTI	Debt Service to Income
EBA	European Banking Authority
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
FSAP	Financial Sector Assessment Program
FSC	Financial Stability Committee
FSR	Financial Stability Report
FSD	Financial Stability Division
FSR	Financial Stability Report
GDP	Gross Domestic Product
GFC	Global Financial Crisis
G-SII	Global Systemically Important Institution
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IO	Interest Only
IOL	Interest-only Loan
LCR	Liquidity Coverage Ratio
LLD	Loan-Level Data
LTI	Loan to Income
LTV	Loan to Value
MCM	Monetary and Capital Markets Department
MID	Mortgage Interest Deductibility
MiFIR	Markets in Financial Instruments Regulation

MoF	Ministry of Finance
MOIKR	*Ministerie van Binnenlandse Zaken en Koninkrijksrelaties* (Ministry of the Interior and Kingdom Relations)
NCA	National Competent Authority
NDA	National Designated Authority
NFC	Non-financial Corporations
NHG	*Nationale Hypotheek Garantie* (the National Mortgage Guarantee)
NIBUD	*Nationaal Instituut voor Budgetvoorlichting* (National Institute for Family Finance Information)
NPL	Non-performing Loan
NSFR	Net Stable Funding Ratio
NVB	*Nederlandse Vereniging van* Banken (Dutch Banking Association)
OECD	Organisation for Economic Co-operation and Development
O-SII	Other Systemically Important Institution
RRE	Residential Real Estate
SME	Small and Medium Enterprise
SRB	Systemic Risk Buffer
SSM	Single Supervisory Mechanism
WFT	*Wet op het Financieel Toezicht* (Financial Supervision Act)

EXECUTIVE SUMMARY[1]

Macroprudential policy in the Netherlands has centered on the residential real estate (RRE) market given the importance of this market for households, banks, and insurers. RRE represents nearly 50 percent of total household assets, and housing loans account for about 85 percent of total household liabilities, more than half of Dutch banks' domestic loan portfolio, and 15 percent of insurers' assets. Authorities have therefore actively used RRE-related macroprudential tools, such as banks' capital risk weighting of residential mortgage loans, limits on loan-to-value (LTV) and debt service-to-income (DSTI) ratios for mortgages, or mortgage interest deductibility from taxes (MID).

The current institutional arrangement is broadly in line with IMF guidance for effective macroprudential policy. The institutional settings of the *Autoriteit Financiële Markten* (AFM) and *De Nederlandsche Bank* (DNB) for macroprudential policymaking contain a clear mandate and well-defined objectives. DNB, the AFM, and the Ministry of Finance (MoF) work together to ensure the stability of the domestic financial system. The Financial Stability Committee (FSC) acts as a forum of discussion between these three agencies to identify risks and issue recommendations. DNB communicates about macroprudential developments and instruments mainly via its bi-annual Financial Stability Report (FSR). The national authorities have broadly adequate powers to collect information for macroprudential policy and to change the level and regulatory perimeter of macroprudential instruments. Finally, the institutional arrangement is conducive to effective cooperation and coordination with other institutions.

Surveillance and systemic risk assessment rely on comprehensive quantitative information and on various property market models and stress tests. DNB has a dedicated financial stability division and publishes a variety of indicators for systemic risk monitoring, including a set of early warning indicators in the annex of the bi-annual FSR, together with analyses in dedicated Bulletins, Occasional Studies, and FSR chapters. DNB also uses several regular and ad-hoc quantitative models for systemic risk assessment, including a top-down stress test model to assess the solvency risks for the banking sector, and quantitative models used in a more ad-hoc way, to quantify credit risks on banks' RRE and commercial real estate (CRE) loans portfolios; flood-related climate risks for banks; risks for the Dutch non-financial corporate (NFC) sector; and a liquidity risk tool for the banking sector, among others.

The authorities have made efforts to fill data gaps on CRE and NFCs and improved the monitoring of risks from interest-only loans (IOLs). DNB has closed the data gaps on CRE and NFCs identified by the 2017 FSAP, notably by developing a monitoring framework and by collecting granular information on bank CRE loans, and by developing a corporate monitor complemented by more granular information on banks' small and medium enterprises (SMEs) and corporate lending. The AFM also launched a multi-year supervisory program to monitor vulnerabilities from IOLs and inform banks and their customers on the risks from those loans.

[1] This Technical Note has been prepared by Romain Bouis (MCM) as part of the 2024 FSAP for the Netherlands. The author would like to thank the Dutch authorities for their engagement and open dialogue.

DNB has been actively using macroprudential tools to improve the resilience of the banking system. DNB has increased the capital conservation buffer (CCoB) four times since its implementation in June 2013, revised the countercyclical capital buffer (CCyB) framework during the pandemic, and raised the CCyB rate twice since May 2022 to bring it to 2 percent, its "neutral level". It has also introduced in January 2022 a floor for the risk weighting of Dutch residential mortgage loans.

The willingness to act and the ability to act over the calibration of the borrower-based tools are, however, considered to be weak. The calibration of the borrower-based tools (the limits on the DSTI and on the LTV ratios) are under the control of the MoF, with the aim of setting these limits to protect consumers and contribute to financial stability. Access to homeownership – though not an objective – is also taken into account in the calibration, interfering with the willingness to act of the MoF to squarely pursue the objective of financial stability. The MoF has indeed refrained in recent years from tightening the LTV limit as it considered that, amongst others, the current 100-percent LTV limit was mitigating the systemic risks of the housing market adequately and that any risk mitigation derived from a lower LTV limit was not proportional to the negative effect this would have on the accessibility of the Dutch housing market for first-time buyers.

New challenges to collect loan-level data have emerged and the monitoring of the drivers of housing prices can be improved. Since 2022Q2, the collection of mortgage granular loan-level data from the banks has been put on hold, as the Dutch banking association raised concerns that this collection may contain identifiable personal data. The legal basis to access granular information on those data which are essential for systemic risk monitoring needs to be clarified. In addition, DNB should develop more comprehensive empirical models to regularly monitor the drivers of housing prices (including non-credit factors).

Housing prices have increased significantly, posing risks to future financial stability. The household debt-to-income ratio has been declining since 2011. In contrast, house prices increased by 99 percent between mid-2013 and mid-2022, reflecting numerous factors such as a higher households' borrowing capacity; a growing number of transactions not backed by credit; fundamental factors including a dynamic economy and demography in a context of a limited housing supply; and persistent tax incentives for homeowners with generous borrowing standards. While higher housing prices reduced the average LTV ratio of existing loans, they also led a growing proportion of households to push borrowing limits in recent years, with higher debt to income (DTI) and loan to income (LTI) ratios at origination.

Borrower-based measures have been tightened since their introduction in 2013, but the LTV limit remains too high. Authorities are using a sophisticated DSTI system and have been actively and carefully calibrating the DSTI limits to address vulnerabilities that may arise over the business and financial cycles, and from policy changes. In contrast, the maximum LTV limit has remained at 100 percent since 2018 (after having decreased from 106 to 100 percent between 2013 and 2018). At this level, the LTV limit is inefficient in containing the procyclical effect of increased borrowing capacities during a booming market and it does not provide sufficient protection to borrowers in case of a price correction.

The MoF has progressively reduced MID since 2013, but the tax treatment of owner-occupied housing remains favorable. Since 2013, tax deductibility of interest payments has been restricted for new loans to annuity or linear mortgages that are fully repaid in at maximum 30 years while the maximum rate of the MID has been gradually decreased, from 52 percent in 2013 to 37 percent in 2023. The current rate, however, remains too high and contributes to excessive demand for RRE and further increase housing prices.

The authorities recently increased the differentiation of the transfer tax to improve the position of owner-occupiers relative to that of buy-to-let (BTL) investors, but the measure should be calibrated cautiously. The housing price boom has been associated with a rising share of transactions by BTL investors (often not backed by credit), in the context of a search for yield. The FSAP's analysis finds that an increase in the proportion of BTL investors' purchases is associated with a subsequent increase in the quarterly regional growth rate of housing prices. BTL investors can increase financial fragilities by raising housing prices and the instability of the housing market, as their activity is potentially more volatile than the one of owner-occupiers. The increase in the differentiation of the transfer tax by the MoF from 2021 (currently at 0 percent for young first-time homeowners, 2 percent for other main residents, and 10.4 percent for other acquirers) could therefore be part of the macroprudential toolkit, should BTL investors' activity gain systemic importance in the coming years. The tax should however be calibrated carefully in terms of size, timing, and perimeter to avoid an excessive drop in BTL investors' activity that could weigh on the supply of the private rental market.

Supply-side measures remain critical to limit house price pressures and improve access to homeownership. The government plans to build 100,000 houses per year and reach a total increase of almost 1 million by 2030. However, without alleviating the current zoning constraints, this plan is unlikely to be fully achieved. It also needs to be coordinated with policy measures aimed at reducing nitrogen depositions.

The FSAP recommendations aim to address observed gaps and further strengthen the Netherlands' macroprudential policy framework (Table 1).

Table 1. The Netherlands: Key Recommendations on Macroprudential Policy Framework

Recommendations	Responsible Authority	Timeframe[1]
Institutional Framework		
1. Elevate the FSC to a permanent advisory body and vest it with semi-hard powers, or vest DNB with hard powers over the calibration of the borrower-based tools. (¶17).	DNB, MoF	ST
Systemic Risk Monitoring		
2. Ensure that authorities have clear legal basis to access granular transaction/loan-level data on a regular basis for risk monitoring and analysis, including residential and commercial real estate loans (¶24).	AFM, DNB, MoF	I
3. Develop comprehensive empirical models to regularly monitor the drivers of housing prices (including non-credit factors) (¶24).	DNB	ST
Macroprudential Instruments		
4. Gradually reduce the maximum limit of the LTV ratio to 90 percent by one percentage point per year (¶61).	DNB, FSC, MoF	ST
5. Gradually remove the mortgage interest deductibility (¶61).	MoF	ST
6. Keep monitoring and addressing fragilities from IO mortgages, including by increasing incentives for borrowers to lower their exposure to these mortgages (¶61).	AFM, DNB, NIBUD, MoF	I
7. Integrate the differentiation of the transfer tax on housing transactions in the macroprudential toolkit, should buy-to-let investors' activity further increase, and in the meantime, carefully calibrate the transfer tax for buy-to-let investors in terms of size, timing, and perimeter (¶61).	MoF	ST
8. Continue to address a supply shortage of residential rental and owner-occupied housing by targeted measures, such as looser zoning regulations and liberalization of rental markets, and greater efficiency and speed in the building process, while ensuring coordination and consistency with the policy measures aimed at reducing nitrogen depositions (¶61).	MoF, MOIKR	MT

[1] I–immediate"; "ST–short-term" is one to three years; "MT–medium-term" is three to five years.

INTRODUCTION

1. Macroprudential policy in the Netherlands has focused on the RRE market given the importance of this market for households, banks, and insurers. Residential property and lands are the largest component in household balance sheets, representing nearly 50 percent of total household assets, and housing loans account for about 85 percent of total household liabilities. Dutch banks have a loan-dominant business model, and mortgages constitute more than half of their domestic loan portfolio. Insurers are also active in mortgage lending, accounting for 15 percent of their assets. Overall, real estate exposures represent more than a quarter of the combined balance sheet total of banks, insurers, and pension funds.

2. This Technical Note evaluates the macroprudential policy framework in the Netherlands with a focus on the RRE market. It assesses the domestic institutional arrangement, systemic risk monitoring framework, and macroprudential policy toolkit. It is built on the IMF (2013) background paper on "Key Aspects of Macroprudential Policies", on the "Staff Guidance Note on Macroprudential Policy (IMF, 2014a)", its background note ("Detailed Guidance on Instrument (IMF, 2014b)"), and numerous publications by *De Nederlandsche Bank* (DNB), the Ministry Finance (MoF), *De Autoriteit Financiële Markten* (AFM), the *Nationaal Instituut voor Budgetvoorlichting* (NIBUD), and the *Kadaster* (Land Registry Agency).

3. This note is structured as follows: Section II assesses the strengths and weaknesses of the institutional arrangements for macroprudential policymaking and provides recommendations on how to enhance them further. Section III discusses the existing systemic risk monitoring framework and provides options to strengthen it. Section IV discusses the use of macroprudential instruments in recent years, their ability to address vulnerabilities from the RRE market, their optimal calibration, and options to complete the macroprudential toolkit.

INSTITUTIONAL FRAMEWORK

4. International experience suggests that strong institutional arrangements for macroprudential policymaking are essential to ensure that macroprudential policy can work effectively. A strong institutional framework should ensure the willingness to act and counter the underlying policy inaction bias resulting from difficulties in quantifying the benefits of macroprudential action. The institutional arrangement also needs to foster the ability to act when surveillance points to a build-up of systemic risks. Finally, the framework needs to promote effective cooperation and coordination between institutions with a financial stability mandate. The 2017 FSAP Technical Note on Macroprudential Policy Framework (IMF, 2017) offered a full assessment of the institutional arrangement against these three key principles, set out in the Staff Guidance Note on Macroprudential Policy. This section summarizes the main features of the institutional framework for macroprudential policy in the Netherlands, as presented in detail in the 2017 FSAP. It discusses developments of the framework since the last FSAP, including progress achieved by the authorities to address the 2017 FSAP recommendations, and options to further improve the framework.

A. Willingness to Act

5. The institutional settings of the AFM and DNB for macroprudential policymaking contain a clear mandate and well-defined objectives. DNB, the AFM, and the MoF work together to ensure the stability of the domestic financial system. DNB has an explicit mandate for financial stability in addition to its responsibility for microprudential supervision under the amended Bank Act that became effective in January 2014. Also, since January 2014, the macroprudential policy role of the AFM is clarified in its mandate that its activities are conducted "also in the interest of financial stability". The MoF is politically responsible for the overall functioning of the financial system and for financial market regulation, making rules to ensure a stable financial system, including limits on LTV and DSTI ratios. Finally, the European Central Bank (ECB) can apply more stringent measures to the Dutch banking system, including higher capital buffers (the so-called "topping-up power"), while the European Systemic Risk Board (ESRB) can also issue recommendations on a "comply or explain" basis to member states.

6. The willingness to act of the MoF in relation to financial stability may however be hampered by the pursuit of objectives not related to the safeguard of financial stability. Limits on the DSTI and especially on the LTV ratio are used by the MoF as tools to protect consumers, and also to manage accessibility to homeownership and not exclusively to address risks to financial stability.[2,3] For example, following the FSC's recommendation in May 2015 and the 2017 FSAP recommendation to continue to gradually reduce the maximum LTV ratio after 2018 (from 100 to 90 percent), as well as DNB calls from the ESRB for a lower LTV limit since then (see, e.g., DNB's Financial Stability Report, fall 2019), the MoF has refrained from tightening the LTV ratio limit further, arguing that the current limit was adequately mitigating the systemic risks of the housing market and that "in the interest of ensuring accessibility of the residential real estate market for first time buyers, the Dutch government [had] no plans of lowering the legally binding loan-to-value (LTV) limit beyond 100%" (see ESRB, 2020).

7. Collaboration among agencies is facilitated by the FSC, which acts as a forum of discussion to identify risks and issue recommendations but is not responsible for the use of macroprudential tools. The FSC was established effective November 2, 2012, by means of a Ministerial Decree rather than in primary legislation, to expedite its creation. It is a forum in which

[2] The three objectives and their order of priority are not explicitly set out in law. The DSTI and LTV limits and the corresponding requirements are part of a ministerial decree, with bases contained in Art. 115 of *Besluit Gedragstoezicht financiële ondernemingen* (Decree on Conduct of Business Supervision of Financial Undertakings) under the Wft (Financial Supervision Act). This allows the minister to set the limits that credit providers must apply in their policies to prevent an overextension of credit to consumers. In turn, Art. 4:34 of the Wft imposes the responsibility on credit providers to prevent an overextension of credit to consumers. Finally, Art. 1:25 of Wft defines the conduct of business supervision by the AFM and its aims, as follows: "The conduct of business supervision is, also in the interest of financial stability, aimed at orderly and transparent financial market processes, fair relationships between market participants, and a careful treatment of clients". Overall, those legal texts highlight the need to ensure that consumers are not overburdened with credit, contributing to consumer protection but also to financial stability, while there is no direct reference to access to homeownership in the legislation for setting the limits on borrower-based measures.

[3] Contrary to the objective of access to homeownership, the objective of consumer protection is usually aligned with the one of financial stability, including in the short term.

DNB, the AFM, and the MoF meet to identify and discuss potential risks to financial stability and ways to mitigate them.[4] The FSC however does not take policy decisions, as the use of macroprudential instruments remains the responsibility of the relevant authorities: the instruments under the Capital Requirements Regulation II (CRR) and Capital Requirements Directive V (CRD) are assigned to DNB, and the limits on LTV and DSTI ratios, to the MoF. Finally, transparency is ensured through the publication of a summary of each meeting on the FSC website to make all warnings and recommendations public. The FSC is accountable to the Parliament via the MoF in discharging macroprudential functions and produces an annual report describing activities and recommendations of the year for the MoF, which sends a copy to the Parliament.

