Chapter 1

The financial system and real estate: Strengthening resilience

In Norway house prices have risen to high levels, associated with very strong credit growth, in a context of low interest rates. Such a combination was in many countries a contributory factor to the 2008-09 crisis. The Norwegian authorities have been well aware of the problem. Below-target inflation and low interest rates abroad have kept policy interest rates low. "Macro-prudential" tools have been developed as additional policy instruments with a view to strengthen the banking system's resilience to possible shocks and dampen systemic risk. This chapter notes that although the authorities seem to have succeeded in containing over-heating pressures in the housing market, high levels of household indebtedness persist, a phenomenon which was an important factor in the last major Norwegian recession. The chapter also provides some longer run considerations on resource allocation in the housing market.

In the long upswing known as the Great Moderation, expansionary monetary policy supported activity in much of the OECD without compromising general price inflation targets. But low interest rates also encouraged rising house prices (although not everywhere, notably not in Germany) and increasing household indebtedness and may also have contributed to excessively risky lending by financial institutions. The reaction of highly indebted households to macroeconomic shocks had contributed to the recession and subsequent banking collapse in Norway in the late 1980s. Having largely shrugged off the recent recession, Norwegian house prices and household indebtedness rose strongly after 2010 (Figure 1.1), in such exceptionally favourable conditions as low interest rates and high oil prices.

The authorities recognise that there can be risks in imbalances that might emanate from the housing market and household indebtedness, though there are other concerns too (Box 1.1). But the authorities have been short of policy instruments, hence the interest in developing "macro-prudential" tools. This chapter discusses the system for monitoring financial stability, macro-prudential tools, and specific housing-market measures that the Norwegian authorities have been developing. These policies should help to reduce financial imbalances associated with house prices and household indebtedness which could trigger or amplify an economic downturn, though it remains to be seen how they will work in practice. The chapter also considers structural policies which distort investment decisions and drive up house prices.

Monetary and macroprudential policy for financial stability

Property prices and household debt have grown strongly

The ratio of house prices to rents, one measure of "normality", is higher than it has ever been, whereas in most other countries the level is some way off the peak (Figure 1.4). House prices increased by around 85% in real terms between 2000 and mid-2013, a much larger increase than in aggregate household disposable income. The elasticity of house prices with respect to household income is usually estimated to be around unity over time and across countries (Andrews et al., 2011). Other forces than income "fundamentals", such as low interest rates and perhaps self-perpetuating expectations, have been at work.[1] The importance of expectations is suggested by the fact that a number of studies have found strong persistence in house price growth in Norway.[2] The role of house prices is particularly important in Norway since the homeownership rate is high at 76% while the private rental segment is small.

Credit growth to households has been strong and has exceeded mainland GDP growth for more than a decade (Figure 1.3) and aggregate household debt is now over 200% of disposable income (Figure 1.5). Nearly all lending to households in Norway is mortgage-related lending and is almost exclusively at floating interest rates. The current mortgage rate is around 4 or 5%, so a 1 percentage point increase would increase interest payments by nearly a quarter almost immediately. High debt-to-income ratios pose different threats

Figure 1.1. **House prices**

A. Nominal

B. Real[1]
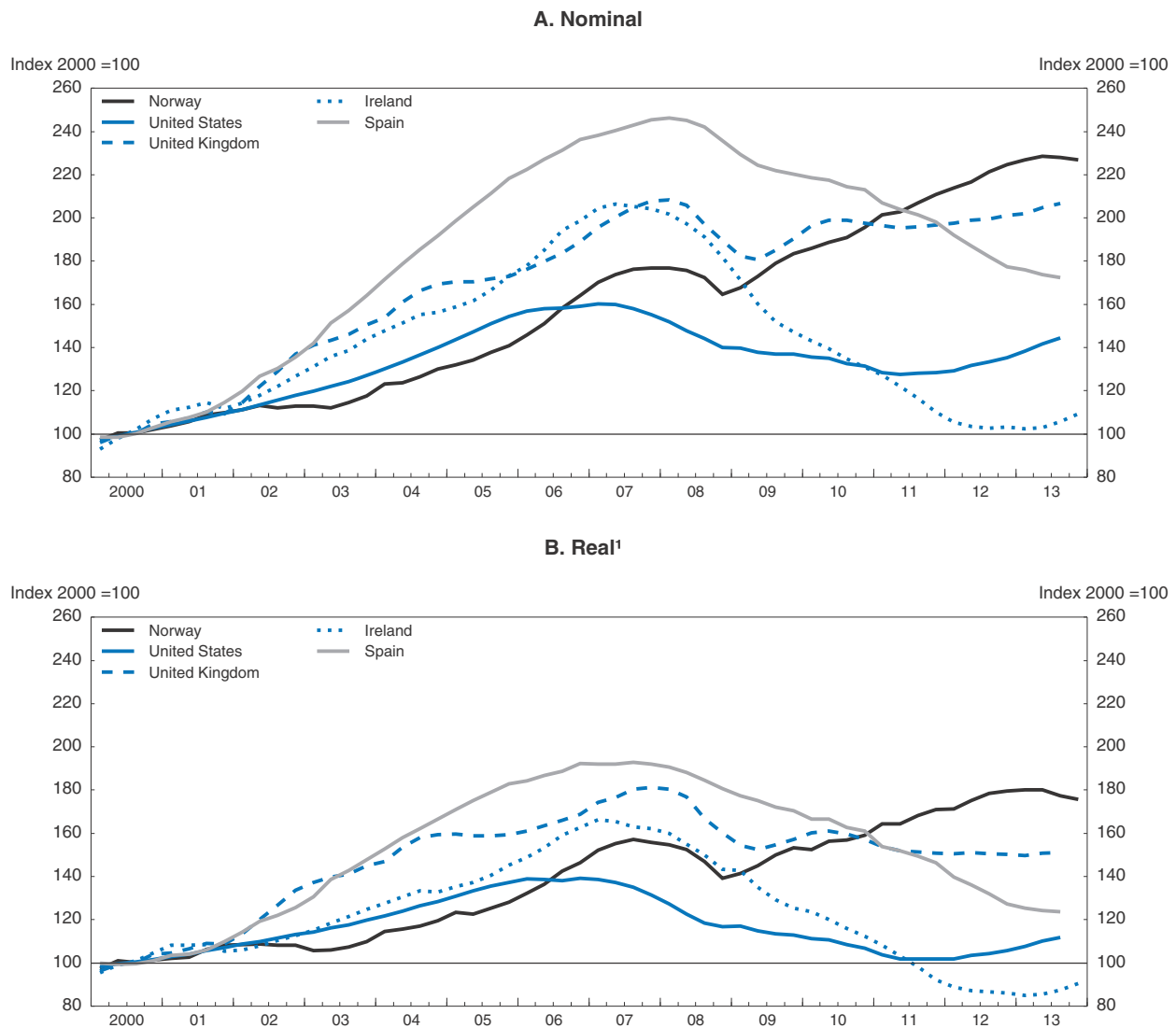
1. Adjusted by private consumption deflator.
Source: Datastream and *OECD Economic Outlook Database.*