8. DNB is responsible for prudential policies for banks and non-banks. DNB is responsible for both microprudential policy (as the National Designated Authority, NDA) and for macroprudential policy (as the National Competent Authority, NCA) for the purpose of the CRR II and CRD V. It collaborates with the ECB under the Single Supervisory Mechanism (SSM), the ESRB, and the European Banking Authority (EBA), for the conduct of macroprudential policy for banks. For non-banks, DNB and the AFM conduct a joint risk assessment and collaborate with the ESRB, the European Insurance and Occupational Pensions Authority (EIOPA), and the European Securities and Markets Authority (ESMA).

9. DNB communicates about macroprudential developments and instruments mainly via the bi-annual Financial Stability Report (FSR). The FSC has not published any macroprudential policy strategy document, but the authorities occasionally publish strategy decisions in other documents. For example, DNB published a document on its financial stability task, describing macroprudential policy.[5] DNB also communicates about developments and instruments of macroprudential policy via the FSR, the annual presentation and discussion on financial stability concerns of DNB President with members of Parliament, and other ad hoc publications, such as its framework to set the Countercyclical Capital Buffer (CCyB) rate.[6] The AFM also publishes the *Rapportage Financiële Stabiliteit* (the Report on Financial Stability, in Dutch only) discussing current macrofinancial risks and macroprudential policy stance, while the CPB (*Centraal Planbureau*, the Bureau for Economic Policy Analysis) produces an annual financial stability report, per request from Parliament. To further improve DNB's communications, the 2017 FSAP recommended the central bank to "consider publishing a summary of its Governing Board meetings on macroprudential policy decisions, while excluding confidential information." This recommendation was not implemented because such summaries may contain confidential information, whereas DNB provides background on the reasoning and conditions of its decisions in its FSR.

[4] The FSC is composed of seven representatives: three from DNB, and two each from the MoF and the AFM, and is chaired by the President of DNB. The MoF does not have any voting rights to ensure some independence with respect to the financial stability mandate.

[5] *De financiële stabiliteitstaak van DNB*. De Nederlandsche Bank. February 2016.

[6] *Analytical framework for setting the Countercyclical Capital Buffer in the Netherlands*. De Nederlandsche Bank. March 2022.

B. Ability to Act

10. National authorities have broadly adequate powers to collect information for macroprudential policy purposes and to change the level and regulatory perimeter of macroprudential instruments. Being the central bank and the microprudential supervisor, DNB has direct access to information from regulated entities, and has additional legal powers to collect data from non-regulated entities (excluding households). DNB has been calibrating and publishing the countercyclical capital buffer rate for the Netherlands since 2016 and imposed a minimum risk weight on banks' mortgage portfolios effective January 2022. It has the power to designate individual financial institutions as systemically important and to require them to build additional capital buffers to address systemic risk. The MoF can recalibrate limits on LTV and DSTI ratios and adjust their perimeter in collaboration with the Ministry of the Interior and Kingdom Relations (MOIKR).

11. The FSC's legal status has been strengthened by establishing it in primary legislation. The FSC was initially established by means of a ministerial decree as opposed to primary legislation, limiting its effectiveness and credibility as a key part of the macroprudential framework, and being therefore partially compliant with recommendations concerning institutional design (ESRB (2014)). Following the 2017 FSAP recommendation, the Parliament approved a bill giving the FSC a legal basis after an amended legislative proposal was submitted to Parliament in early summer 2022. The FSC is now legally embedded in the Bank law 1998 (*Bankwet* 1998) as of July 1, 2023.[7]

12. The current institutional arrangements do not, however, provide sufficient powers to ensure the ability to act of the FSC over the calibration of macroprudential tools. The ability to act of the FSC over the calibration of macroprudential instruments can be weak in practice, in the absence of a "comply or explain" mechanism. In particular, the fact that the MoF is taking into account access to homeownership through accessible mortgages when managing borrower-based tools (the limits on LTV and DSTI ratios) can be a source of inaction bias detrimental to financial stability.[8] The ESRB (2019) and the 2017 FSAP therefore recommended authorities to "vest the FSC with a semi-hard 'comply or explain' mechanism over macroprudential instruments." The authorities explained that the power of the FSC to issue recommendations cannot however be complemented by an "act-or-explain" mechanism, because such a mechanism would result in the Government

[7] The explanatory Memorandum can be found here. In a communication of June 2023, the MoF announced the withdrawal of the old FSC arrangement.

[8] As noted by van't Hof (2017), "the Minister of Finance has *de jure* full discretion and autonomy" on setting the caps on the DSTI and LTV ratios, with some drawbacks. "Firstly, the interests of the Minister of Finance may be motivated politically and may be affected by a wish to avoid measures with short-term costs, but long-term benefits in the interest of financial stability. (…) Secondly, the lack of guidance for the discretionary powers of the Minister of Finance and the limited duties to explain decisions create a non-transparent process of adopting the caps, with considerable room for representatives of particular interests to influence the decision-making process."

being accountable to the FSC, rather than to Parliament, and this would be at odds with, and therefore would not fit within, the Dutch constitutional system.[9]

C. Effective Coordination and Cooperation

13. The FSC ensures coordination across the member agencies and information sharing is supported by an MoU. The FSC meets three times a year to discuss current financial stability risks, allowing for a regular exchange of views among the member agencies (DNB, the AFM, and the MoF) on financial stability risks and macroprudential policy, thus providing a formal coordination mechanism across the member agencies, which in theory helps to internalize trade-offs (e.g., financial stability versus economic growth, systemic risk mitigation versus consumer protection). This is supported by an MoU on information sharing regarding financial stability between DNB and the AFM and the MoF, respectively.

14. FSC's member agencies have recently strengthened their collaboration on non-bank issues. As the macroprudential policy framework gets extended beyond the banking sector, it is important that coordination between micro- and macroprudential policy, and between DNB and the AFM be further increased. Accordingly, during 2018 and 2019, DNB, the AFM, and the MoF closely cooperated in monitoring progress at financial institutions in preparing for the Brexit, with a focus on specific issues that could negatively impact the stability of the Dutch financial system. The results of this monitoring were regularly discussed in the FSC. Likewise, during 2022, DNB and the AFM jointly worked on an initial analysis of liquidity risks for pension funds, based on which, the FSC recommended DNB and the AFM to conduct a more detailed analysis and if required, take measures.

15. DNB and the AFM actively cooperate at the European level and beyond to enhance cross-border cooperation. The ESRB was established in 2010 to act as a forum for international collaboration on macroprudential policy, both in terms of analytics and policy choices. It may issue recommendations on specific policy measures to a specific EU member state or institution on a "comply-or-explain" basis to Member States, covering all segments in the financial systems (both banks and non-banks). DNB and the AFM discuss EU-wide macroprudential policy at the ESRB level in the General Board, Advisory Technical Committee (ATC), and technical working groups. DNB and the AFM actively share information with European bodies and participate in several working groups within the ESRB and the Financial Stability Board (FSB) to promote international cooperation. DNB also participates in the ECB's Financial Stability Committee, which provides a further forum to collaborate at the EU and SSM level. Finally, the risk assessment of the ESRB is partly based on input from DNB and the AFM, for example through a bottom-up survey and discussions with the ESRB and ECB staff.

[9] Such a mechanism would place a higher, in practice, binding, status on the recommendations by the FSC and would hereby introduce a new line of accountability for the Government vis-à-vis the FSC, which is clearly distinct from the quintessential constitutional accountability of the Government to Parliament for policies developed and choices made by Government itself.

16. Coordination at the European level has been improved, in particular with the ESRB taking care of information sharing between relevant parties in the context of the notification process. Several agencies are involved in the decision-making process of macroprudential policy actions in Europe, and the implementation process can be relatively lengthy. It can for instance take several months for adopting a draft national measure after national authorities' notification. The 2017 FSAP therefore recommended to "Work through membership of the ESRB, the EBA, and EU Commission and Council to streamline notification system at the European level to support timely macroprudential policy action while still allowing adequate consideration of cross-border issues." The notification process of macroprudential measures has been further streamlined since 2017, most notably with the ESRB taking the role of a hub-function on information sharing between relevant parties.

D. Recommendation

17. The current institutional arrangement is broadly in line with IMF guidance (IMF, 2014a) for effective macroprudential policy, and authorities have made progress since the last FSAP, but the main issue of the ability to act over the calibration of the borrower-based tools remains to be addressed. Specifically:

- **Recommendation 1:** The authorities should consider elevating the FSC to a permanent advisory body and vesting it with semi-hard powers, or vesting DNB with hard powers over the calibration of the borrower-based tools, with some guardrails for DNB to use these tools in a proportionate way.

The current institutional arrangement does not guarantee that the calibration of the LTV limit is in line with the pursuit of the financial stability objective. In particular, the consideration of the access to homeownership can interfere with the willingness to act of the MoF in favor of safeguarding financial stability.[10] The authorities should ensure that the borrower-based measures, especially the LTV limit, are calibrated to prioritize the pursuit of the financial stability objective in practice.[11] To this aim, the 2017 FSAP recommended to "vest the FSC with a semi-hard "comply or explain" mechanism over macroprudential instruments", but this would not be in line with the Dutch constitutional system (¶12). One option would be to first elevate the FSC to a permanent advisory body, and then vest the FSC with semi-hard powers over macroprudential tools. Another option would be to transfer hard powers over the calibration of the LTV and DSTI limits from the MoF to DNB, which has a clearer mandate to act in favor of financial stability (for consistency issues, both the DSTI and the LTV limits should be under the control of the same authority).[12] In addition, being

[10] A tightening of the LTV limit, and more generally of borrower-based measures, can constrain some households to access property in the short term. However, this tightening can also limit housing price growth in the longer term, with a positive net effect for homeownership.

[11] The MoF should focus on other policies, including fiscal, to pursue its objective of access to homeownership.

[12] This option was chosen by the United Kingdom (UK) in the mid-2010s. Similar to the situation of the Netherlands, borrower-based measures in the country used to be under the control of His Majesty's Treasury (HMT), while the Financial Policy Committee (FPC) at the Bank of England (BOE), which is the macroprudential authority since April

(continued)

the central bank, DNB has a greater legitimacy to manage credit-related tools. Hard powers over the calibration of borrower-based tools should, however, be associated with some guardrails to ensure that these powers are used in a proportionate way and limit excessive negative side effects from a tightening of the tools (for example, the LTV limit should not be tightened too fast – e.g., by no more than one percentage point a year, as suggested by the 2015 FSC recommendation). In this respect, DNB could use cost-benefit analyses to inform its choice between policy options and guide its optimal calibration of the borrower-based measures. These cost-benefit analyses could be published for transparency.

SYSTEMIC RISK MONITORING

A. Assessment

18. While the Dutch financial system is generally healthy, some pockets of vulnerabilities deserve close monitoring.[13] These include:

- **Banks**. The banking sector appears resilient to adverse macrofinancial shocks, but some vulnerabilities exist. A solvency stress test on significant institutions reveals that the sector would remain sufficiently capitalized even if all the main risk factors materialize simultaneously. However, some banks might need additional resources to maintain a comfortable buffer position after consecutive years of weak earnings and upcoming increase in the countercyclical capital buffer. Liquidity buffers appear generally sufficient, though close monitoring of banks' ability to handle sudden and severe runoffs in foreign currencies would be useful. The sensitivity analysis incorporating potential deposit outflows and solvency-liquidity interactions generates additional losses that require banks to further draw down their capital buffers.

- **Insurance**. The Dutch insurance sector, particularly the property and casualty and health insurers, appear broadly resilient to the macrofinancial shocks, while vulnerabilities exist for some life insurers in an environment of further rising interest rates. Liquidity risks from margin calls appear largely contained.

- **Pension funds**. Pension funds benefit from further rising interest rates, on top of their already-strong funding ratios. A bottom-up analysis shows that pension funds are resilient to liquidity risks from margin calls, even when access to the repo market is restricted. Repo markets remain important sources of liquidity, especially for the largest pension funds, so a close monitoring of market conditions and liquidity risk management practices remains crucial.

2013, can make recommendations to other bodies (for example, to the BOE and HMT) but without any "comply or explain" basis. In 2015, the UK Government decided to transfer hard powers over the calibration of the borrower-based measures from HMT to the FPC, which already had powers over capital requirements for banks, among other tools.

[13] See Technical Note "Systemic Risk Analysis" for details.

- **Households.** Under a severe stress test scenario, the probability of default of mortgages would in general increase only moderately. However, lower-income households (with monthly income in the first quartile) and younger borrowers (under 35) with a mortgage service-to-income ratio above the NIBUD DSTI limit would see their proportion increasing the most. Likewise, the proportion of households with high joint LTV and DTI ratios would almost triple (although from a low level).

- **Corporate**. The adverse scenario results in a marked increase in the proportion of firms facing debt repayment difficulties or higher borrowing needs.

19. DNB has a dedicated division and uses a variety of indicators and models for systemic risk monitoring. Systemic risk analyses and macroprudential policy discussions are ensured by the Financial Stability Division (FSD), which comprises two departments: the Macroprudential Analysis and Policy (MAB) Department and the International Financial Architecture (IFA) Department, which are both staffed adequately. MAB is responsible for the semi-annual DNB FSR, conducts real estate market analyses, stress testing, and is responsible for the coordination of the Dutch Financial Stability Committee. IFA coordinates DNB's contributions in international fora, such as the IMF, but also provides input into regulatory discussions and has a strong focus on non-bank financial intermediation. DNB monitors various indicators for both the structural (concentration risk and system relevance and interconnectedness) and the temporal dimensions (credit growth, leverage, real estate market, and bank liquidity) of systemic risk, on top of international risks,[14] which are published and discussed as a set of early warning indicators ("macroprudential indicators") in the annex of the bi-annual FSR, together with analyses in dedicated Bulletins, Occasional Studies, and FSR chapters. It has also developed a Financial Stress Index (FSI) which is a Netherlands-specific application of the ECB systemic stress indicator. DNB uses several regular and ad-hoc quantitative models for systemic risk assessment, including a top-down stress test model to assess the solvency risks for the banking sector (with output regularly published in the FSR), and quantitative models used in a more ad-hoc way, including: (i) a Real Estate Vulnerability Assessment model to quantify credit risks on banks' RRE and CRE loans portfolios; (ii) a climate stress test model to quantify flood-related climate risks for banks;[15] (iii) a firm-level stress test tool to quantify the risks for the Dutch NFC sector;[16] and (iv) a liquidity risk tool for the banking sector. Recently, DNB has published a study investigating the interconnectedness in the Dutch interest rate swap market (see DNB, 2021). Other tools currently under development include a stress test tool for insurers and a tool to assess systemic risks from a structural perspective with an "interconnectedness" tool to map financial system exposure linkages across several financial institutions (banks, pension funds, insurers, and investment funds) and asset types (loans, derivatives, securities, and money market instruments).

[14] As outlined in its financial stability task document.

[15] See DNB's Autumn 2021 FSR and Caloia and Jansen (2021).

[16] See March 2022 DNB Report (in Dutch only), *De Invloed van het Corona Steun-en Herstelpakket op het Nederlandse Bedrijfsleven* (The Influence of the Corona Support and Recovery Package on the Dutch Business Community).

20. The authorities have made significant progress in addressing the data gaps for systemic risk analysis identified in the 2017 FSAP. The 2017 FSAP recommended to "enhance data collection and continue to allocate sufficient resources for CRE market and corporate sector analyses" given existing data gaps for systemic risk monitoring. Regarding CRE, DNB has closed the data gaps by developing a monitoring framework at a quarterly frequency and by collecting granular information on bank CRE loans.[17] DNB collects information of CRE market developments (transaction price and valuations, supply and demand, vacancy rates, investments), exposures of banks and non-banks, credit risk of bank CRE loans (LTV, IFRS stage allocations, NPLs), financial market developments (Real Estate Investment Trusts) and information available from investors' survey. Accordingly, the Netherlands was graded as "fully compliant" (see June 2021 Summary Compliance Report) with respect to its compliance with the ESRB recommendation on closing real estate data gaps (ESRB/2019/3). Regarding the broader corporate sector, DNB has developed a corporate monitor (largely based on supervisory and publicly available data) distributed internally at DNB at a quarterly frequency. The monitoring framework is now being complemented by more granular information on banks' SME and corporate lending coming from Anacredit. DNB also performed an ad-hoc firm-level data analysis to assess risks in the corporate sector.[18]

21. The AFM launched a multi-year supervisory program to monitor vulnerabilities from IOLs. In 2016, the AFM brought the issue of IOLs to the attention of mortgage providers and has since then launched a campaign to monitor vulnerabilities from IOLs, encouraging mortgage providers to develop an approach for potentially vulnerable customers with an IOL. Since the roll-out of the AFM approach in 2019, mortgage providers have contacted 1.68 million customers with an IOL or a part of IOL. A total of 370,000 customers have been tested whether they would still be able to afford the IOL in the future. The AFM also conducted in 2021 a detailed analysis of the vulnerabilities from maturing IOLs, with results published in the *Rapport over financiële kwetsbaarheid huishoudens met aflossingsvrije hypotheek*.[19]

22. The AFM, DNB, and the MoF have worked to make more use of the Credit Registration Office (*Bureau Krediet Registratie*, BKR) but the information available from the office is minimal. The BKR was established in 1965 to share information about the overall debt burden carried by borrowers. Following the amendment on the Bank Act, DNB can ask the BKR to provide information to link the mortgage loan level data with other types of household loan data. The 2017 FSAP therefore encouraged authorities to make more use of BKR information. However, BKR is a private institute which is only allowed to share (micro) data with suppliers of information (banks, insurers…) and only for the purposes of checking excess credit. The MoF has therefore decided to make the registration of credit a statutory task. The task will then be assigned to the BKR, which will remain a private institute but will formally become a "legal person with statutory task"

[17] This includes detailed information on the instrument, contract, protection and the rental contract associated to each real estate property (more details on DNB Commercial Real Estate webpage).

[18] See March 2022 DNB Report."*De Invloed van het Corona Steun-en Herstelpakket op het Nederlandse Bedrijfsleven*" (previously cited),

[19] See further details in the Household Sector Analysis section of the Technical Note "Systemic Risk Analysis."

(*rechtspersoon met wettelijk taak*, or RWT). This allows more influence from the MoF over the functioning of the credit registration, including the ability to stipulate which institutions can access the data. Accordingly, a consultation (closed in August 2023) for this new system of credit registration took place. According to the new law, which is scheduled for approval in 2025, AFM can on request receive data on an aggregated level. The data will also include, if the law is approved without modification, positive registrations (information on all outstanding loans of an individual, such as personal loans, consumer credit, credit card debt, etc.). However, mortgages will be excluded from the positive registration. Also, conditions of credit (e.g., the interest rate) are not registered.

23. DNB faces new challenges to collect granular information on loans collateralized by residential and commercial real estate. DNB started in 2012 the collection of the loan level data (LLD), which covers about 80 percent of all loans of Dutch households, and more than 90 percent of those issued by Dutch banks to residents.[20, 21] This LLD is used by DNB for risk monitoring and to conduct analyses on financial stability risks from household debt and CRE, as for instance published in the FSR. Since 2022Q2, the collection of mortgage granular loan-level data from the banks has however been put on hold, as the Dutch banking association, the *Nederlandse Vereniging van Banken* (NVB) raised concerns that the data collection for the LLD may contain identifiable personal data.[22] To resume the collection, DNB needs to assess to what extent the data collection contains identifiable personal data. It has been in discussions with the banking sector and the Dutch Privacy Authority and is working with the MoF to resolve this issue.[23] In addition, DNB has asked the MoF to clarify the legal basis for the collection of granular data. Talks on the required legal clarifications are currently ongoing between DNB and the MoF. The required amendments also depend on the outcome of the privacy discussion. Once more clarity on the privacy issue and the legislative amendments – including a time path – are available, DNB plans to discuss with the banks, at which point loan-level data collection on mortgages can be resumed. It might however take at least two years for DNB to resume collecting the LLD, given the length of the legislative process.

24. DNB has analyzed the effect of borrowing capacity on housing prices, but does not have a comprehensive model to quantify the impact of the various drivers of housing prices. Housing prices almost doubled from 2013 to 2022 (see next section) while the level of house prices has financial stability implications in the country given the importance of IOLs and the need of refinancing possibly at higher interest rates and lower income levels. DNB has contributed to a 2020

[20] This initiative is based on the Residential Mortgage-Backed Security (RMBS) template used by the European Central Bank (ECB), within the framework of their 100-percent transparency policy on securitized loans, available through the European Data Warehouse (EDW). Although the EDW version of the data only contains securitized loans, that is a minor fraction of low-risk loans, the LLD instead includes the back-books of banks, with their entire stock of loans (de Haan and Mastrogiacomo, 2020).

[21] DNB also collects mortgage loan-level data from non-banks, especially from insurers, pension funds, and investment funds, similar to banks' loan-level data. This data collection is currently taking place on a biannual basis, and covers 80 to 90 percent of non-bank mortgage loans.

[22] The access and continuous collection of mortgage loan-level data from non-banks are potentially subject to the same issues as for the LLD.

[23] One option would consist in using clustered and /or anonymized data with a level of granularity that allows the monitoring of macroeconomic risks.

BIS study on property price dynamics and its drivers[24] and has recently published an analysis on the role of borrowing capacity for house price developments (Eijsink and van Dijk, 2022) as well as a Bulletin on the effect of market liquidity on property prices in commercial real estate markets.[25] Yet, authorities do not have a regular tool to monitor overvaluation risks in the property market or a model to quantify the various drivers of housing prices which would allow a more targeted approach of macroprudential policy, for instance by focusing on the source of unsustainable house price pressures. Several factors, other than credit, may have contributed to the housing price boom of the last decade (see next section) but a systematic analysis of those factors is lacking. While information on non-credit transactions has been collected in the past, DNB has not actively collected and systematically used this information, as it considered its mandate is to monitor housing market developments to the extent that they provide useful and forward-looking information on the riskiness of the mortgage market. Yet, higher housing prices due to non-credit funded transactions (see Section D of Macroprudential Instruments) can still have indirect consequences for the riskiness of mortgages.

B. Recommendations

- **Recommendation 2: Ensure that authorities have clear legal basis to access granular transaction/loan-level data on a regular basis for risk monitoring and analysis, including residential and commercial real estate loans**. The loan-level data is critical for DNB to monitor developments of the Dutch mortgage market based on granular information, and conduct stress test analysis (see Technical Note "Systemic Risk Analysis").

- **Recommendation 3: DNB should develop comprehensive empirical models to regularly monitor the drivers of housing prices.** The empirical models should consider all possible drivers of housing prices, including non-credit factors, and make use of the various levels of aggregation of data (microeconomic, regional, and macroeconomic) available. Having a clear understanding of the drivers of house prices and a quantification of the contributions of these will allow a better targeting of macroprudential policy, given the importance of housing price developments for financial stability in the Netherlands.

MACROPRUDENTIAL INSTRUMENTS

25. Macroprudential instruments in the Netherlands include tools under the European Union Capital Requirements Regulation (CRR) II and Capital Requirements Directive (CRD) V, tools under the Alternative Investment Fund Managers Directive (AIFMD), and borrower-based tools under the national law. Several instruments are available to DNB and the government for macroprudential purposes, including the countercyclical capital buffer (CCyB) and property market-related tools, which include the LTV and DSTI limits. Since 2013, there has been active use of

[24] "Property Price Dynamics: Domestic and International Drivers." Report prepared by a Study Group chaired by Paul Hilbers (Netherlands Bank). Committee on the Global Financial System Papers No. 64. February 2020.

[25] "The Impact of the Pandemic on the Commercial Real Estate Market." DNB Bulletin. April 2021.

these instruments, some having been further refined in successive rounds of implementation to encourage greater financial prudence among households and ensure sound lending standards.

26. This section is organized as follows. It first presents the macroprudential tools under the CRR II and CRD V, the tools under the AIFMD, and the tools under the national law. It then examines recent developments in property markets and household debt, before discussing the effectiveness of the current macroprudential toolkit in containing financial stability risks from the real estate sector. The last section presents macroprudential policy recommendations.

A. Tools Under the CRR II and CRD V

27. The CRR II and CRD V offer the ECB and DNB a range of capital-related and liquidity measures for the banking sector and some investment firms. There are five different capital buffers (Table 2): the Capital Conservation Buffer (CCoB) intended to absorb losses in times of stress; the Countercyclical Capital Buffer (CCyB) which provides resilience against cyclical risks and can be released when cyclical risks materialize (see Box 1); the Globally/Other Systemically Important Institutions (G-SII/OSII) buffers which are capital surcharges for global (G-SII) or domestic (O-SII) systemically important banks to address additional risks mainly stemming from the size of some large banks; and the Systemic Risk Buffer (SRB), a buffer that can be activated in case a residual systemic risk is identified. The CRR II and CRD V also contain a limit on the leverage ratio (LR), risk-weights and loss given default for RRE and CRE exposures, and national flexibility measures (e.g., risk weights to target bubbles in real estate markets).[26] Liquidity measures include the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).

28. DNB has been actively using macroprudential tools to improve the resilience of the banking system, including recently in view of cyclical macro-financial developments. The CCoB has been increased four times since its implementation in June 2013 to reach 2.5 percent on January 1st, 2019 (the ECB and DNB however allowed banks under their direct supervision to operate temporarily below this level in response to the COVID-19 crisis). The LR is set at 3 percent, as announced on May 14, 2019 (effective June 28, 2021), while global SIIs have to satisfy an LR surcharge equal to 50 percent of the global SII buffer rate since January 1st, 2023 (the measure, initially planned for January 1st, 2022, was delayed due to the COVID-19 crisis). Authorities revised the CCyB framework during the pandemic (Box 1) and raised the rate from 0 percent (the level since the introduction in 2016) to 1 percent on May 25, 2022 (effective one year later) and again from 1 to 2 percent on May 31, 2023, bringing the CCyB to a level considered as its target in a standard risk environment (the "positive neutral rate").[27] In contrast, the SRB imposed on three systemically important banks (ING Bank, Rabobank, and ABN AMRO Bank) at 3 percent from 2019 (phased in between 2016 and 2019 in equal steps) has been abolished. Also, the O-SII rate, introduced in April 2014, has been cut on May 31, 2023 (to come into force May 31, 2024), by 0.25 to 0.75 percentage points, depending on the institutions, to reflect the lower structural systemic risk that large banks

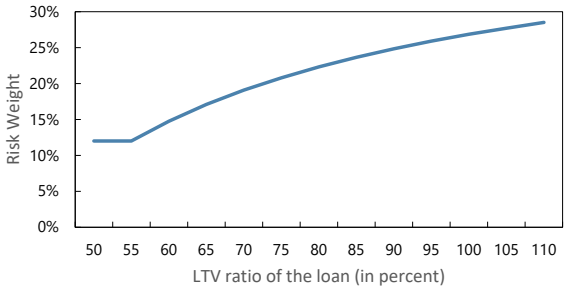
[26] Art 133 paragraph 5 letter b (i) of CRD also gives the possibility to the designated authority to impose sectoral systemic risk buffers to residential mortgages.

[27] See "DNB raises countercyclical capital buffer (CCyB) from 1.0% to 2.0%."

pose to the domestic economy, as the size of the banking sector has shrunk in past years while banking regulation and European integration (including the development of the European banking union) have made significant progress since 2016.[28] Finally, authorities introduced liquidity tools, setting the LCR requirement immediately at 100 percent effective October 1, 2015 (while the Basel time frame implied a phased-in increase to 100 percent as from January 1, 2018) and a NSFR of at least 100 percent as announced May 20, 2019, and effective June 28, 2021, in line with the Basel NSFR standard implemented in the EU via the CRR II.

29. DNB also introduced on January 1, 2022, a floor for the risk weighting of Dutch residential mortgage loans under Article 458 of the CRR. Following the strong increase in housing prices from 2013, LTV ratios of mortgage portfolios, and subsequently, risk weights applied by banks using internal risk models, declined. In response, DNB consulted in 2019 a measure under Article 458 of the CRR to introduce a minimum floor for risk weights calculated for mortgages under the Internal Ratings Based (IRB) method. The measure was put on hold because of the uncertainty about the economic outlook and financial positions of banks during the Covid-19 crisis but was again announced in summer 2021, and took effect on January 1, 2022. In October 2022, DNB announced to extend the measure until December 1, 2024. The minimum risk weight is calculated as the sum of a 12-percent risk weight for the relative part of the mortgage with an LTV up to 55 percent plus a 45 percent risk weight for the remaining part of the loan. Therefore, the lower bound increases steadily with the LTV ratio (Text figure). Mortgages covered by the national mortgage guarantee, the NHG (see Box 2), are exempted from the measure.

The Netherlands: Minimum Risk Weight on Residential Mortgages



Source: DNB.

30. There are no other measures among the flexibility measures of Article 458 of the CRR that DNB has used or is considering using in the near future. Besides minimum risk weights for targeting asset bubbles in the residential property sector, the flexibility package under CRR Article 458 includes macroprudential instruments available for DNB and the ECB to address potential systemic and macroprudential risks at the member state level. These tools are however not currently active as the authorities consider that corporate exposures do not pose systemic concerns at this

[28] On December 29, 2020, DNB modified the composition of the systemic buffer to better align them to the reviewed CRD V. The CRD V amends the rules for the macroprudential buffers, such as the O-SII buffer and the SRB. Before, only the highest of these two buffers counted for a bank. The CRD V, however, makes these buffers additive. In light of this, DNB announced in its FSR of Autumn 2020 that it intended to abolish the SRB and to amend the O-SII buffer so that the capital requirements remain constant.

moment. Nevertheless, DNB closely monitors potential vulnerabilities regarding banks' exposures to corporate sector and will consider using such tools if systemic risks materialize.[29]

B. Tools Under the AIFMD

31. DNB and the AFM can also use two macroprudential instruments available under the AIFMD. Article 25(3) of the AIFMD provides DNB an ex-ante tool to prevent the build-up of systemic risks associated with leverage by allowing the central bank to "impose limits to the level of leverage that Alternative Investment Fund Managers (AIFM) are entitled to employ or other restrictions on the management of the Alternative Investment Fund (AIF) with respect to the AIFs under its management to limit the extent to which the use of leverage contributes to the buildup of systemic risk in the financial system or risks of disorderly markets." Article 46 of the AIFMD gives the AFM the ability to "require the suspension of the issue, repurchase or redemption of units in the interest of the unit-holders or of the public". This ex-post macroprudential tool, which is the only one available to the AFM so far, has never been used, and the AFM is not planning to introduce macroprudential tools in the near future if these are not part of the EU law.[30, 31] Depending on the outcome of the negotiations on the new AIFMD/UCITS proposals, authorities may however be granted more powers to activate other liquidity management tools (LMTs) beyond suspension, but so far, there is no development on the introduction of new macroprudential tools in EU law. DNB has never used the leverage cap instrument so far. Authorities have been monitoring Dutch real estate funds' leverage and redemption terms and concluded that despite the depressed outlook of the real estate sector, risks from those funds related to excessive leverage or to liquidity mismatches are limited in the current juncture (FSR, Autumn 2023).[32]

32. The authorities are actively contributing to the international discussion on the development of a macroprudential framework for investment funds. They have set out their thinking in an AFM position paper (AFM, 2022) and contributed to the European effort on the development of a macroprudential framework for funds in the ESRB. The AFM chairs the policy task force (PTF) of the ESRB expert group on non-bank financial intermediation (NBEG). The Dutch authorities recently contributed to an ESRB 'issues note' on addressing risks and vulnerabilities related to investment funds investing in assets which are either inherently illiquid or might become

[29] DNB has developed a comprehensive corporate monitoring framework at a quarterly frequency, including a variety of indicators on macro-financial economic development, financial system exposures, risk characteristics of corporate loans and resilience of the financial sector.

[30] The Markets in Financial Instruments Regulation (MiFIR) actually offers a third (ex-ante) tool for ESMA or the NCA "to temporarily restrict or prohibit the marketing, distribution, or sale of financial products if this poses a threat to the stability of the whole or part of the financial system" (AFM, 2022).

[31] There are currently no macroprudential instruments imposed on pension funds and investment funds to contain the risks connected to redemptions and possible liquidity mismatches. Following the recommendation by the FSC, an assessment on the risks connected to the activity of pension and investment funds (as well as on the need of any policy or supervisory measure) has been completed. Dutch authorities endorse the recommendations of the Financial Stability Board and the ESRB to develop such instruments.

[32] See also the FSAP Technical Note on Securities Market Oversight.

illiquid in times of stress, notably in corporate debt and real estate. This note was discussed at the ESRB General Board meeting of June 2023.[33]

Table 2. The Netherlands: Macroprudential Measures

Measure	Legal basis	Agency in charge of implementation	Perimeter	Date of implementation	Last change
Macroprudential tools under CRR II and CRD V					
Countercyclical capital buffer (CCyB)	Wft	DNB, ECB	All banks and some investment firms	January 2016	May 31, 2023 (2)
Capital conservation buffer (CCoB)	Wft	DNB, ECB	All banks	January 2013	January 1, 2019
Limit on leverage ratio (LR)	Article 92 CRR	DNB, ECB	All banks & Dutch G-SIB	May 2019	January 1, 2023
Global-Systemically Important Institution buffer (G-SII)	Wft	DNB, ECB	ING Bank	January 2016	December 1, 2022
Other-Systemically Important Institution buffer (O-SII)	Wft	DNB, ECB	ABN AMRO, ING Bank, Rabobank, BNG Bank, and Volksbank	January 2016	May 31, 2023 (2)
Systemic risk buffer (SRB)	Wft	DNB, ECB	Abolished since December 2020	January 2014	December 2020
Risk weight for RRE and CRE exposures	Article 124.2 of the CRR	DNB, ECB	All banks and some investment firms	January 2014	-
Loss given default for RRE and CRE exposures	Article 164.5 of the CRR	DNB, ECB	All banks and some investment firms	January 2014	-
Flexibility measures	Article 458 of the CRR	DNB, ECB	Banks using IRB models to calibrate risk weights for their Dutch mortgage exposures	January 2014	January 2022
Liquidity Coverage Ratio (LCR)	Article 460 of the CRR	DNB, ECB	All banks and some investment firms	October 2015	October 2015
Net Stable Funding Ratio (NSFR)		DNB, ECB	All banks and some investment firms	January 2018	June 2021
Macroprudential tools under AIFMD					
Leverage limit on AIFM	Art. 25 of AIFMD	DNB	Investment firms	July 2011	-
Suspension of redemption and subscription	Art. 46 of AIFMD	AFM	Investment firms	July 2011	-
Macroprudential tools under national law					
Limits on LTV ratios	Wft	MoF	All mortgage providers	January 2013	January 2018
Limits on DSTI ratios	Wft	MoF	All mortgage providers	January 2013	January 2024
Mortgage tax deductibility	Wib(3)	MoF	Amortized mortgages within 30 years	January 2013	January 2023

Sources: DNB and IMF staff.
(1) Wft stands for *Wet op het financieel toezicht* (Act on financial supervision)
(2) Effective one year later.
(3) Wib stands for *Wet inkomstenbelasting* (Income tax law).