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for different income groups. For low-income groups, a high ratio implies potential risk for lenders because such households have limited room for reducing other expenditure to finance increased interest payments (Box 1.2); these are the loans where there may be some default risk. For high-income groups, that particular risk is smaller but the higher absolute level of interest payments means that the macroeconomic impact on levels of demand would be stronger.

### *Monetary policy has encouraged house price inflation*

The flexible inflation targeting approach to monetary policy presents the authorities with a challenge, as domestic interest rates can have an uncertain effect on the exchange rate, depending on external factors – notably petroleum prices and interest rates in other

Box 1.1. **Main aspects of financial stability**

Norges Bank has developed a tool to assess the resilience of the financial system, which considers internal vulnerabilities in the banking sector as well as external sources of risk (Dahl et al., 2011). As illustrated in the following cobweb-style diagram, the greatest vulnerability seems to stem from the high level of household debt.

Figure 1.2. **Vulnerabilities in the Norwegian banking sector**

November 2012
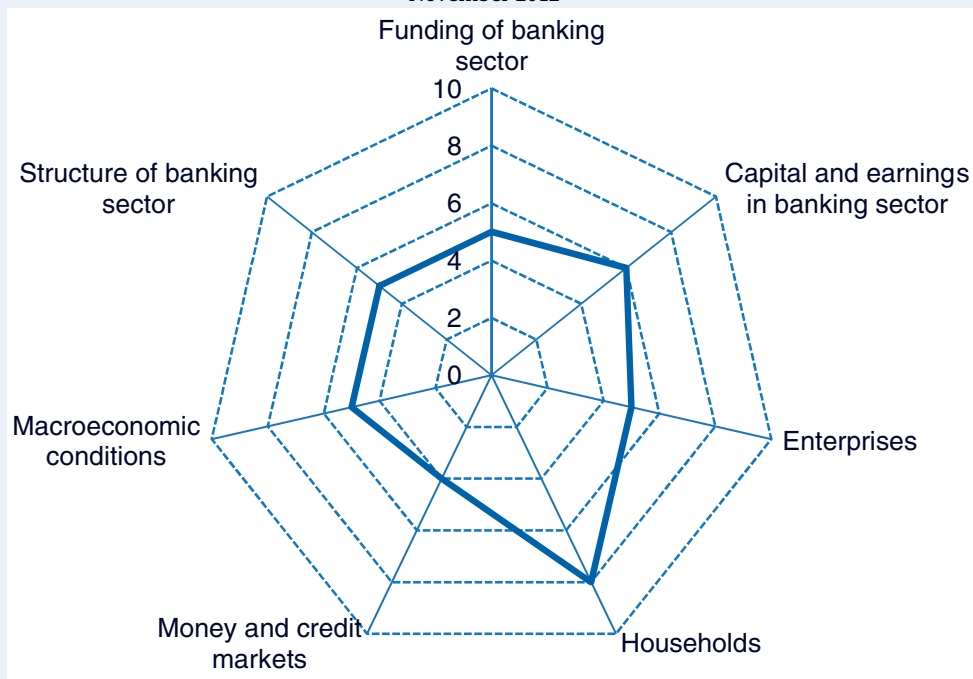
Note: A value of 0 denotes the lowest level of risk or vulnerability; a value of 10 denotes the highest level of risk or vulnerability.
Source: Norges Bank, *Financial Stability Report 02/12.*

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The financial market and banks in Norway

The financial market in Norway is characterised by the importance of financial conglomerates and alliances. The share of the five largest banking groups in the market accounts for 64% of total assets in 2012. There are three subsidiaries of foreign banks and ten branches of foreign banks and their market shares in total assets are 12% and 13%, respectively.

Loans accounted for almost 75% of banks' assets, while deposits accounted for around 50% of liabilities, at the end of 2012. Money and capital markets have increased their importance as funding sources and account for 32% of liabilities. Net interest revenue provided almost 70% of total operating revenues in 2012 with its share having only slightly declined over the last decades. Banks' revenues from investment banking account for only a small share of overall revenues.

Financing conditions

Norwegian banks have ample access to market funding and their funding structure is improving. The risk premium in three-month money market rates has come down towards the levels prevailing prior to the financial crisis and is currently about 0.25 percentage point. The maturity of banks' funding has increased since the 2008-09 crisis, which slightly improved the matching between funding and lending maturities. 65% of market funding has a maturity of over one year. A substantial share of their market funding consists of borrowing from abroad, almost 60% of total market funding at the end of 2012.

Box 1.1. **Main aspects of financial stability** (cont.)

Capital and earnings in banking sector

Norwegian banks' (consolidated group figures) pre-tax profit amounted to NOK 37 billion in 2012, for a return on equity of 11%. The results were associated with limited loan losses, 0.16% of total assets. Loan defaults were some 1.5% of all outstanding loans. The average Common Equity Tier (CET) 1 ratio among Norwegian banks was 11.1% at the end of 2012, which is above the current CET 1 requirement of 9%. The average CET ratio increased by 1.2 percentage points from the previous year and this was mainly achieved through retained earnings and stock issues rather than a reduction in assets.

Exposure to enterprises

Credit to non-financial enterprises declined in the wake of the 2008-09 crisis and credit growth has been primarily driven by the household sector since then. Debt in non-financial firms has stabilised as a share of GDP, albeit at a high level, for several years. Non-financial corporates are financially sound overall, as their ratio of equity to total assets ratio doubled in the 1990s and has been relatively stable at between 35% and 40% since the early 2000s. Debt-servicing capacity in non-financial corporates, as measured by earnings as a ratio to debt, is not particularly good by historical standards. However it has been recovering from the trough reached during the 2008-09 crisis. According to Finanstilsynet (the Financial Supervisory Authority of Norway), risk in the commercial property portfolio, which accounts for around 40% in total lending to the corporate sector, was reduced in 2012 through more stringent credit practices.

Exposure to households

Credit growth to households has been strong and has exceeded mainland GDP growth for more than a decade, so that despite the decline in credit to companies total credit has risen since the 2008-09 crisis (Figure 1.3). In aggregate, household debt has reached 200% of disposable income, which is high by historical and international standards. The debt-to-income ratios have increased in all income groups. The share of households where debt amounts to more than five times disposable income has increased rapidly from 4% in the mid-2000s to 11% in 2011 and such households are present in all income groups. In aggregate, net worth is positive due to housing wealth, while net financial wealth is negative (excluding life insurance and pension wealth).

countries. Norges Bank has maintained its policy interest rate at low levels since the onset of the financial crisis, currently at 1.5% since March 2012. This contrasts with the central bank's expectation that the normal level of the key policy rate would be around 4% for the next few years (Norges Bank, 2012a).

Such low interest rates, warranted by both below-target inflation and low interest rates abroad, would be expected to affect asset prices, including those of houses. The effect may be especially strong because output has not been significantly below potential for some time, and may be above it (Figure 1.8, see also Box 1.3). In general, there is a negative relationship between interest rates and house prices (e.g. ECB, 2003; IMF, 2005) which is found also for Norway (e.g. Jacobsen and Naug, 2005; Bjørnland and Jacobsen, 2009).[3] It is, however, usually difficult to estimate exactly the effects of interest rates on asset prices since causality can work in both directions (Andrews et al., 2011).

Figure 1.3. **House prices and credit growth**

A. House price to disposable income ratio
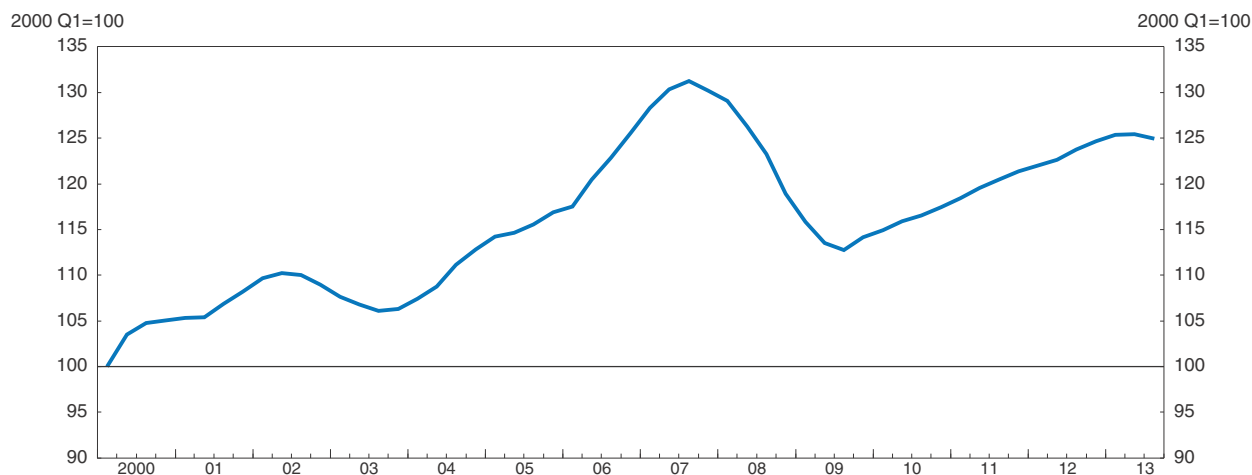
B. Total credit as a percentage of mainland GDP[1]
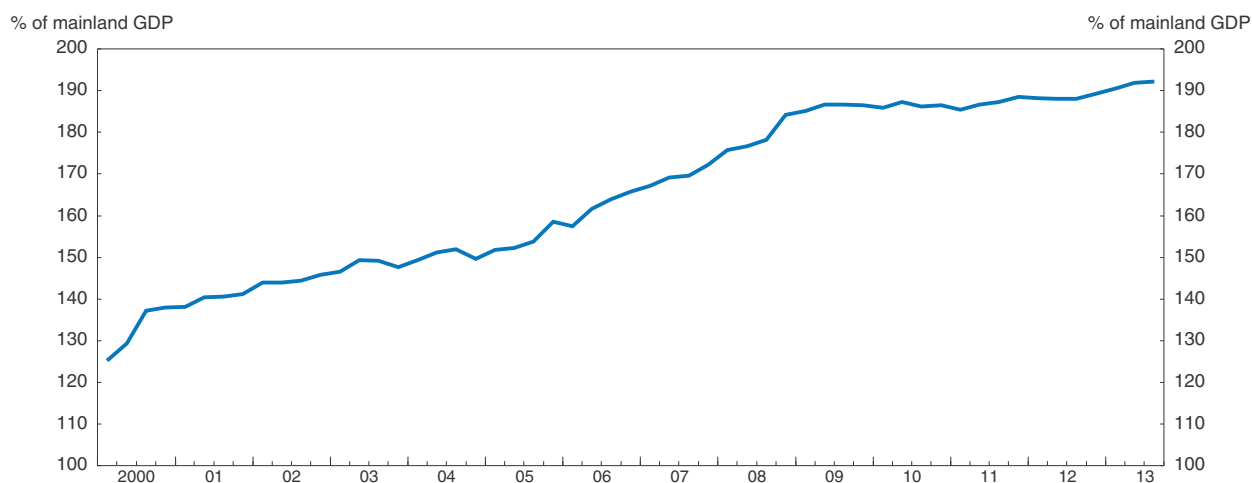
1. The sum of households (domestic debt) and non-financial enterprises (domestic and external debt) in mainland Norway.
*Source:* Norges Bank, *Monetary Policy Report 04/13.*