[33] See The General Board of the European Systemic Risk Board held its 50th regular meeting on 22 June 2023. ESRB press release.

Box 1. The Revised CCyB Framework

The Netherlands introduced a CCyB in 2016, initially set at zero. On March 2022, DNB published a revised CCyB framework implementing a 2 percent neutral rate and providing details on how the central bank plans to calibrate the CCyB over the financial cycle.

The revised framework introduced a positive neutral CCyB and clarified the identification of the cyclical systemic risk phases to guide the calibration of the CCyB.

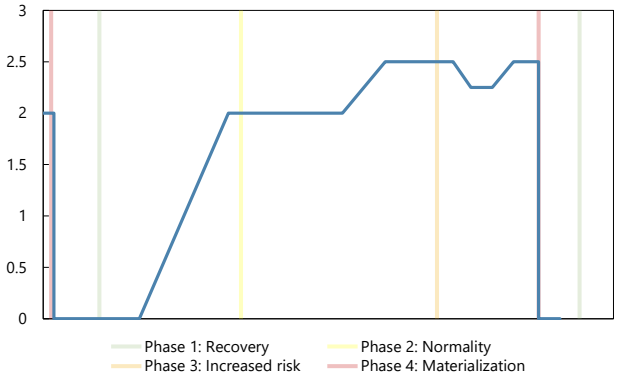
Following the COVID-19 crisis, the Netherlands revised its CCyB framework (DNB, 2022a) to implement a 2-percent CCyB in a standard risk environment, defined as a situation in which cyclical systemic risks are neither particularly high nor particularly low.[1] The phases of cyclical systemic risk are identified based on some key indicators (Table 1 of DNB, 2022a) of the macroeconomic environment, the state of financial and non-financial sectors, and the financial markets, providing an assessment of the overall risk profile used to set the buffer rate each quarter. These key indicators are based on prescribed Directives, ESRB Recommendations, empirical and other literature, specificities of the Dutch economy and financial sector and experiences of other macroprudential authorities, with the credit-to-GDP gap remaining an important part of the framework (in line with the Basel requirements).

The CCyB is calibrated by distinguishing four different phases of systemic risk.

DNB distinguishes four different phases associated with the degree of systemic risk:

- Phase 1 (recovery) follows a crisis and is characterized by a period of taking losses and subsequent recovery of balance sheets. The CCyB has been (fully or partly) released in this phase and can remain at 0 percent for as long as necessary to not impede the recovery.
- Phase 2 (normality) sees a recovery in the balance sheets. The CCyB is built up to (at a pace of 1 percentage point per year) or has already reached the neutral level of 2 percent.
- Phase 3 (increased risk) experiences excessive developments in lending or asset prices and rising systemic risk. In response, the CCyB is raised above the neutral level, but not higher than 2.5 percent, if at least one dimension poses high cyclical risk. A CCyB above 2.5 percent will however be considered if multiple dimensions pose high or very high cyclical risk.
- Phase 4 (materialization) sees a materialization of risk, causing a substantial downside shock. The CCyB is fully or partly released.

Illustrative Use of the Revised CCyB Framework (in percent)



Source: DNB.

DNB raised the CCyB rate from 0 to 1 percent in May 2022, and from 1 to 2 percent in May 2023 (both binding one year later).

This revised framework is in line with IMF recommendations (Miettinen and Nier, forthcoming). The recent increase to the "positive neutral rate" is also consistent with the recommendation that capital buffers should be built while risks are increasing, even as monetary policy and financial conditions get tighter, as long as banks' profitability remains high.

[1] The pandemic highlighted the value of a positive neutral CCyB rate, while most countries set CCyB buffer at zero before the crisis, possibly because the emphasis was on protecting the banking sector against periods of excessive credit growth, as experienced during the GFC and measured by the credit-to-GDP gap. This indicator cannot, however, capture all the dimensions of cyclical risks.

C. Tools Under National Law

33. Limits on LTV and DSTI ratios for mortgages were introduced in 2013 and are implemented by the MoF by ministerial decree. Caps on DSTI and LTV ratios were embedded in law in January 2013 based upon Article 4:34 Wft (*Wet op het financieel toezicht*).[34, 35] They apply to a comprehensive set of credit providers and loans, limiting risks of regulatory arbitrage.[36] The MoF is responsible for setting caps on DSTI and LTV ratios by means of a ministerial decree, while the two supervisors, DNB as prudential supervisor and the AFM as conduct of business supervisor, have a role in formal consultation and their participation in the FSC, which can issue recommendations about these caps, but without binding powers. For setting the DSTI ratios, the MoF uses input from an independent organization (without any required commitment), the National Institute for Budget Education (NIBUD).[37] NIBUD develops every year a table with the maximum allowed DSTI ratios, taking a microprudential perspective primarily based on the available income for individual households.[38, 39] The calculation is based on actual mortgage interest rates and redemptions for a 30-year annuity mortgage. The norms are stricter for clients that opt for a (partially) IO mortgage and therefore do not qualify for mortgage interest tax deductibility. DSTI limits are increasing with the income level but also with the interest rate paid, as mortgages with higher interest rates are less likely to experience a sharp increase in the interest rate after the termination of the fixed-rate period and are therefore less risky (Figure 1). In addition, mortgage providers must also apply a stressed

[34] Before 2013, DSTI and LTV limits (applying to a smaller perimeter of mortgages) were set in the code of conduct of mortgage providers, as opposed to in law.

[35] Although there are no official LTI limits in the Netherlands, maximum LTI ratios can be derived from the maximum allowed DSTI ratios, as an annuity is always assumed.

[36] First, these caps apply to mortgages supplied by both banks and non-banks. Second, all types of loans are considered by the mortgage lender when assessing the actual LTV and DSTI ratios of the borrower, reducing room for circumvention (for example by substituting consumer credit for mortgage credit), thanks to the presence of an operational credit registry. For loans above a certain threshold, the lender has the obligation to check the credit registry and submit information to it. Part of the information must however be provided by the borrower, as student loans, mortgage credit, and debt resulting from arrears on energy payments or rent are not recorded in the credit registry. Third, although there are exceptions to the DSTI and LTV caps and the risk of creative compliance cannot be excluded, the rules are relatively strict to minimize this risk.

[37] The major stakeholders in the legal process are the AFM, DNB, NVB (Dutch Banking Association), VEH (Home Owners Association) and BZK (Interior and Kingdom Relations) and all are pre-consulted by NIBUD. NIBUD also pre-consults on new developments, like how to handle the sharp inflation spike in 2022. DNB and the AFM have responded that there is a major concern of over-indebtedness. As a result, NIBUD took measures, for example taking into account the most recent costs of living, leading to lower DSTI limits. Next step in this legal process is that the MoF organizes an Internet consultation. DNB and the AFM publish their opinions on the consulted plan to alter the gross DSTI. Last year, the AFM and DNB emphasized that the affordability stress test must be based on a higher budget-level than social minimum. The final step in this legal process is that the MoF makes a decision and publishes the Temporary Regulation on Mortgage Credit (Trhk, *Tijdelijke regeling hypothecair krediet*).

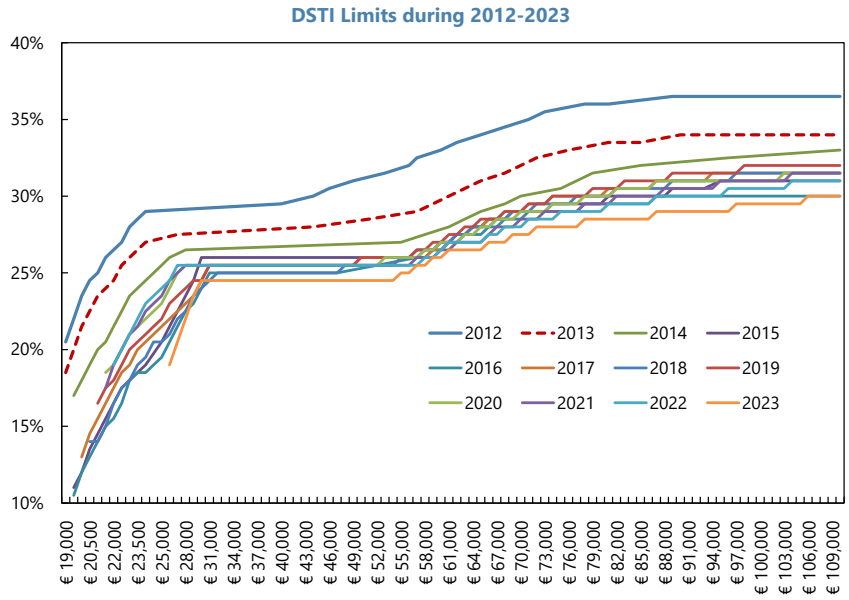
[38] The maximum allowed DSTI ratios are calculated by taking into account the actual expenditures of Dutch households, as measured by a continuous budget survey of the Dutch statistical agency, and the required minimum livelihood expenses. See NIBUD (2023) for additional details on the methodology for the computation of maximum allowed DSTI ratios.

[39] According to the "NIBUD" norm, the share of income at the time of origination that can be used for mortgage payments is capped based on the income of the borrower(s), the household composition, the pension status and interest rates.

DSTI ratio for mortgages that have interest rates fixed for a period shorter than 10 years, using a stressed interest rate (set at a minimum 5 percent since its introduction) determined and published by the AFM, rather than the actual interest rate. This affordability norm applies to both new loans and refinancings of existing loans and there is no age limit. As a conduct supervisor, the AFM supervises the application of affordability norms.

Figure 1. The Netherlands: Evolution of the DSTI Limits

The DSTI limits have been tightened since 2013 across the different income levels.



Note: This figure shows the maximum percent of gross income that can be spent on mortgage payments for various levels of income at an interest rate comprised between 4 and 4.5 percent.

Source: NIBUD.

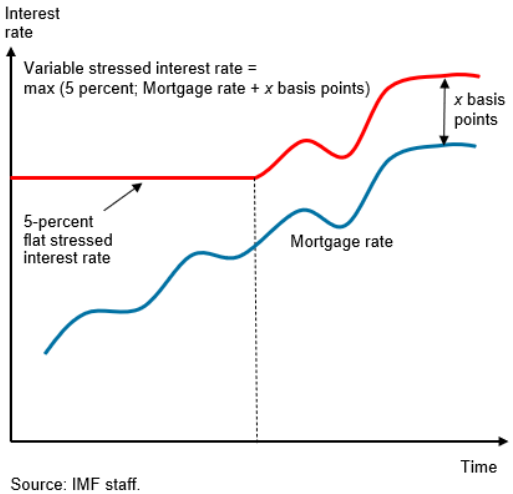
34. The LTV limit was tightened between 2013 and 2018 to reach 100 percent but remains too high. The LTV limit was initially set at 106 percent and was expected to be reduced by 1 percentage point each year starting January 2013 to reach 100 percent in 2018. In 2015, the FSC issued a recommendation to continue tightening the limit by one percentage point every year after 2018 to reach 90 percent. Likewise, DNB has called for a lower LTV-limit (e.g., in its FSR of fall 2019) while the 2017 FSAP recommended to "continue gradually reducing maximum limits on LTV ratio to no more than 90 percent after 2018 (…)." The MoF has refrained from further tightening the limit, on the grounds that the systemic risks of the housing market are adequately mitigated and that any further risk mitigation derived from a lower LTV limit was not proportional to the negative effect this would have on the accessibility of the Dutch housing market for first-time buyers.

35. The DSTI system contains a procyclical element, but the authorities are actively managing the DSTI limits over the cycle and have decided not to revise the approach for setting these limits. In the NIBUD system, the maximum DSTI ratio increases with disposable income, contributing to procyclicality of the housing market, as positive income shocks are associated with a relaxed financing constraint. The 2017 FSAP recommended "to introduce

prudential ceilings beyond which the DSTI caps by income cannot be relaxed across the credit cycle" and in 2019 the Dutch government asked NIBUD to reflect on this advice. NIBUD concluded in its 2020 report[40] that it would easily be feasible to impose maximum DSTI limits on high incomes. However, as the DSTI limits result in maximum gross mortgage expenditures, these limits would be very sensitive to tax adjustments. An alternative would be to introduce a cap on the net mortgage expenditures of 50 percent of disposable income. NIBUD estimated that the impact on the maximum mortgage loan of this measure would however be limited, since high income borrowers hardly ever use their full borrowing capacity. Therefore, the government decided not to introduce such a cap. Instead, changes in the DSTI limits are averaged out over four years since 2017. Although this averaging addresses the procyclicality issue only partially, it should be noted that despite strong growth of household disposable income observed in the years before the Covid-19 pandemic, DSTI limits have been tightened over time and remain well below the 40-percent maximum limit suggested by the literature (Figure 1). This progressive tightening suggests that authorities have been actively and carefully calibrating the DSTI limits to address vulnerabilities that may arise over the business and financial cycles, but also from policy changes, such as fiscal measures.[41]

36. The stressed interest rate of the DSTI system has been fixed since its introduction in 2013 and has not been revised despite the recent increase in interest rates. The minimum key interest rate applied in the affordability test (that is to loans with interest rates fixed for less than 10 years) was calibrated in 2013 by averaging the 10-year fixed interest rate quoted by the six largest mortgage providers, which was approximately 5 percent at this time. Since then, the MoF, in charge of setting this minimum key interest rate, has never adjusted the rate. The calibration of the stressed interest rate could be rule-based, as for instance in Canada or Estonia, where the stressed interest rate is defined as the maximum between a flat rate and the current mortgage rate augmented by a certain margin. The rule applied to the Netherlands could then define the stressed interest rate as the maximum between 5 percent (the flat rate imposed in the last decade, including when rates were low) and the current mortgage rate augmented by a given margin (Text Figure). The authorities however note that increasing the stressed interest rate in times of historically high mortgage rates would deter several borrowers from using flexible-rate mortgages, as credit conditions for those loans would become much tighter. Many households would instead have to opt for a fixed-rate

The Netherlands: DSTI Stressed Interest Rate Rule



Source: IMF staff.

[40] *Rapport Financieringslastnormen 2020*. NIBUD, October 2019.

[41] The tightening reflects, among other things, the negative effect on households' budget of the gradual reduction of the MID rate since 2013, the imposition of extra financial buffers from 2017 to address possible unexpected income shocks, and the effect of high inflation on budget constraint in the wake of the COVID-19 crisis.

mortgage, thereby not benefitting from a lower debt service burden as mortgage rates decrease in the future. The proportion of households opting for a mortgage rate fixed for less than 10 years has anyway been small in recent years so that the affordability test applies to a small share of borrowers.

37. The MoF has progressively reduced MID since 2013, but the tax treatment of owner-occupied housing remains favorable. Since 2013, tax deductibility of interest payments has been restricted for new loans to annuity or linear mortgages that are fully repaid in at maximum 30 years, to reduce incentives for interest-only loans and households' debt buildup. Also, the maximum rate of the MID has been gradually decreased, from 52 percent in 2013 to 36.93 percent in 2023. Despite this reform, the current rate remains too high, and the tax treatment of owner-occupied housing remains favorable compared to other forms of investment. The 2017 FSAP therefore recommended to "reduce the ultimate tax deductibility rate to a tax neutral level." [42]The authorities do not plan to further cut the MID rate, though they presented a long-term vision on the tax treatment of owner-occupied dwellings in February 2024,[43] recognizing that the tax treatment – and thereby a "neutral level" – is the result of not only the tax rates, but also of the definition of the tax base of income from owner-occupied dwellings and income on investments in housing. In this long-term vision, the coherence of the tax treatment of owner-occupied dwellings will be presented in a broader context of the Dutch tax system and the housing market. Tax neutrality is part of this long-term vision. On top of enjoying tax deductibility on interest payments, homeowners also face a lower taxation on their total wealth since the equity built up in their own home remains largely untaxed, unlike tenants, whose entire assets are taxed in Box 3.[44]

38. DNB does not plan to introduce macroprudential tools to address physical and transition risks from climate change so far but is currently working on climate-related risk assessment. A differentiation of maximum DSTI limits based on energy labels will enter into effect in 2024. It is expected that: (i) borrowers can take up higher debt amounts when purchasing higher-energy label properties, relatively to equivalent borrowers; and ii) borrowers can take up higher debt amounts when investments are made to increase the energy efficiency (and label) of the purchased property.[45] Besides these measures related to climate change, there is currently no plan by authorities to introduce a macroprudential tool (for either banks or non-banks) to address financial

[42] Other institutions, like the OECD (see 2021 OECD Country Survey of the Netherlands) and the European Commission also called for phasing out the MID.

[43] "Belastingen in Maatschappelijk Perspectief: Bouwstenen voor een Beter en Eenvoudiger Belastingstelsel." MoF. February 2024.

[44] Personal income is classified into "Boxes" and taxed at different rates depending on the source of earnings. Income from salaries, self-employment, and equity is taxed in Box 1 at progressive rates up to a maximum of 49.5 percent in 2021. Imputed rental income from owned primary residences is calculated based on the market value of the property as assessed by municipal authorities, and is also taxed in this Box 1. Labor and capital income from closely held companies is taxed in Box 2 at a flat rate of 26.9 percent. Capital income is taxed in Box 3, at a flat rate of 31 percent applied to an estimated income from net assets rather than on actual realized dividends and interest.

[45] Note that the differentiation of DSTI limits based on the energy label cannot be considered as a macroprudential measure to address risks from climate change. If the measure was introduced with a macroprudential objective, authorities should impose tighter DSTI limits on loans financing the purchase of lower energy-efficient houses, rather than loosening DSTI limits for loans financing the purchase of more energy-efficient houses.

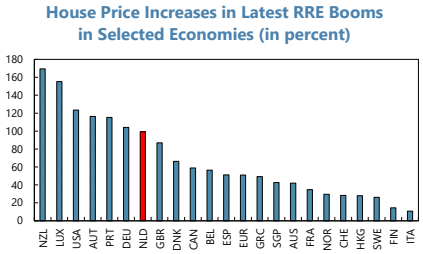
stability risks from physical or transition risks from climate change. DNB is however investing significant resources and capacity to develop and step-up its climate-related risk assessment to first map out and quantify the exposures to and the size of the main climate-related risks, before considering the activation of any macroprudential tool.[46]

D. Developments of the Property Market and of Household Debt

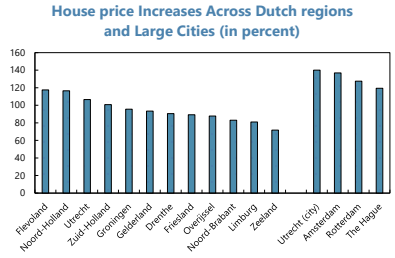
39. Residential real estate prices almost doubled from 2013 to 2022, despite the introduction and tightening of macroprudential measures. House prices increased by 99 percent from their latest trough of June 2013 to their peak of July 2022, almost twice as much as the average housing price boom experienced in the euro area (Figure 2, LHS). The housing boom followed a decline in prices in the wake of the Global Financial Crisis (GFC, 2008Q4-2013Q2), and has been heterogeneous across regions, partly reflecting the fact that large cities recorded the largest increases (Figure 2, RHS). Price-to-rent and price-to-income ratios are high by international standards and have hit historical highs, suggesting possible overvaluation.[47]

Figure 2. The Netherlands: RRE Prices and Valuation Metrics

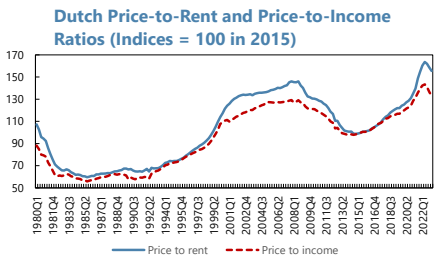
The Dutch housing price boom has been almost twice as large as the average boom of the euro area in the wake of the GFC.



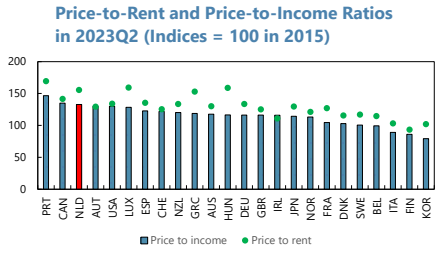
The boom has been heterogenous across regions as large cities experienced the strongest pressures.



Dutch RRE valuation metrics have adjusted downward in recent months, but remain higher than in the run-up to the GFC…



…and are among the most stretched worldwide.



Note: The first two figures show the increases in residential real estate prices from their latest trough to their latest peak values (or most recent available data, for ongoing booms). Price-to-rent and price-to-income ratios for the Netherlands and New Zealand are for 2023Q1.

[46] See also the Technical Note on Climate Risk Oversight and the Technical Note on Climate Risk Stress Testing.

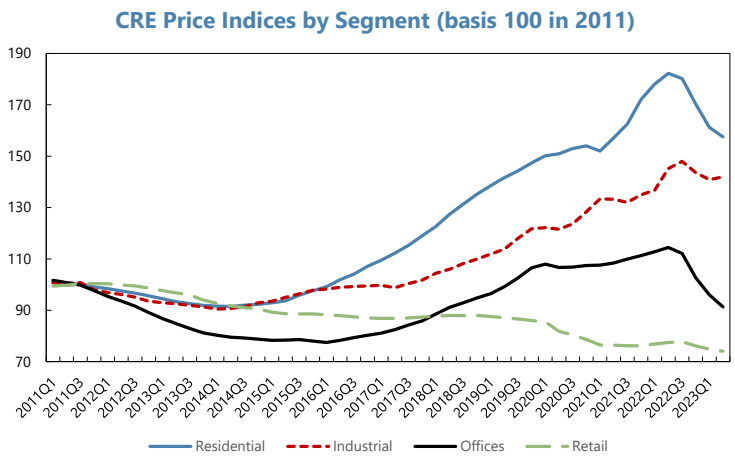
[47] Authorities do not have an empirical model to assess the valuation of housing but the European Systemic Risk Board's risk dashboard (ESRB) points to some overvaluation of Dutch housing prices, ranging from about 10 to more than 20 percent as of 2023Q2, depending on the approach.

Sources: BIS, CBS, OECD, and IMF staff calculations.

40. The CRE market also experienced a boom and prices started to decrease, but without any major financial stability concerns so far. CRE prices doubled between their low of mid-2014 and their peak of mid-2022, with a large heterogeneity across segments (Figure 3). The retail segment has experienced a depressed demand due to structural changes, further exacerbated during the COVID-19 crisis; offices have been impacted by home working, while the industrial segment has in contrast benefited from the rise of online shopping (requiring more warehouses). Since mid-2022, pressures however appeared for all segments, on the back of higher financing costs. The authorities see limited financial risks for banks as these latter significantly reduced their exposure to CRE in the past years, now representing 7 percent of total bank assets. For pension funds and insurers, CRE represents 7 and 8 percent of their assets, possibly exposing them to more vulnerabilities. These latter invest to a large extent in CRE through investment funds. DNB however consider that risks due to liquidity mismatches or to excessive leverage are limited among Dutch real estate investment funds (see, DNB, 2023).[48]

Figure 3. The Netherlands: Price Indices Across Property Markets

The boom in CRE prices has been mostly limited to the residential and industrial segments.



Source: MSCI.

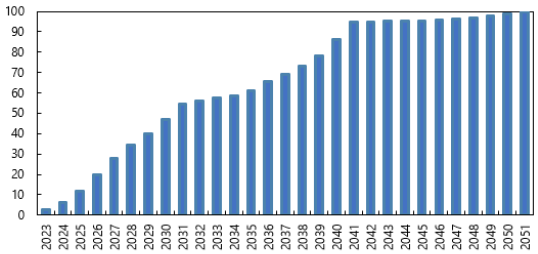
41. Despite a sharp increase in housing prices, household debt has significantly declined as a share of income. Household debt to disposable income has declined from of peak of 256.7 percent in 2011Q3, to 179.1 percent in 2023Q2. This deleveraging stands in sharp contrast with the housing price boom (Text Figure) and reflects several factors. On the numerator side of the debt ratio, the nominal stock of debt initially decreased in absolute terms (2011-2015). This active deleveraging (represented by negative-value red bars on Figure 4) possibly reflected a credit tightening in the wake of the GFC and the introduction of borrower-based tools, and importantly higher voluntary debt repayments due to: (i) a lower proportion of IOLs from 2011, forcing more households to repay debt during the life of their loan, and (ii) tax-exempted gifts received by some

[48] See also the Technical Note on Systemic Risk Analysis for a commercial real estate price at risk analysis, and the Technical Note on Securities Market Oversight on the liquidity risks to real estate investment funds.

borrowers for house down payments or mortgage repayments.[49] From 2016, the stock of debt however increased again and the deleveraging has been driven by a denominator effect (passive deleveraging, shown by negative-value blue bars on Figure 4), on the back of high nominal disposable income growth, especially in the most recent years given higher inflation. As of 2023Q2, the cumulative change in the level of debt since 2011Q1, contributed to increasing the debt-to-income ratio by 21.3 percentage points, the cumulative change of disposable income contributed to decreasing the ratio by 99.0 percent points, thereby implying a total deleveraging of 77.7 percentage points of disposable income.

42. Three quarters of mortgage debt has rates which are fixed for the next 5 years. Less than 3 percent of Dutch mortgages have interest rates which are flexible in 2023 and 25 percent within the next 5 years (Text Figure). On average, households that took out a mortgage at the beginning of 2022 opted for a certain degree of security: the average fixed-rate period on new mortgages was more than 15 years in the first quarter of 2022.[50] As suggested by results from the household stress test analysis (see Technical Note "Systemic Risk Analysis"), the mortgage risk from higher interest rates is relatively limited for the next three years.

Cumulative proportion of mortgage debt with expiring fixed-interest period
(in percent of total mortgages)



Source: DNB.

43. The share of IOLs declined in the past decade thanks to the introduction of several measures, but it remains high, while large refinancing pressures will appear around 2036. 44 percent of total Dutch mortgage debt has an interest-only component as of 2022Q1 (an IOL is often combined with an amortizing part), down from almost 59 percent in 2014Q1 (Figure 5, left-hand side panel). Early repayment, refinancing, and conversion into amortizing loans contributed to the decline, while several measures have discouraged the use of IOLs. First, since 2011, the IOL part of a

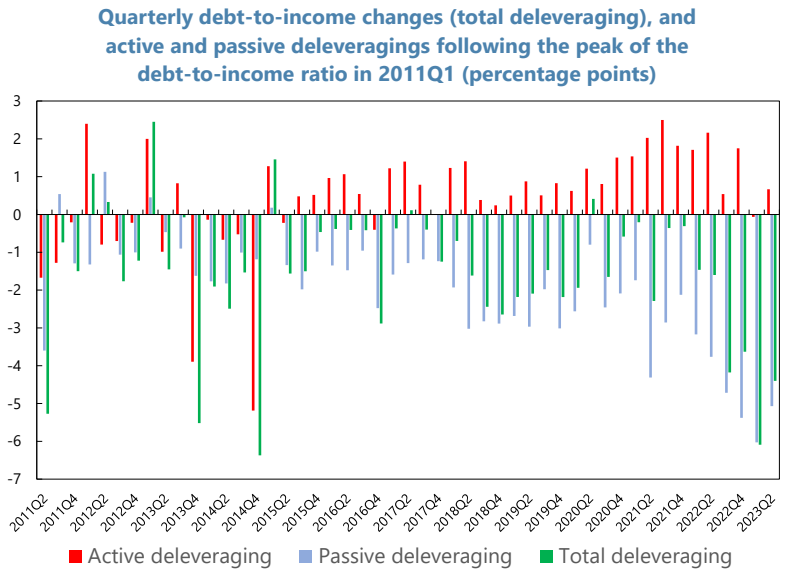
[49] To encourage debt reduction, the government introduced tax-free donation amounts for private housing purposes in 2013. In 2017, the gift tax-exempt amount for gifts for owner-occupied homes was increased from 53,000 euros to 100,000 euros. People between 18 and 40 years old could receive this amount, free of gift taxes, once (per donor), possibly spread over three years, for example for the (partial) repayment of the mortgage, the purchase of a home or a renovation. The gift tax-exempt amount had been lowered from 100,000 euros to 28,947 euros in 2023 and will be discontinued in 2024 (the law entered into force on January 1, 2023), as the measure has been criticized on several grounds. On top of increasing inequalities, it is estimated to have contributed to only a very marginal reduction of total mortgage debt (Vermeulen et al., 2021). Recipients who already owned a house reduced their mortgage debt to a limited extent compared to comparable households who did not receive a gift. First-time buyers with a donation used the money to borrow less than what they could with their income, but they also bought a more expensive home than first-time buyers without a donation, possibly contributing to price pressures. Li and Mastrogiacomo (2022) find that the first and second introduction of the new policy resulted in, respectively, a 14-percent and 7-percent increase in the probability of making a prepayment. However, the effect was larger for borrowers with relatively low original LTV ratios. Most transfers were made from wealthy parents to housing-rich children. The new policy was therefore effective in increasing prepayments, but it was not targeted enough to reduce the share of underwater mortgages.

[50] However, as interest rates went up, the number of households who have a fixed interest rate for a new mortgage for longer than 10 years has also fallen from 60 percent in June 2022 to 29 percent in February 2023.

mortgage loan has been capped at origination to 50 percent of the value of the dwelling according to the Dutch Code of Conduct for Mortgage Loans.[51]

Figure 4. The Netherlands: Active and Passive Deleveraging

Household deleveraging has initially been driven by a contraction of the level of debt (active deleveraging), and later, by strong nominal disposable income growth (passive deleveraging).



Note: This figure shows the quarterly changes of the household debt ratio, decomposed into active and passive deleveraging since the peak of the ratio in 2011Q1. The change of the debt-to-income ratio can be decomposed according to:

$$\Delta\left(\frac{Debt}{Y^d}\right)_t = \frac{\Delta Debt_t}{Y_t^d} - \frac{\Delta Y_t^d}{Y_{t-1}^d} \times \frac{Debt_{t-1}}{Y_t^d},$$

where the first term on the right-hand side represents the numerator effect or "active deleveraging" and the second term on the right-hand side, the denominator effect or "passive deleveraging" (see Bouis, 2021).

Sources: DNB, CBS, and IMF staff calculations.

44. Second, since 2013, tax deductibility for new lending is restricted to loans that are at least amortized according to 30-year annuity, thereby excluding IOLs and reducing their attractiveness. Third, the NHG, a guarantee provided by a government-backed foundation for loans under 435,000 euros (see Box 2) is restricted to amortizing loans. Fourth, over the past years, the AFM has been encouraging mortgage providers during a multi-year supervisory program to develop an approach for potentially vulnerable customers with an IO mortgage or part IO mortgage and inform customers on the risks related to these loans. Still, about 2.78 million households (out of about 3.82 million households with mortgage debt) have either a partial IO mortgage or a 100-percent IO mortgage. Importantly, 29 percent of the stock of IO debt matures between 2034-2039. The AFM (2021) analyzed the risks related to the refinancing risks of these maturing loans, and concluded that these risks were relatively limited, although 18,000 households might be left with

[51] Exceptions are possible if (1) a consumer refinances and continues to reside in the same dwelling, (2) capital is pledged as security or (3) the costs of the loan are substantially lower (60 percent) than the maximum debt-to-income ratio. DNB is in favor of abolishing/restricting the first and third exceptions.

some residual debt in the basic scenario (44,000 in case of higher interest rates or housing market crisis, and 147,000 households – that is about 5 percent of households with an IOLs – in case of very deep and protracted crisis). This analysis however does not consider the simultaneous risks of higher interest rates and lower housing prices (see the Household Sector Analysis section of the Technical Note "Systemic Risk Analysis").

Box 2. Institutional Features of the Dutch Mortgage Market

The Dutch mortgage market is characterized by structural vulnerabilities but benefits from institutional guardrails, guaranteeing a very low default rate.

A national guarantee for mortgages applies to a quarter of the total mortgage market …

A substantial part of mortgages is originated under a Dutch-specific guarantee scheme, the *Nationale Hypotheek Garantie* (NHG), which is a public voluntary insurance scheme providing insurance against residual debt after foreclosure. Consumers may opt-in for the NHG at loan origination, but also during the duration for house improvements. NHG is limited to housing prices (including legal costs and costs for getting the mortgage) below 435,000 euros and offers mortgage providers and consumers security (the amount guaranteed under the NHG decreases over time based on an annuity scheme). If due to life events (unemployment, disability, death of a partner, or divorce) the consumer is unable to pay the mortgage installments and the house is to be sold at a loss, NHG takes over 90 percent of the residual debt and compensates the mortgage provider if compliant to its rules. A default is not strictly needed for the insurance to be activated. Those selling a property with an underwater mortgage can apply for reimbursement of residual debt. The NHG will then reimburse the bank and become the sole creditor of the mortgage owner. End-2021, the NHG scheme guaranteed approximately 196 billion euros of mortgage debt, about 25 percent of the total mortgage market, and 67 percent of the 405.000 home-pricing class. Because the mortgage provider has no credit risk, it offers a 0.2 to 0.3 percentage points lower interest rate to borrowers. The NHG is provided by a government-backed foundation, the Homeownership Guarantee Fund (*Waarborgfonds Eigen Woningen*, WEW), so that DNB considers the NHG as a government guarantee.