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Extending the inflation targeting approach

If asset prices are driven above sustainable levels when interest rates are kept low for an extended period, financial stability can be endangered. Woodford (2012) argues that it is possible to generalise an inflation targeting framework to take account of financial stability concerns alongside traditional stabilisation objectives. In practice, it is difficult to detect financial imbalances and thus the extent to which monetary policy should react to them. For instance, if monetary policy is geared excessively to stabilise property prices or credit growth, then it can disproportionately affect other objectives, such as inflation (Gelain et al., 2012). On the other hand, macroprudential instruments are intended to encourage financial institutions to respond to possible systemic risks building up at the macro level, notably high levels of credit growth, so as to have a more direct effect on financial stability

Figure 1.4. **House price to rent ratios across OECD countries**

Price to rent ratios compared with national historical averages, long term average = 100
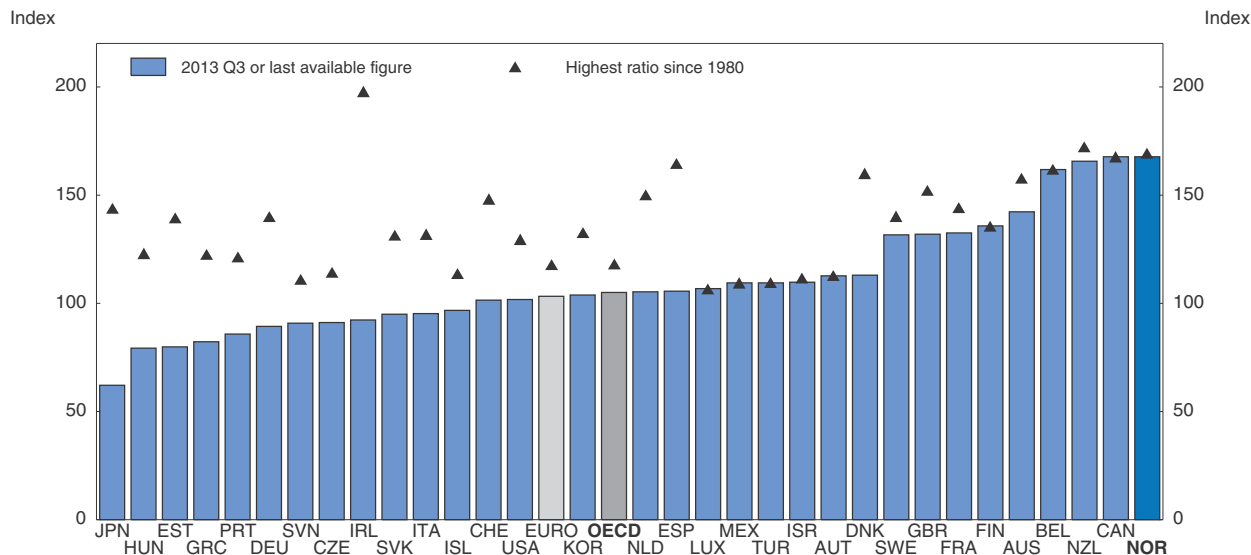

Source: OECD calculation.

How to read this figure: in Norway the ratio of prices to rents was 70% above the average for 1980 to 2012 in 2013 Q3 and this was the highest figure recorded. In Ireland the 2013 Q3 figure was slightly below the long-term average, while the peak in that country was twice the long term average. The data in this chart cannot be used to compare absolute values of price to rent ratios across countries.