… while full recourse on borrowers' income and assets reduces incentives to default…

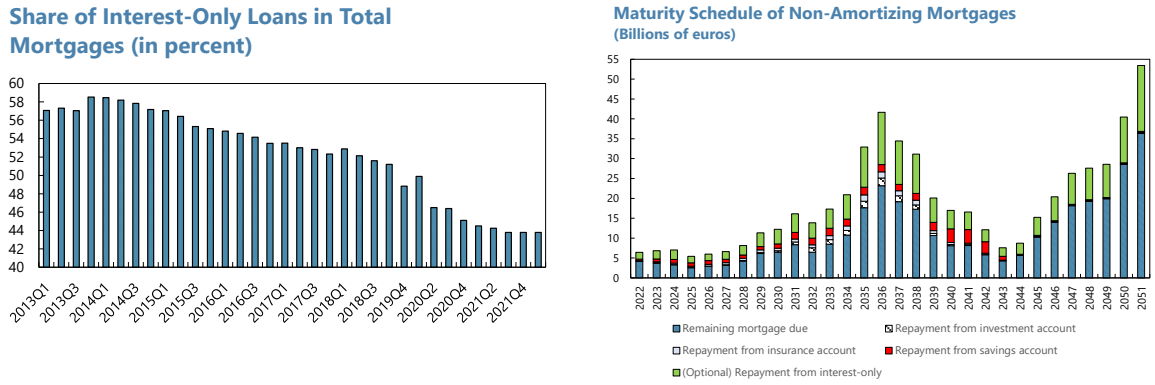
The Netherlands has one of the strongest recourse-laws and practices in the world. Dutch private law indeed gives mortgage providers an automatic right of recourse to borrowers-income and right to sell the house when arrears occur. No judge is needed to sell the house: mortgage providers can repossess and sell properties by public auction without a court order, and in a short time frame (redemption period of two months). The mortgage amount due (plus financial costs) can be claimed from the fire sale revenue (minus selling costs) by the mortgage provider. All remaining debt must also be paid off by the consumer. As a result, the Dutch citizens are determined to pay their mortgage payments, while a generous pension system and a developed social safety net in case people fall into financial problems, reduce vulnerabilities for debt repayments.

… contributing to very low arrears and foreclosures.

Annual losses on Dutch residential mortgages have not exceeded 0.2 percent since 1970, among the lowest internationally, despite the high households' mortgage debt-to-income ratio. At the height of the financial crisis, 34 percent of all owner-occupied households had their mortgage underwater, but without causing any material extra defaults or arrears. At the lowest point of the financial crisis, 2.5 percent of households with an owner-occupied home were in arrears on their mortgage payments, and this fell quickly afterwards. However, the relatively high loan-to-value ratios for Dutch residential mortgages make the residual debt risk and the potential loss given default large.

Figure 5. The Netherlands: Share of IOLs and IOLs Refinancing Pressures

The share of IOLs significantly decreased in the past decade, but a large amount of IO mortgages will mature around 2036.



Source: DNB based on loan-level data.

Note: The information on the first three quarters of 2019 is missing for the left-hand side figure.

45. Several factors contributed to the 2013-2022 housing price boom, including non-credit factors. More specifically, at least four categories of factors can be distinguished:

- **A higher borrowing capacity.** DNB (Eijsink and van Dijk, 2022) stresses the role of higher borrowing capacity in driving the housing price boom of 2013-2022, reflecting lower interest rates and higher income growth. Mortgage interest rates indeed fell by about 2 percentage points (from 3.7 percent to 1.7 percent) while Dutch households' average nominal income increased by more than 30 percent from June 2013 to June 2022, boosting borrowing capacity (Figure 6, left panel), despite the tightening of the DSTI limits;[52]

- **A rising proportion of transactions not backed by credit, including by BTL investors.** Lower interest rates certainly played a major role in the housing price boom, but not exclusively by boosting borrowing capacity. Some studies also point to a rising proportion of transactions not backed by credit: house sales without an accompanying mortgage more than doubled from 8 percent in 2008 to nearly 17 percent in 2017, according to Land Registry figures (Nijskens and Lohuis, 2019). Among those transactions, a significant portion comes from BTL investors which may have reallocated their funds in favor of real estate to the detriment of bonds, given the very

[52] Borrowing capacity is defined as the maximum mortgage loan a household with an average gross income can obtain given the level of mortgage interest rates, according to NIBUD standards (two other methods considered by the authors assume that households will spend a fixed portion of their net income on housing costs). DNB analysis finds that a 3.5-percent increase in borrowing capacity is associated with a 3.9-percent rise in house prices after around 20 quarters. Supply-side variables like the housing stock and new housing production are however not significant in explaining house prices in the model, while the model may also suffer from endogeneity issues.

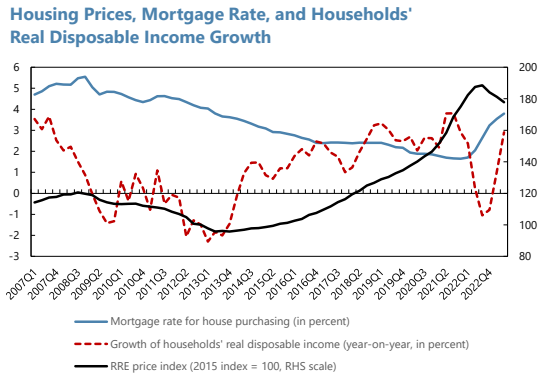
low interest rate environment in the wake of the GFC and a search for yield, in line with the financialization of housing (IMF, 2018);[53]

- **Fundamental factors including a dynamic economy and demography in the context of a limited housing supply.** The housing boom also corresponds to a period of dynamic economic growth with a high growth of jobs and job-related income, in particular in large cities, and an increased number of households relative to a sluggish supply (Figure 6, right panel), adding pressures in the context of a structural housing shortage (according to the MOIKR, demand exceeded supply by 279,000 houses in mid-2021);[54]

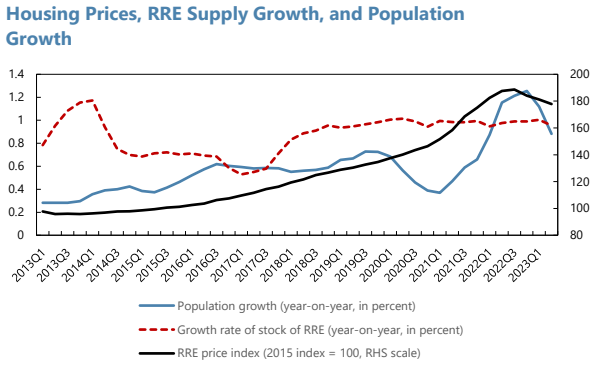
- **Persistent tax incentives for homeowners with generous borrowing standards**. Despite the decrease in the MID rate from 2013, it was still financially attractive to borrow money to buy a house rather than renting, which together with the high LTV ratio limit (at 100 percent since 2018) and the possibility to use IOLs (up to 50 percent of the total value of the mortgage) may have further supported the credit-fueled housing price boom in the context of low interest rates.

Figure 6. The Netherlands: Mortgage Rates, Fundamental Factors, and Real Estate Residential Prices

Low mortgage rates and high households' disposable income growth have boosted borrowing capacity and housing prices …



…while RRE supply has not increased enough during the boom, especially given the acceleration of the population growth.



Sources: CBS, DNB, and IMF staff calculations.

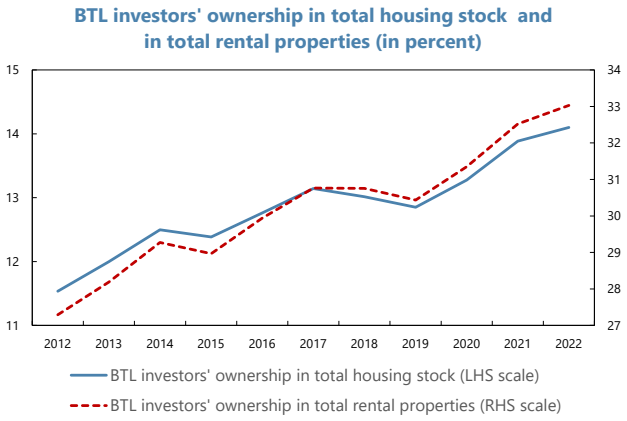
[53] In contrast, there is no clear evidence of increased activities by foreign buyers, with the exception of international pension funds buying residential complexes of housing associations (see Capital Value. 2018. "An Analysis of the Dutch Residential (Investment) Market in 2018." Utrecht.)

[54] DNB (Vording et al., 2021) however notes that historically, Dutch house prices have been poorly correlated with housing shortage and that demand-side factors have been the main drivers of housing prices.

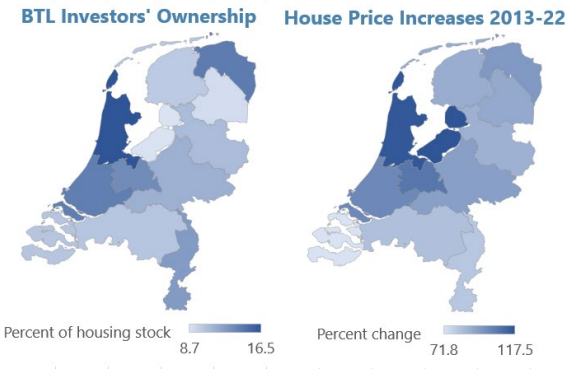
46. The presence of BTL investors significantly increased during the housing boom. BTL investment became extremely attractive in the wake of the GFC given low interest rates and returns on financial savings; rapidly rising house prices; a scarcity of rental housing making high rents possible; and a favorable fiscal system for individual investors until 2022. As a result, BTL investors (natural persons and/or institutional investors, such as pension funds or real estate funds) have become increasingly important market players in the Dutch housing market, especially in the large cities. The total number of houses owned by private investors (that is excluding housing corporations) has increased steadily over time, both as a share of the total housing stock and as a share of the total rental properties (Figure 7, left panel). At end-2022, about 15 percent of the total housing stock and 33 percent of rental properties were owned by BTL investors in the Netherlands. The impact of these investors and their activity on property price dynamics has therefore most likely increased over time, while these investors have been the most active in areas which recorded the sharpest price increases over the past decade, and in particular in large cities (Figure 7, right panel).[55]

Figure 7. The Netherlands: Buy-To-Let Investors on the RRE Market

Buy-to-let investors have become increasingly important over time…



…and are more present in regions with large cities where prices increased the most.



Sources: CBS and IMF staff calculations.

Note: The proportions of BTL investors in the right-hand side figure are 2012-2022 averages in each region.

47. Higher activity by BTL investors has contributed to a larger private rental housing market in recent years, to the detriment of the owner-occupier segment. The rising cost to purchase a house and the related increased interest in renting private sector housing, have led to a decrease in the share of owner-occupied houses and a corresponding increase in the share of the private rental housing.[56] Still, DNB (Vording et al., 2021) notes that the size of the private rental

[55] According to Kadaster data, BTL investors' purchases represent 40 percent of all housing transactions in the four major cities (Amsterdam, Rotterdam, Utrecht and The Hague), and fluctuates around 20 percent for the rest of the Netherlands ("*Dit is het marktaandeel van particuliere investeerders op de woningmarkt*", December 2020).

[56] As reported by Rouwendal et al. (2023): (i) on the demand side, a growing proportion of medium-income households cannot afford to buy a house and still cannot qualify for social housing, thereby turning to rental housing

(continued)

sector remains very limited, representing approximately 13 percent of the total housing stock, compared to more than 57 percent for owner-occupied homes and almost 30 percent for social housing.

48. The direct financial stability risks associated with BTL investors do not appear highly significant a priori, as many transactions by these investors are not credit funded. BTL investors often use their own funds to purchase houses. In 2016, 61 percent of houses of owners of multiple properties were purchased without any mortgage according to research by the Dutch Land Registry (see Van der Harst and de Vries, 2017). Accordingly, the share of BTL loans in the RRE portfolio (natural person borrowers) of Dutch banks account for less than 0.5 percent of banks' total exposures as of 2022Q1. In contrast, the share of loans secured by income-producing residential immovable property is significant in the CRE portfolio (corporate borrowers), but the overall size of the portfolio is rather small. Finally, among investment funds, total assets under management (AuM) invested in dwellings account for about 35 billion euros, representing less than 4 percent of total assets of all investment funds. For these reasons, the activity of BTL investors is less likely to be affected by current macroprudential measures and is less monitored by DNB.

49. Yet, BTL investors could have an indirect impact on financial stability by raising housing prices and the instability of the housing market. Results from recent research indicate that BTL investors in the Netherlands contribute to higher prices (see Appendix I for a literature survey).[57] Given that these investors do not use mortgages to purchase houses in more than 60 percent of their transactions, they have an advantage over other buyers. On top of raising housing prices, BTL investors could also increase instability of the housing market, thereby affecting financial stability. BTL investors could raise the pro-cyclicality of the housing prices. As noted by DNB in its Spring 2018 FSR, "private investors see the buy-to-let market as an alternative to the relatively low returns on other investments (…) and there is a risk that a part of private investors leave the market again as soon as they can get more return on their investments elsewhere (e.g. if interest rates rise), which may fuel price fluctuations in the housing market."

50. Results from cross-region panel data regressions confirm that transactions by BTL investors are significantly associated with higher housing price growth at the regional level. Econometric analysis carried out by the FSAP indicates that the proportion of BTL investors' purchases in total transactions has a statistically significant effect on the quarterly real growth rate of the RRE price index at the regional level. The effect is persistent over time, as the cumulative

in the private sector; while (ii) on the supply side, since the early 2000s, the determination of rents exceeding a particular threshold has been left to market forces, tenant protection has been reduced in this part of the market, and activity of private investors in rental housing (boosted by a search for yield) was welcomed by the government until recently.

[57] As noted by Lennartz et al. (2019), "BTL investors have contributed to increasing prices in two ways. By turning owner-occupied units into rental properties, they have significantly contributed to the scarcity of owner-occupied units in urban areas. Additionally, newly purchased BTL properties were most often offered in the unregulated rental sector, a sector which has seen tremendous rent increases, particularly in the larger cities. This in turn has allowed for higher purchase prices by investors, which then were used to justify further rent increases to meet target returns—and so the cycle continued."

housing price growth is significantly related to the proportion of BTL investors' purchases in a given quarter up to five quarters ahead (Appendix I). A one-standard deviation increase in the proportion of BTL investors is associated with an increase in the quarterly real growth rate of house prices the next quarter of 0.1 to 0.2 percentage points, depending on regressions. Although the economic impact does not appear very large on average (possibly reflecting the fact that BTL investors mainly impact the RRE market at a local level), it is similar in magnitude to the effect from real mortgage rates estimated in the regressions. In addition, the positive impact of BTL investors' demand on housing price growth does not reflect a reverse causality effect. BTL investors' demand is significantly explained by the growth rate of the rent index and by the change in the mortgage rate, but not by the housing price growth of the previous quarter. Finally, BTL investors could raise instability in the housing market by contributing to boom-bust cycles. It is probably too early to assess the response of BTL investors to higher interest rates in the current juncture, but should rates remain high for a prolonged period, some investors may reallocate funds in favor of bonds, to the detriment of real estate assets. Areas which experienced the largest increases in BTL purchases in the boom years could then see more selling pressures and price drops.

51. The housing boom also corresponds to an increase in lending by some non-banks, although the share of mortgages extended by non-banks in total mortgages has remained stable. Mortgage lending by insurers, investment funds, and pension funds has increased over the past decade (Figure 8), partly reflecting a search for yield in the low interest rate environment, while other financial institutions (OFIs), which consist mainly of finance companies and securitization vehicles, experienced a decline.[58] Banks have indeed securitized less residential mortgage loans (with some institutional investors investing directly in residential mortgage loans) and have been required to leave a rising share of securitized residential mortgages on their own balance sheets due to stricter accounting rules, directly impacting OFIs. Overall, the share of non-banks in total mortgages has been stable and banks remain by far the largest mortgage providers, with more than 550 billion euros of outstanding loans (representing about 20 percent of their total assets), more than 69 percent of the total volume of mortgages as of 2023Q2.

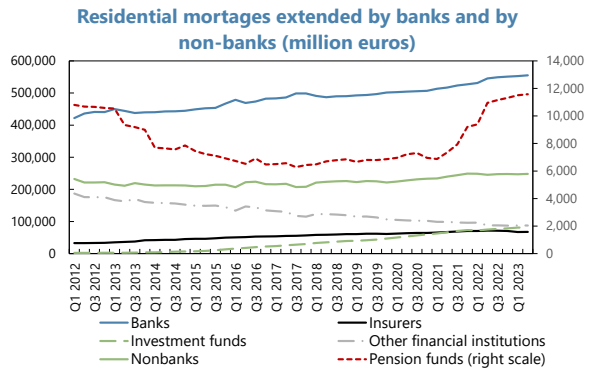
52. Residential property prices began to decrease by the end of 2022 as interest rates increased, but signs of stabilization emerged lately. Prices on the residential property market started to decrease in the context of higher interest rates and banks' tightening standards. As of 2023Q2, housing prices declined by 5.7 percent from their peak of 2022Q3.[59] Starting from 2023Q3, the housing market however showed signs of stabilization and the price index slightly increased, on the back of a tight labor market, the large housing shortage, and stabilizing mortgage rates.

[58] Nonbanks' mortgages have some different characteristics compared to banks' mortgages – for example, longer interest rate fixed period, and a larger proportion with the NHG (DNB, 2016) – but preliminary comparisons performed by DNB of the average risk characteristics of banks and NBFIs' portfolios (using *t*-tests on both volume and flow variables), suggests that mortgages extended by NBFIs tend to show slightly higher (but overall comparable) risk-characteristics than those extended by banks.

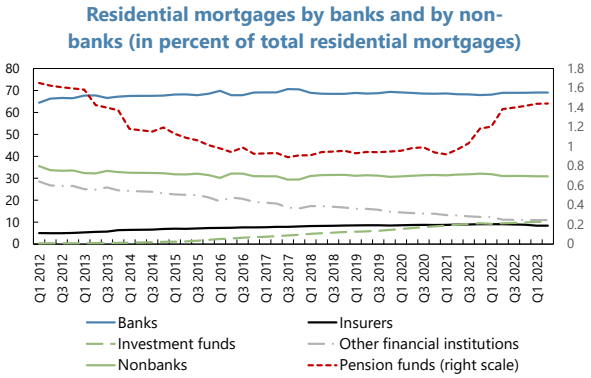
[59] Eijsink and van Dijk (2022) however note that "Although the higher interest rates are pushing house prices lower, the impact is attenuated by the tight labour market which together with high inflation, support high nominal income growth. (…) The initial decline in borrowing capacity is thus cushioned by the rise in incomes."

Figure 8. The Netherlands: Mortgage Loans by Banks and Non-Banks

Insurers and investment funds played a growing role in the provision of mortgages…



… but banks' share remained stable as OFIs' role significantly declined.



Sources: DNB and IMF staff calculations.

E. Effectiveness of Macroprudential Instruments for RRE

53. Studies find that macroprudential measures in the Netherlands have been effective in improving the quality of loans, but less so in avoiding a build-up of indebtedness. Some papers find clear evidence that stricter borrower-based measures in the Netherlands are associated with a lower probability that borrowers fall under negative equity or default on their mortgage.[60] In contrast, the literature offers mixed findings on the effectiveness of macroprudential measures in limiting households' indebtedness, possibly reflecting the fact that at 100 percent, the LTV limit is not tight enough, while most of the prudential measures, in particular the lender-based measures, have been primarily directed at building up resilience rather than limiting debt build-up (Everett et al., 2021).[61] Finally, some studies assess the negative side effects of borrower-based tools, pointing to limited costs in terms of access to homeownership.[62]

[60] DNB (2015) notes that 65 percent of households that took out a mortgage as first-time buyers during 2004-2012 were underwater with their mortgage as of end-2013 but that if the LTV limit had been 90 percent (instead of 106 percent as it was by end-2012), only 13 percent of these households would have been underwater with their mortgages. De Haan and Mastrogiacomo (2020) find that the probability of mortgage non-performance in the country over 1996-2015 has been positively explained by the originating loan-to-value ratio (OLTV) and by the current DSTI ratio. To avoid an acceleration of non-performance probabilities, the authors estimate that the OLTV-limit should be set to about 70-80 percent for uninsured mortgages, and to about 90 percent for those with mortgage insurance.

[61] Caloia (2022) finds that LTI limits in the Netherlands have been efficient in limiting indebtedness of low-income households (who often borrow at the LTI limit), but not of high-income households, while the progressive reductions of the LTV limit impacted up to 45 percent of highly leveraged borrowers. Everett et al. (2021) do not find any evidence that borrower-based tools or lender-based measures (capital requirements) in the Netherlands constrained mortgage growth.

[62] Mastrogiacomo and Biesenbeek (2022) estimate the effect of the introduction and sharpening of the LTV limit on the probability of self-employed and wage employed to become homeowners, finding that sharpening the LTV limit has not reduced the probability to become homeowners for self-employed. Using a general equilibrium model, a CPB analysis by Elbourne et al. (2020) finds limited macroeconomic effects of tighter borrower-based measures:

(continued)

54. Macroprudential measures have been associated with a better quality of mortgages on average, but households have also increasingly pushed borrowing limits in recent years. The average LTV ratio at origination and the average LTV ratio of current loans have declined in the past decade, although the decrease of the second ratio partly reflects the housing price boom and voluntary repayments of mortgage debt, and not exclusively the tightening of the LTV limit over 2013-2018 (Figure 9).[63] Households should therefore be less likely to fall into negative equity than in the wake of the GFC, should house prices fall sharply. The NPL ratio on mortgages has also declined. Averages however hide large differences across borrowers, with more recent first-time (often young) buyers having to repay a larger mortgage debt than older homeowners who built equity with their home in a rising market (see Technical Note "Systemic Risk Analysis"). Given booming house prices, households have increasingly pushed borrowing limits in recent years, implying an increase in debt-to-income ratios: the LTI on the production of new loans has strongly increased (from about 400 percent in 2017-19 to now more than 460 percent) as well as the share of loans at high debt ratios, especially for younger borrowers: around 60 percent of borrowers under the age of 36 and 45 percent of older borrowers have a debt-to-income ratio above 450 percent (Figure 9, panels 3 and 4).

55. The almost doubling of housing prices could pose risks to financial stability going forward. Both capital-based and borrower-based measures have been introduced and tightened in the past decade, but these measures could not counter effects from very low interest rates on house prices. Although the level of house prices is not an objective by itself of macroprudential policy, boom-bust cycles in house prices can pose risks to financial stability in the Dutch context, given the importance of IOLs, while households also had to push borrowing limits, implying higher DTI ratios. A DNB (2022b) scenario analysis shows that if house prices were to fall by 20 percent, the LTV ratio of 13 percent of homeowners would rise to over 90 percent. Such a price fall would cause 8 percent of homeowners to go into negative equity.

56. At 100 percent, the LTV limit is inefficient in containing the procyclical effect of increased borrowing capacities during a booming market, and it does not provide protection to borrowers in case of a price correction. Although the LTV limit has been reduced from 106 percent in 2012 to 100 percent in 2018, it is still transmitting the procyclical effect of increased lending possibilities within a booming market, when house prices also increase. Besides, with an LTV of 100 percent at origination, households do not need any equity to purchase a house and are therefore exposed to a higher probability of seeing their loan being under water in case of a house price correction and defaulting. Part of this risk is covered for some mortgages by the NHG, but the

households constrained by borrowing standards can accumulate less debt, but households not affected by the tightening of borrowing standards benefit from lower house prices due to relatively lower demand from captive households. Likewise, DNB (2015) points to conflicting macroeconomic effects of a tightening of lower LTV limit, with a cost of the measure mostly seen in the transitional phase. A tighter LTV limit implies that first-time buyers need to borrow more to purchase a house but in the longer term, also reduce financial stability risks, not to mention reducing the probability of unaffordable housing.

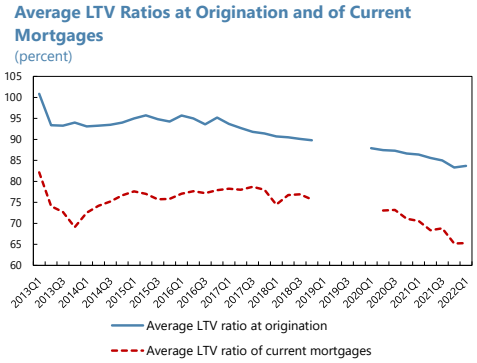
[63] The amortization requirement (which is mandatory for at least 50 percent of total debt) implemented in recent years contributed to reduce the LTV ratio, e.g., from 100 to 90 percent in the first 5 years of a loan.

risk is then transferred to the government. Finally, the inefficiency of the LTV limit in limiting debt buildup of some borrowers could reflect its loose calibration.

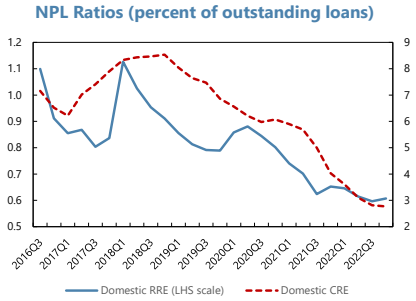
57. Risks from the refinancing of IOLs remain, but authorities have made efforts to inform mortgage providers and their customers on risks from those loans. Risks from the large amount of IOLs maturing around 2036 are looming, as higher interest rates and a drop in disposable income of retired households at this time might translate into a significant number of households left with residual debt, especially in case of a drop in housing prices. However, the AFM and DNB analyses suggest that such risks are unlikely to be of a systemic nature (see Technical Note "Systemic Risk Analysis" for further details).

Figure 9. The Netherlands: LTV, LTI, and Real Estate NPL Ratios

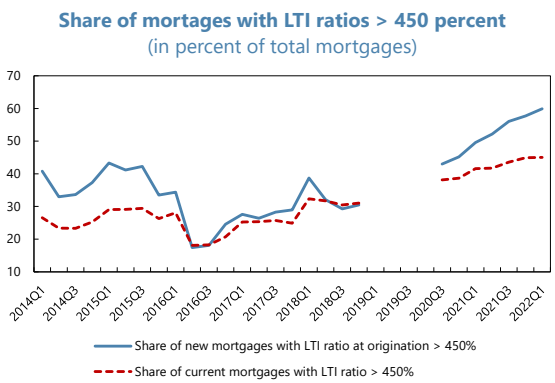
Average LTV ratios for new and current mortgages declined in recent years…



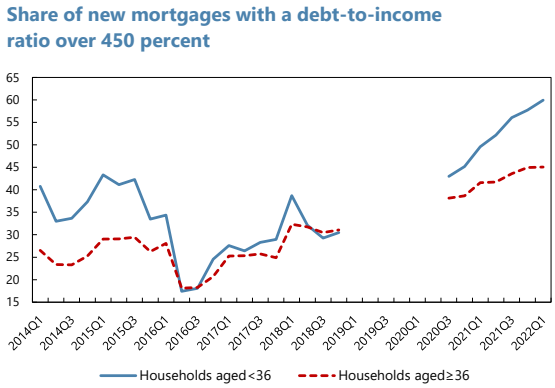
… as well as NPL ratios, from already low levels for RRE loans.



However, the share of mortgages at high debt-to income ratios increased...



… especially among younger borrowers.



Note: Data for LTV at origination and LTI are missing in 2019-early 2020, due to data quality issues in the transition from the Residential Real Estate (RRE) data to Loan Level Data (LLD).

Source: DNB.

58. The MoF increased the differentiation of the transfer tax to improve the position of owner-occupiers relative to that of BTL investors. Starting from January 1, 2021, the acquisition of real estate not used by the acquirer as a principal residence was subject to the general tax rate of 8.1 percent, and to the rate of 10.4 percent from 2023 (before, the general tax rate was 2 percent). This measure aims at differentiating the transfer tax rate by type of acquirer: first-time homeowners under 35 and for a property value under 440,000 euros are exempted from the tax, main residents pay the reduced rate of 2 percent, while other acquirers pay the general rate.[64] The measure will be first evaluated by authorities in 2024 and the results will be published in 2025. The reasons for raising the general tax rate were twofold: (1) to amplify the effect of the differentiation of the transfer tax with the aim of strengthening the position of acquirers that will use the house as a principal residence relative to other acquirers, including BTL investors;[65] and (2) to generate a budgetary revenue (especially in the context of the second increase of the general rate from 8.1 to 10.4 percent). The government has also recently taken several measures that make BTL investments by small investors less attractive.[66]

59. The differentiation of the transfer tax has not been introduced with a financial stability objective, but could be made part of the macroprudential toolkit, should BTL investors' activity gain importance. Authorities note that the transfer tax could impact the demand in the housing market, but they have not used this measure with the macroprudential aim of trying to influence the housing market in a countercyclical manner. Yet, by possibly deterring BTL investors and reducing their effect on RRE prices, the measure can contribute to the macroprudential policy mandate. Several jurisdictions (Hong Kong, Singapore) have for instance included stamp duties targeting BTL investors in their macroprudential toolkit. The use of a stamp duty is justified, as it directly targets the source of residential price pressures – that is BTL investors' demand – and is therefore less distortive than a tightening of some broader-based macroprudential credit measures, which may be inefficient given that a significant proportion of transactions by BTL investors are not backed by credit. Although the impact of BTL investors' transactions on the Dutch housing market is statistically significant, it is unclear whether it is economically significant at the national level, so far to justify the inclusion of the differentiation of the transfer tax in the macroprudential toolkit. Authorities could still consider including this measure in the

[64] When (non-housing) real estate is acquired for transformation into housing, a VAT rate of 21 percent may be applicable, and no transfer tax is due in this case.

[65] As noted by Rouwendal et al. (2023), BTL investors may over bid medium-income households who try to become homeowners, driving them out of the market for owner-occupied housing. Accordingly, the annual increase in the supply of owner-occupied housing has significantly declined in the past decade (from around 80,000 between 2002 and 2008 to around 22,000 in 2016), while the supply of rental properties, which had been shrinking until 2011, has been growing in parallel since 2011.

[66] The income from real estate for individuals is taxed in "Box 3" in the Netherlands, which is the capital income tax. Until 2023, the tax base of this tax was determined fictionally, implying that the actual income was not taxed. In 2023, measures were taken implying an increase in the value of rental houses for Box 3 and the fictional income while real estate financed with debt is now taxed at around 6 percent. Finally, capital borrowed from an individual's own company (usually used to finance real estate bought privately) has become taxable, like a dividend income, insofar as it exceeds 700,000 euros.

macroprudential toolkit in the future, should BTL investors' transactions keep increasing and their economic impact on the Dutch housing market reach systemic levels.

60. The transfer tax applying to BTL investors should be carefully calibrated, bearing in mind that deterring BTL investments can negatively affect the private rental property market. The first increase in the transfer tax was decided with the objective of improving the position of owner-occupiers relative to that of investors, and the second increase may have been motivated by budget considerations. The authorities have not assessed the impact of the first increase on the housing market before deciding on the second increase (the first impact assessment of the two increases will be carried out in 2024). The cumulative increase in the transfer tax rate applied to BTL investors might have been too large, and a more gradual tightening could have been more desirable. In addition, these two successive tax increases occur at a time when the demand from BTL investors may already have declined given higher interest rates, adding some procyclicality to the housing market.[67] Finally, by significantly increasing the transfer tax applied to BTL investors, activity by these investors could be deterred, weighing on the supply of the rental market. As suggested by Lennartz et al. (2019), "long-term private investors who turn owner-occupied units into affordable rental units may be exempted from this rule. (…) policymakers should devise a system in which private investors do not solely seek to invest in the higher segment of the free rental market."

61. Supply-side measures remain critical to limit house price pressures and improve access to homeownership. The authorities should focus on targeted measures to address a shortage of supply of residential rental and owner-occupied housing, as recommended by the 2017 FSAP.[68] Housing affordability concerns indeed call for increases in supply, which in turn will require supply-side measures, including greater efficiency and speed in the building process. In this respect, the government's plan to build 100,000 houses per year and reach a total increase of 900,000 houses by 2030 (MOIKR, 2022), later revised to 981,000 units to accommodate the higher than anticipated growth in households in the country, is welcome.[69] However, without alleviating the current zoning constraints, this plan is unlikely to be fully achieved. At the same time, climate-related objectives

[67] As noted by DNB governor, BTL investors' demand has decreased in the third quarter of 2023 ("Dutch central bank leader sees possible decline in house prices, slower wage growth", *NL Times*, October 14, 2023.). The increase of the transfer tax is not the only factor that may have weighted on the demand of BTL investors. A wide-range ban on new BTL investing in almost all Dutch cities (variously called "*opkoopbescherming*" or "*zelfbewoningsplicht*" in Dutch) has been introduced recently (see Reitsma (2022) and Francke et al. (2023) for analyses of the effect of this ban on the Dutch housing market), while anticipatory effects of the rent cap that will likely be introduced in 2025, which will have a major impact on the return of BTL investing, could be weighing on BTL investors' activity.