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Figure 1.5. **Household liabilities**
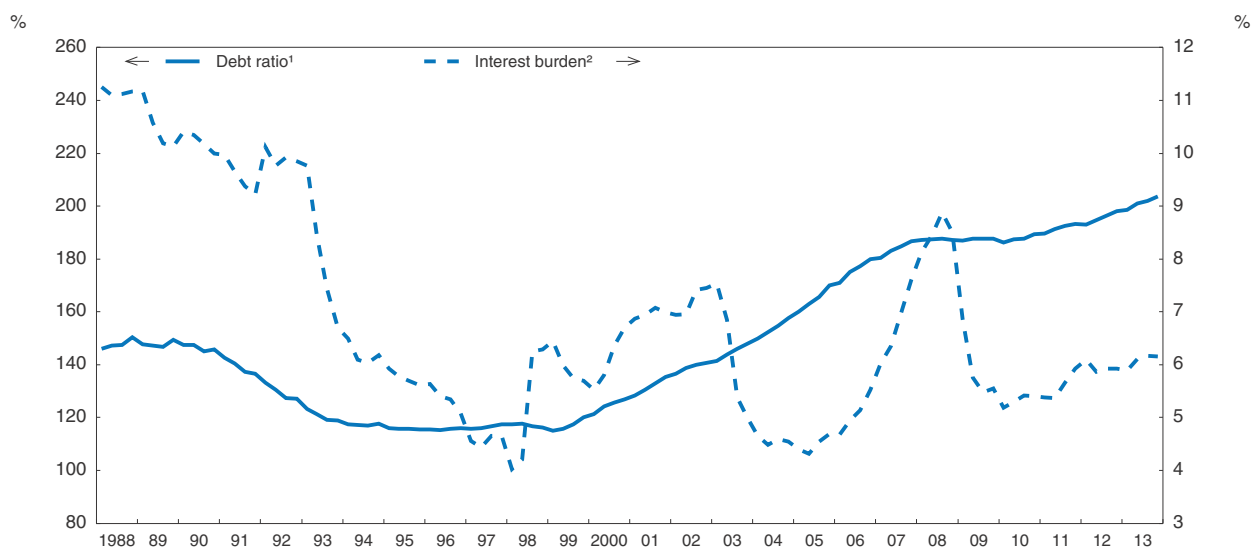
1. Loan debt as a percentage of disposable income adjusted for estimated reinvested dividend income for 2000-05 and redemption/reduction of equity capital for 2006-12Q3.
2. Interest expenses after tax as a percentage of disposable income adjusted for estimated reinvested dividend income for 2000-05 and redemption/reduction of equity capital for 2006-12Q3 plus interest expenses.

Source: Norges Bank, *Monetary Policy Report* 04/13.

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Box 1.2. **Household debt distribution**

In aggregate, household debt is now over 200% of disposable income and at around 130% of total income. In absolute terms this is largely due to increased debt in high-income households. At the same time, debt-to-income ratios have risen across all income groups. In aggregate, net worth is positive due to housing wealth while net financial wealth is negative. Housing and financial wealth accounts for 65% and 30% of the total, respectively.[*] In terms of wealth distribution, net worth is positive largely due to housing wealth across income groups, while net financial wealth is negative for most of income groups (Figure 1.6).

The debt burden is uneven across households of different structure. In general, younger households tend to be highly leveraged. Also family households tend to have a larger debt burden. Figure 1.7 shows that highly indebted households, defined as those with debt exceeding 200% of income, are often single person households aged between 30 to 44 and family households aged under 30 and between 30 and 44. Family households with young children also tend to have even larger debt-to-income ratios. In terms of financial leverage (i.e. debt relative to financial assets), it is the highest in the youngest age group. It decreases over age groups, regardless of household structure. In household aged more than 67, financial wealth it typically higher than debt.

What matters ultimately is households' debt-servicing capacity and solvency rather than the sheer size of debt. Lindquist (2012), identifying the historical consumption to income pattern for households of different age groups, calculated debt servicing capacity of households. She found that households aged 25-44 in particular will not be able to fulfil their debt payment without changing their historical consumption to income pattern, given an increase in the interest rate by 3 to 4 percentage points.

[*] In this household wealth dataset from Statistics Norway, all data come from tax return registers, except for private dwellings for which model-based estimated market values are used (Epland et al., 2012). Life insurance and pension wealth is not included, as it is not recorded in any tax registers. Such assets are not liquid before old-age and cannot therefore serve as buffers. In the national accounts, the share of insurance and pensions in total financial assets was 39% in 2011. This note applies to the data used in Figure 1.6.


(Svensson, 2012). However, knowledge and experience of macroprudential regulation is incomplete and at an early stage (Smets, 2013).

Prior to the development of macroprudential tools, Norges Bank was taking financial stability into account to some extent in monetary policy decisions. In March 2012, it made explicit that it considers financial stability as an additional criterion for its conditional interest rate forecasts. Noting that an extended period of low interest rates can result in high debt levels, the central bank was concerned about the resulting vulnerability to macroeconomic shocks, which "may result in a fall in property prices, creating imbalances between borrowers' debts and the value of leveraged assets. By incorporating the interest rate level in the loss function, the Bank is seeking to counter the build-up of such imbalances." (Norges Bank, 2012b, p. 16).

The effect of this approach is visible in the path the policy rate has taken since 2012. The policy rate has been higher than more traditional inflation and output gap considerations would have implied, and has been close to the central bank's prediction of what would be needed according to a broader set of policy objectives, including financial stability (Figure 1.10). A similar approach has been adopted in other countries recently. For example, a new Policy Targets Agreement was concluded in 2012 in New Zealand. This