[68] DNB (Vording et al., 2021) however notes that increasing the housing supply alone cannot be sufficient to address the problem of high prices and rents as new construction only increases the housing stock to a limited extent while it is often hardly impossible to raise housing supply in the most popular areas. Figure 1 shows that the Netherlands has continuously experienced a housing shortage since the Second World War, while prices have experienced periods of strong increases and decreases. suggesting that housing shortages play a limited role in driving house prices.

[69] To achieve this objective, the government pursues an extensive list of policies including additional public investments, intensified negotiations with local governments, and efforts to accelerate the construction process of housing, as detailed in its *Programma Wonningbouw*. Geist (2023) discusses policy options to further improve the supply of housing in the country including: (i) reconsidering the dominant position of housing associations in the Dutch residential property market; (ii) revisiting the extensive rent control system; and (iii) reviewing the eligibility criteria applied to the social housing sector.

also need to be taken into consideration[70], as they could affect the location and speed of the building process, suggesting the need for a whole-of-government approach.

F. Recommendations

62. Authorities should fine tune their multipronged and "whole-of-government" approach to manage risks from the RRE market through the FSC, by employing a set of demand- and supply-side policy tools, including credit-based, fiscal-based, and administrative measures. On the demand side, authorities should calibrate the borrower-based tools, especially the LTV limit, with the primary objective of safeguarding financial stability. The MoF should focus on fiscal measures to manage the demand for RRE, by ensuring fiscal neutrality of homeownership, through a gradual phasing-out of the MID, and by limiting risks of boom-bust cycles in the demand of BTL investors through a reasonable calibration of the transfer tax. On the supply side, the MOIKR and other agencies should improve the supply of residential rental and owner-occupied housing. More specifically, the FSAP made the following recommendations:

- **Recommendation 4: The LTV limit should be further tightened below 100 percent.** The maximum limit on the LTV ratio should decline to 90 percent through a gradual reduction of 1 percentage point per year.

- **Recommendation 5: The authorities should continue their efforts to monitor and address fragilities from IO mortgages, including by increasing incentives for borrowers to lower their exposure to these mortgages.** The authorities have made welcome efforts to reduce the attractiveness of IOLs and inform the public of their risks. The use of IOLs has decreased in recent years, but remains high, exposing households to risks. The authorities should therefore pursue their efforts to reduce the use of these loans, for example by introducing further incentives for borrowers to switch their IOLs to amortizing mortgages or to prepay the loans voluntarily. In the meantime, given the risks associated with the large volume of IOLs maturing around 2036, the authorities should keep monitoring vulnerabilities from these loans.

- **Recommendation 6: The MoF should gradually remove the MID.** The MoF has reduced the MID rate to 37 percent, but this latter remains too high, contributing to higher demand for housing financed by debt, so further cuts are required, until the tax incentive is fully phased out.

- **Recommendation 7: The differentiation of the transfer tax on housing transactions could be integrated to the macroprudential toolkit should BTL investors' demand reach systemic levels but would need to be carefully calibrated in terms of size, timing, and perimeter.**

[70] In 2015, the Dutch government initiated the Nitrogen Approach Program (PAS) to reduce nitrogen deposition and mitigate their adverse effects. This program established measures, including permit requirements for building houses, to prevent significant harm from increased nitrogen deposition. However, a ruling by the Council of State in 2019 determined that PAS did not comply with the EU regulations, emphasizing the need for a more robust approach to nitrogen management. The ruling emphasized that projects contributing to additional nitrogen emissions, such as the construction of motorways and residential buildings, could not proceed without adequate compensation for the environmental impact on nitrogen-sensitive areas. As a result, securing permits for housing projects may become increasingly challenging.

Given that BTL transactions are found to increase housing prices and could also raise instability on the housing market, the differentiation of the transfer tax recently introduced by the MoF could be part of the macroprudential toolkit and discussed within the FSC, should BTL investors' activity keep increasing in the coming years and have an effect economically significant on house prices. However, the tax applying to transactions by BTL investors should not excessively deter BTL activity, as this could weigh on the supply of the private rental market. The level of the tax and the timing of any increase should be carefully calibrated, while exceptions could be granted when BTL investors contribute actively to the provision of new housing.

- **Recommendation 8: The authorities should continue to address a supply shortage of residential rental and owner-occupied housing** by targeted measures, such as looser zoning regulations, liberalization of rental markets, and greater efficiency and speed in the building process., while ensuring coordination and consistency with the policy measures aimed at reducing nitrogen depositions**.**

Appendix I. Buy-to-Let Investors and Residential Real Estate Prices

This appendix investigates the effect of BTL investors' activity on house prices using a regional panel dataset.

1. Macroprudential policy related to the RRE market has exclusively focused on credit-based measures despite evidence of a growing volume of transactions not backed by credit. In particular, a large proportion of BTL investors' transactions, which have significantly increased in the past decade, is not financed by credit, and thereby is not affected by the credit-related macroprudential tools.

2. Several studies find evidence of a significant impact of BTL investors on house prices in some specific markets. Using more than 500,000 property-level observations between 2015 and 2017, Jellesma (2020) does not find any significant price effect of BTL purchases for the whole country but does find a significant effect when running regressions separately for each of the four largest cities (Amsterdam, Rotterdam, The Hague, and Utrecht). If a property is bought by an investor, the transaction price is 9.6 percent higher in the case of Amsterdam and 8.9 percent higher in The Hague. Similarly, Hans et al. (2019) find some regional differences in the impact of BTL investors on prices. For instance, in Amsterdam, private investors with ten or more homes have paid significantly more for the same home in more recent years of their sample (2014-2018) than first-time buyers.

3. The macroeconomic impact of BTL investors on RRE price indices is estimated by exploiting information at the regional level. This Appendix exploits cross-regional heterogeneity in the activity of BTL investors and the evolution of housing prices by using a sample of 12 regions with quarterly series over 2009Q1-2022Q4. The quarterly growth rate of the real residential price index (deflated by the CPI) in each region is regressed on BTL investors purchases (as a share of total transactions), controlling for the growth rate of the real index of rents, the activity of the labor market, the supply of housing, and the change of total transactions, using the following panel-data equation:

$$Growth\ Prices_{r,t} = \alpha_1 \times Growth\ Prices_{r,t-1} + \alpha_2 \times BTL_{r,t-1} + \alpha_3 \times Owner\ Occupiers_{r,t-1} + \alpha_4 \times Growth\ Housing\ Sales_{r,t} + \alpha_5 \times Growth\ Rents_{r,t} + \alpha_6 \times Growth\ Unfilled\ Vacancies_{r,t} + \alpha_7 \times Growth\ Stock_{r,t} + \lambda_t + \lambda_r + \varepsilon_{r,t}, \quad \text{(A1)}$$

where *Growth Prices* is the quarterly growth rate of the RRE price index (in real terms) in region *r* and quarter *t*, *BTL* is the proportion of transactions by BTL investors (in total transactions), *Owner Occupiers* is the proportion of transactions by owner-occupiers (in total transactions), *Growth Housing Sales* is the quarterly growth rate of total housing sales, *Growth Rents* is the growth rate of the rent index (in real terms), *Growth Unfilled Vacancies* is the quarterly growth rate of unfilled

vacancies used as a proxy of labor market activity, and *Growth Stock* is the growth of the stock of housing.[1] λ_t are time fixed effects to account for time-varying macro-economic factors (e.g., credit conditions, GDP growth, population growth), and λ_r are region fixed effects controlling for region-specific factors of the growth rates of residential prices. Additional regressions include the change in the real mortgage rate (without time fixed effects). Robust standard errors are clustered by region.[2] See Appendix Table 4 for details on the description and the source of the variables used in the econometric analysis.

4. Property prices increase faster when the proportion of BTL investors' purchases is larger. Results of the regressions (Appendix Table 1) indicate that the growth rate of residential real estate prices is significantly related to BTL investors transactions. A one-standard deviation increase in the proportion of BTL investors (+5.6 percentage points) is associated the next quarter with an increase in the quarterly growth rate of the house price index of more than 0.1 percentage point based on regression (3) and around 0.2 percentage point according to regressions (4) and (6) (compared to a standard deviation of the quarterly growth rate over the estimation sample of less than 2 percentage points). In contrast, neither purchases by owner-occupiers nor purchases by flippers (that is buyers reselling the house in the next 6, 12, or 24 months) are significant. The latest finding is in line with recent research showing that activity from flippers does not have any significant impact on the Dutch RRE market. Results are robust to various specifications, including when incorporating the change in real mortgage rate (a one-standard deviation increase in the real mortgage rate is associated with a drop of the quarterly housing price growth of almost 0.2 percentage points) and dropping time fixed effects (regression (6)).[3]

5. The effect of BTL investors' purchases is persistent, affecting the growth of housing prices over several quarters. Jordà (2005) local projection approach is applied to the growth rate of the quarterly housing prices, using the same control variables as in regression (3) of Appendix Table 1. More specifically, the following regressions are estimated, for k=0,…,5:

[1] Purchases by BTL investors considered here are all purchases by individual and corporate investors. Purchases by housing corporations are not included.

[2] The presence of a lagged dependent variable in the model can give rise to the Nickel (1981) bias, which is however limited in the present case given the structure of the panel (small number of regions with long time series).

[3] Interestingly, the proxy for economic activity at the region level (*Unfilled Vacancies* variable) is significant, but only when time fixed effects are excluded. The stock of houses growth is not significant when lagged by one quarter but positively significant when entering the regressions contemporaneously and dropping time fixed effects. DNB analysis (Eijsink and van Dijk, 2022) could not find either any significant effect of the stock of houses on housing prices.

$$100 \times \left(\frac{Price\ Index_{r,t+k}}{Price\ Index_{r,t-1}} - 1\right) = \alpha_1 \times Growth\ Prices_{r,t-1} + \alpha_2 \times BTL_{r,t-1} + \alpha_3 \times$$

$$Owner\ Occupiers_{r,t-1} + \alpha_4 \times Growth\ Housing\ Sales_{r,t} + \alpha_5 \times Growth\ Unfilled\ Vacancies_{r,t} +$$
$$\alpha_6 \times Growth\ Stock_{r,t} + \lambda_t + \lambda_r + \varepsilon_{r,t}, \quad \text{(A2)}$$

where *Price Index*$_{r, t+k}$ is the real house price index of region *r* in quarter *t+k*. Results of the regressions are reported in Appendix Table 2 (the coefficients of the other control variables, in general not significant, are not reported). The effect of BTL investors' transactions is significant in explaining the cumulative growth of real housing prices for up to five quarters ahead. At the peak, a one-standard deviation increase in BTL investors' purchases is associated with a cumulative increase of real housing prices of almost 0.3 percentage points.

6. BTL investors' demand increases with rents but not with housing prices, ruling out reverse causality. The positive relationship between BTL investors' demand and housing price growth reported in regressions of Appendix Table 1 could reflect a reverse causality issue (although the variable *BTL* is lagged by one-quarter), insofar as BTL investors may purchase RRE in the most popular regions. To investigate this possibility, the following regression is estimated:

$$BTL_{r,t} = \alpha_1 \times BTL_{r,t-1} + \alpha_2 \times Growth\ Prices_{r,t-1} + \alpha_3 \times Owner\ Occupiers_{r,t-1} +$$
$$\alpha_4 \times Growth\ Housing\ Sales_{r,t} + \alpha_5 \times Growth\ Rents_{r,t-1} + \lambda_t + \lambda_r + \varepsilon_{r,t}. \quad \text{(A3)}$$

As reported in Appendix Table 3, the proportion of BTL investors' purchases in total transactions is never related to house price growth (at least in the short term). In contrast, it is significantly and positively explained by the lagged growth rate of rents (regression (2)), and negatively by the change in the mortgage rate (regression (3)). Results of regressions therefore indicate that there is no reverse causality between BTL investors' activity and housing price growth (at least in the short term).

Appendix I. Table 1. The Netherlands: Effect of RRE Prices on BTL Transactions

	Dependent variable: Quarterly Real House Price Index Growth					
	(1)	(2)	(3)	(4)	(5)	(6)
Real house price index growth, lagged	-0.273***	-0.195*	-0.210**	0.597***	-0.269***	0.596***
	(-4.91)	(-1.83)	(-2.52)	(17.87)	(-4.99)	(18.10)
BTL purchases share, lagged	0.016*	0.043**	0.021**	0.058***		0.057***
	(2.16)	(2.36)	(2.25)	(3.73)		(3.74)
Owner-occupiers' purchases share, lagged	0.007	0.012	0.012	0.013		0.008
	(0.99)	(0.78)	(1.11)	(0.88)		(0.54)
Total housing sales growth	0.012**	0.006	0.009*	0.007**	0.013**	0.005
	(2.60)	(0.60)	(1.98)	(2.22)	(2.74)	(1.53)
Real rent index growth, lagged		0.032**				
		(2.63)				
Unfilled vacancies growth, lagged			0.000	0.031***		0.033***
			(0.09)	(7.14)		(6.60)
Stock of houses growth			0.310	0.930**		0.954**
			(1.32)	(2.66)		(2.77)
Flippers' purchases share, lagged					0.046	
					(0.94)	
ΔReal mortgage rate, lagged						-1.532***
						(-3.88)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	No	Yes	No
Adjusted R-squared	0.862	0.745	0.869	0.438	0.867	0.445
Nb. of regions	12	12	12	12	12	12
Nb. of observations	602	266	470	470	626	470

Constant term included but not reported. *t*-statistics in parentheses based on robust standard errors clustered by region. ***,**,* denote statistical significance at the 1, 5, and 10 percent level, respectively.

Appendix I. Table 2. The Netherlands: Effect of BTL Transactions on Cumulative RRE Price Growth

	Dependent variable: Real House Price Index Growth between quarters t-1 and $t+k$, with k=0,…,5					
	t	t+1	t+2	t+3	t+4	t+5
Real house price index growth, lagged	-0.210**	-0.029	0.049	0.117	0.232	0.219
	(-2.52)	(-0.28)	(0.36)	(0.58)	(1.13)	(0.93)
BTL purchases share, lagged	0.021**	0.034**	0.037***	0.046***	0.051**	0.042
	(2.25)	(2.42)	(4.05)	(3.29)	(3.02)	(1.59)
Owner-occupiers' purchases share, lagged	0.012	0.010	0.016	0.018	0.024	0.022
	(1.11)	(0.90)	(1.25)	(1.17)	(1.45)	(1.24)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.869	0.928	0.938	0.941	0.942	0.938
Nb. of regions	12	12	12	12	12	12
Nb. of observations	470	470	470	470	470	470

Constant term and other explanatory variables of regression (3) of Appendix Table 1 included but not reported. t-statistics in parentheses based on robust standard errors clustered by region. ***,**,* denote statistical significance at the 1, 5, and 10 percent level, respectively.

Appendix I. Table 3. The Netherlands: Effect of RRE Price Growth on BTL Transactions

	Dependent variable: Quarterly Share of Buy-to-Let Purchases in Total Transactions		
	(1)	(2)	(3)
BTL purchases share, lagged	-0.027	0.062	-0.048
	(-0.62)	(1.34)	(-0.82)
Real house price index growth, lagged	0.168	0.213	0.057
	(1.07)	(0.66)	(0.87)
Owner-occupiers' purchases share, lagged	-0.089	0.055	0.031
	(-1.78)	(0.87)	(0.89)
Total housing sales growth	-0.019	-0.004	0.014**
	(-0.59)	(-0.12)	(2.32)
Real rent index growth, lagged		0.083**	
		(2.34)	
ΔReal mortgage rate, lagged			-4.351**
			(-2.54)
Region fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	No
Adjusted R-squared	0.520	0.653	0.020
Nb. of regions	12	12	12
Nb. of observations	590	254	518

Constant term included but not reported. *t*-statistics in parentheses based on robust standard errors clustered by region. ***,**,* denote statistical significance at the 1, 5, and 10 percent level, respectively.

Appendix I. Table 4. The Netherlands: Variable Description and Sources		
Variable	**Description**	**Sources**
House price index	Quarterly house price indices are available for 12 and 40 (COROP) regions as well as the four largest cities.	CBS
Consumer prices	Quarterly consumer Price Index (2015 value = 100).	CBS
Buy-to-let investors' demand	Quarterly share of BTL (corporate and individual) investors' purchases in total transactions by region.	Kadaster and IMF staff calculations
Owner-occupiers' demand	Quarterly share of owner-occupiers purchases in total transactions by region.	Kadaster and IMF staff calculations
Flippers' demand	Quarterly share of flippers' purchases (that is purchases of houses by all types of actors resold within 6, 12, or 24 months) in total transactions by region.	Kadaster and IMF staff calculations
Number of sold dwellings	Quarterly series of total number of dwellings sold, available for 12 regions as well as the four largest cities.	CBS
Stock of housing	End-of-quarter stock of dwellings for housing function, by region.	CBS
Total housing sales	Quarterly volume of total housing sales by region.	CBS
Mortgage rate	Quarterly average mortgage rate on total loans for house purchase.	DNB
Rent index	Quarterly index of rents by region.	Pariarius and IMF staff calculations
Unfilled vacancies	Quarterly volume of unfilled vacancies by region.	CBS

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