Figure 1.6. **Household wealth and debt**

A. Average wealth by income decile groups[1], 2012
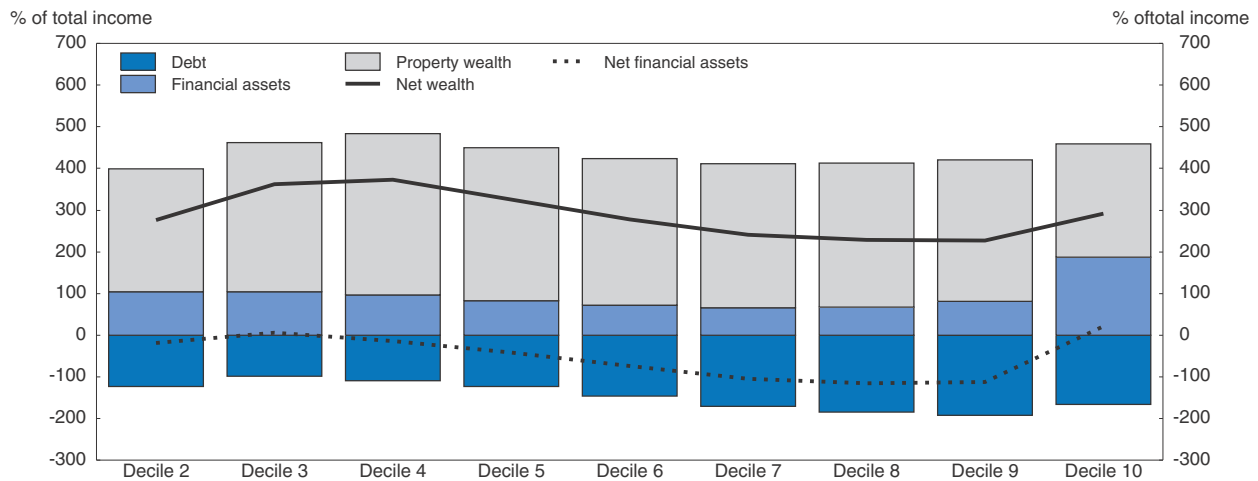
B. Composition of household wealth and debt, 2011
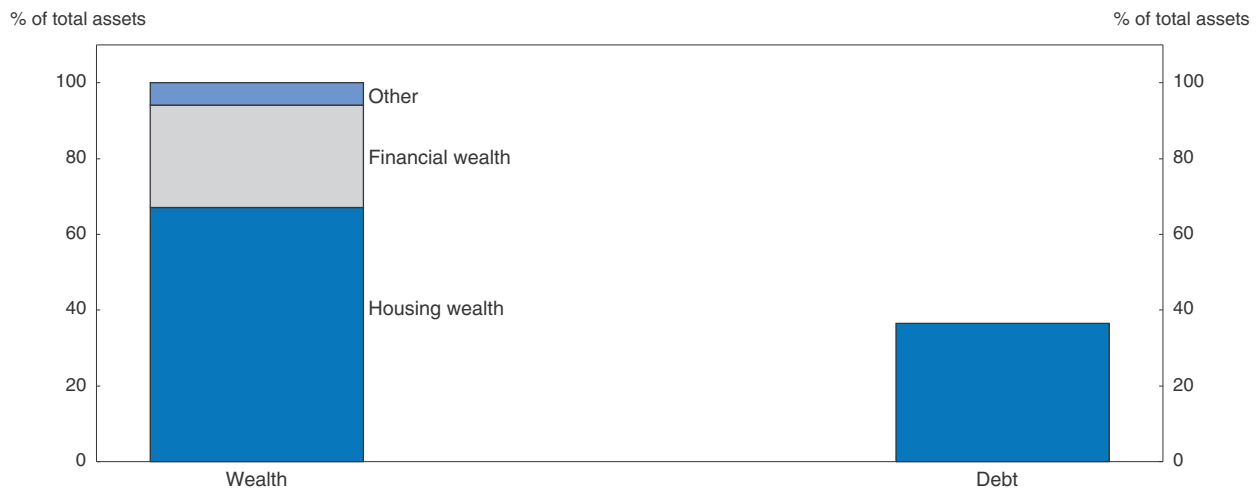
1. The first income decile group was excluded since this group is highly heterogeneous: in particular, pensioners who tend to have lower earnings but to have larger financial assets. This group also include students and immigrants who tend to have lower earnings.
See note to Box 1.2.
Source: Statistics Norway.

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agreement gave greater prominence to the long-standing statutory obligation that monetary policy should "give regard to the efficiency and soundness of the financial system" and introduced a requirement that the central bank monitor asset prices (OECD, 2013a).

However, the primary objective of monetary policy is low – but not too low – and stable inflation. Additional instruments are needed to aim more effectively at several objectives at the same time (Olsen, 2013). Table 1.1 summarises the various tools that are now, or soon will be, in place to augment the range of instruments available, and they are further discussed in the following sections. One of the most interesting is the counter-cyclical capital buffer.

Figure 1.7. **Highly indebted households[1] by household structure, 2011**
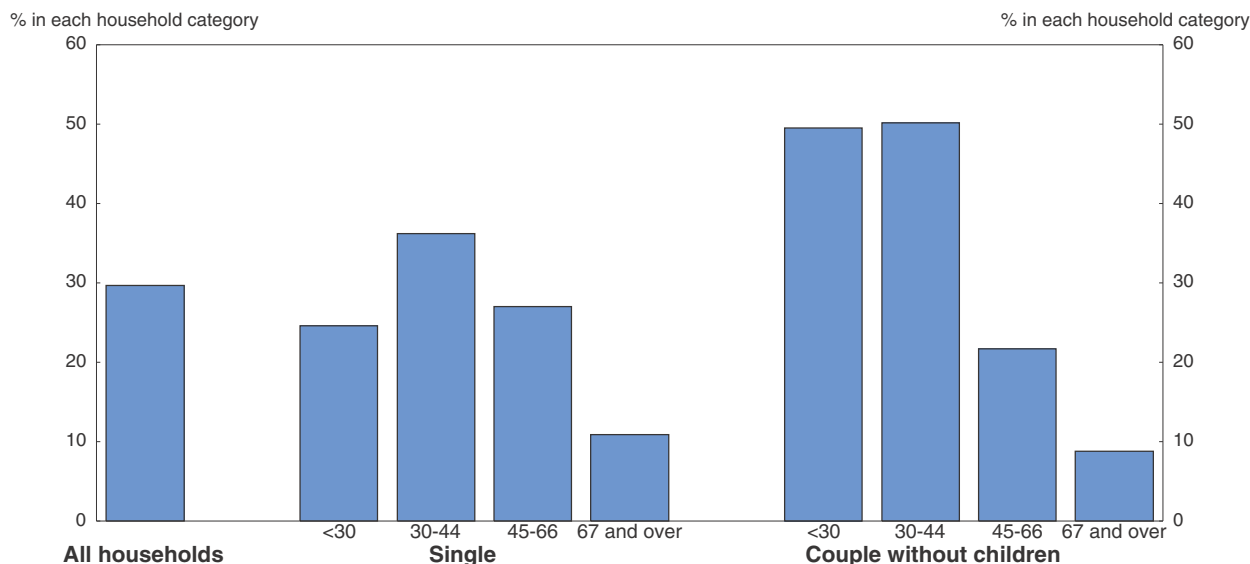
Note: Households consisting of single persons living alone under the age of 18 are not included in the data. Couples included married couples, cohabiting couples and registered partners. Students are excluded.
1. Households with debt equivalent to 200% or more of income.
*Source:* Statistics Norway.

How to read this figure: 30% of all households have total debt more than twice their income, while for couples in the age group 30-44, without children, 50% of households are in this situation.

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Macroprudential policy and indicators of financial stability

The counter-cyclical buffer is one of the tools which aim at reducing the risk of build-up of imbalances and systemic risk. It is designed primarily to bolster banks' resilience in the event of a very sharp downturn and contain pro-cyclical fluctuations in the supply of credit. Macroprudential tools are often based on existing micro-prudential measures such as capital requirements, but their setting is conditioned on macro-financial developments or indicators of systemic risk, either in a rule-based or a discretionary fashion. But, as the central bank governor has pointed out "the counter-cyclical capital buffer is not a stabilisation policy instrument. The buffer is more likely to vary over longer credit cycles than follow the normal business cycle" (Olsen, 2013).

An increase in capital requirements is likely to raise effective borrowing costs and could affect economic growth. The most comprehensive study of the macroeconomic impacts of higher capital requirements for banks was conducted in 2010 by the Macroeconomic Assessment Group (MAG) established by the Financial Stability Board and the Basel Committee on Banking Supervision (BCBS, 2010a). This study covers 17 countries, though it does not include Norway. The estimated effects seem to be somewhat weaker in Norway (Table 1.2). Akram (2012) showed that lending rates increased by 0.14 point, credit reduced by 0.23 point, GDP reduced by 0.07 point following an one percentage point increase in the capital adequacy ratio over 8 quarters.[4] In Akram (2012), changes in capital requirements were primarily transmitted via lending rates, while no direct channel to the volume of credit to households was found.

Figure 1.8. **Interest rates and asset prices**[1]

A. Price to earnings ratio and interest rates

B. Price to rent ratio and interest rates
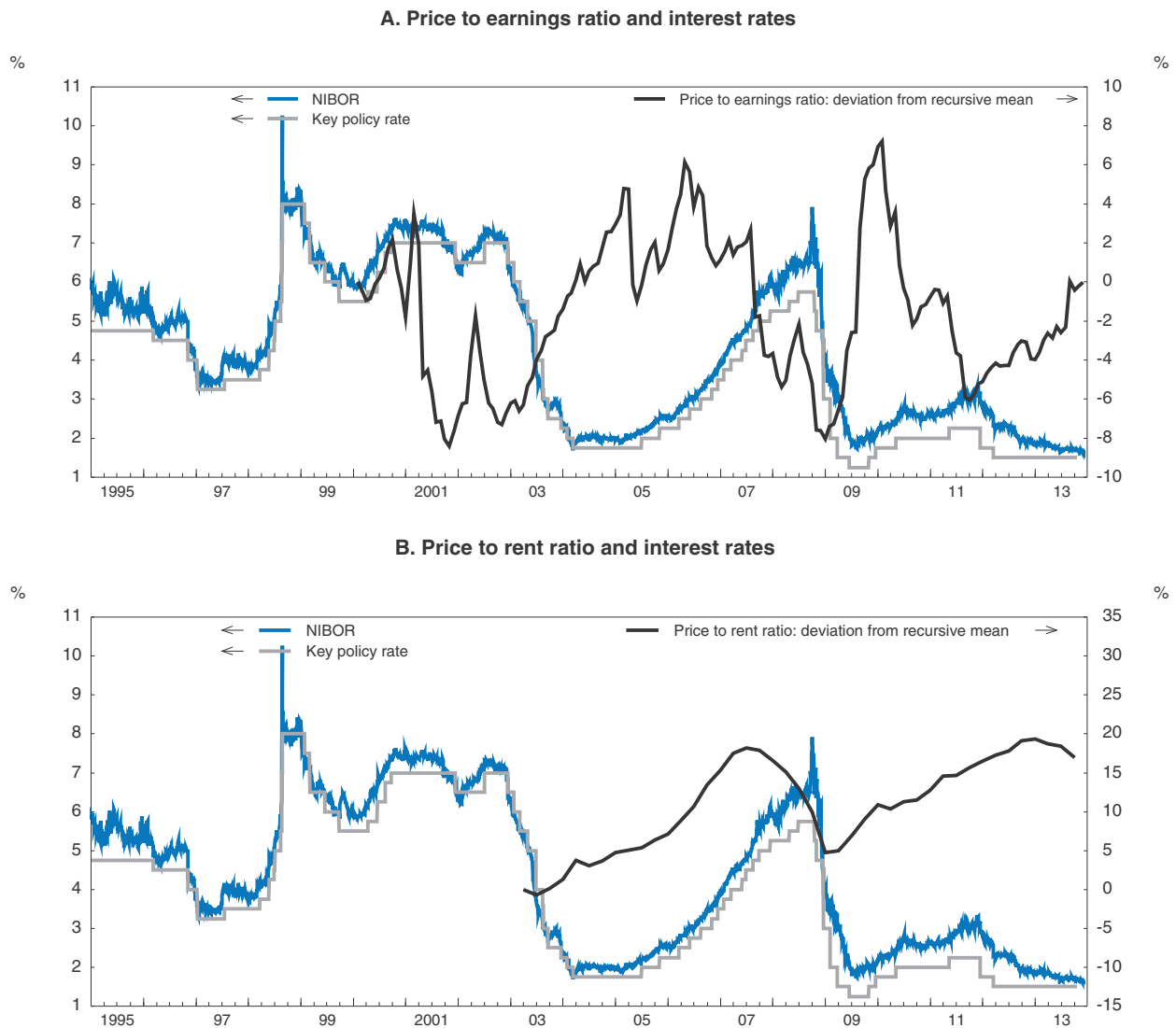
1. The price to earnings ratio (PER) is a weighted average of the PERs of 50 constituents in the Oslo stock exchange compiled by Datastream. The house price to rent ratio is calculated by the OECD and uses the same definition as in Figure 1.4.
Source: Norges Bank, Datastream and OECD calculation.

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Basel III and the European Union Capital Requirements Directive (CRD) IV (which applies to Norway as a member of the EEA) require that national authorities establish a counter-cyclical capital buffer when necessary. The Basel Committee on Banking Supervision proposed to use the credit-to-GDP ratio as a guide in taking buffer decisions (BCBS, 2010b). It also proposed to set the counter-cyclical buffer when the ratio deviates from estimated trends by 2 percentage points or more. The buffer would vary from 0% (when the deviation is 2 percentage points or less) rising linearly to 2.5% (when the deviation is by 10 percentage points and more). CRD IV notes that national authorities should use other indicators and assessment where relevant. Norges Bank has been

Box 1.3. **The house price-to-rent ratio**

House prices can be thought as a function of, among other things, the present value of expected rents, since this is the stream of income this asset generates.

To assess how much house prices deviate from fundamental values, it is useful to calculate "theoretical" price to rent ratios. The assumption is that there is some kind of arbitrage for a buyer between purchasing a house and renting one and that, in the equilibrium, rents should represent the market clearing price of services which housing provides at each instant.[*]

The theoretical price-rent ratio can be written as (for details see for example, Girouard et al., 2006):

$$R = P(i^a + \tau + f - \pi) \text{ or } P/R = 1/(i^a + \tau + f - \pi)$$

where P represents house prices, R rents, i^a the after-tax mortgage interest rate, τ the property tax rate on owner-occupied houses, f the recurring holding costs consisting of depreciation, maintenance and the risk premium on residential property and π the expected capital gains on houses. This is the widely used standard definition of the real housing user cost of capital and represents the real price of housing services. (f is set to be 0.04, and π is proxied by the average of CPI inflation rates in the past five years, following previous OECD studies).

Figure 1.9. **Theoretical and actual price-to-rent ratios**

Note: Average 1990-2012.
Source: OECD calculations.

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Box 1.3. **The house price-to-rent ratio** (*cont.*)

The results of this calculation show a contrast between Norway and some other countries which experienced a property market boom before the 2008-09 crisis (namely the United States, Spain and Ireland). In the latter countries the actual price-to-rent ratio declined after the crisis and it is aligning with the theoretical value (it is even undershooting in Ireland). In Norway, the actual price-to-rent ratio has continued to increase after a slight halt due to the 2008-09 crisis.

In all the countries mentioned above, the mortgage interest rate has been low since the onset of the 2008-09 crisis. This has raised the theoretical prices and made actual price levels seem sustainable. In this sense, current price levels in many countries could be characterised as sustainable only with persistently low mortgage rates (André, 2010).

In the calculation illustrated in the figure, expected capital gains are assumed to be zero in real terms. The results are modified significantly if the actual house price inflation rates in the past years are used for the expected capital gain term, assuming that expectations on house prices are formed in an extrapolative way. Gelain and Lansing (2013) show that expectations of extrapolative nature can better explain many features in Norwegian data such as the positive correlation between the current price-to-rent ratios and future realised returns compared with rational expectation models.

* There exist some caveats: Rented housing and owner occupied must be supplying the same service, which is not necessarily always the case; the rental market must exist across equivalent properties – non taxation of imputed rent may interfere with this.

working on developing a set of indicators and Norway is among the first to have implemented such a monitoring system in practice.

Norges Bank uses the following four indicators and publishes them regularly in its quarterly Monetary Policy Report with Financial Stability Assessment (Figure 1.11):

● The ratio of total credit (households and enterprises in mainland Norway) to mainland GDP.

● The wholesale funding ratios of Norwegian credit institutions.

● The ratio of house prices to household disposable income.

● Commercial property prices.

These indicators were selected on the grounds that they have risen ahead of periods of financial instability (Norges Bank, 2013). They are computed in terms of deviations from estimated trends, which are either a recursively calculated average, 10-year rolling average or a trend with the Hodrick and Prescott filter (augmented with a simple projection). In one area the data could be improved. The measure of commercial property prices used is not observed prices but a series imputed from observed rents. While rents matter for on-going debt-servicing ability, prices are crucial in case solvency is an issue. If imputed prices diverge from actual market prices (as they certainly do in the housing market, see Box 1.3) it could be important to monitor the difference to the extent that data availability makes it possible. Norges Bank has noted that there will not be a mechanical relationship between developments in the indicators and advice on the buffer, but will build on Norges Bank's professional judgement and take into account other requirements applying to banks (Norges Bank, 2013).

Credit growth and property prices have been identified as sending early signals of possible subsequent financial distress (Borio and Lowe, 2002). For Norway, Anh (2011) evaluated several financial indicators to see if these had signalled subsequent financial

Figure 1.10. **Appropriate interest rate path according to different criteria**

As predicted in March 2012
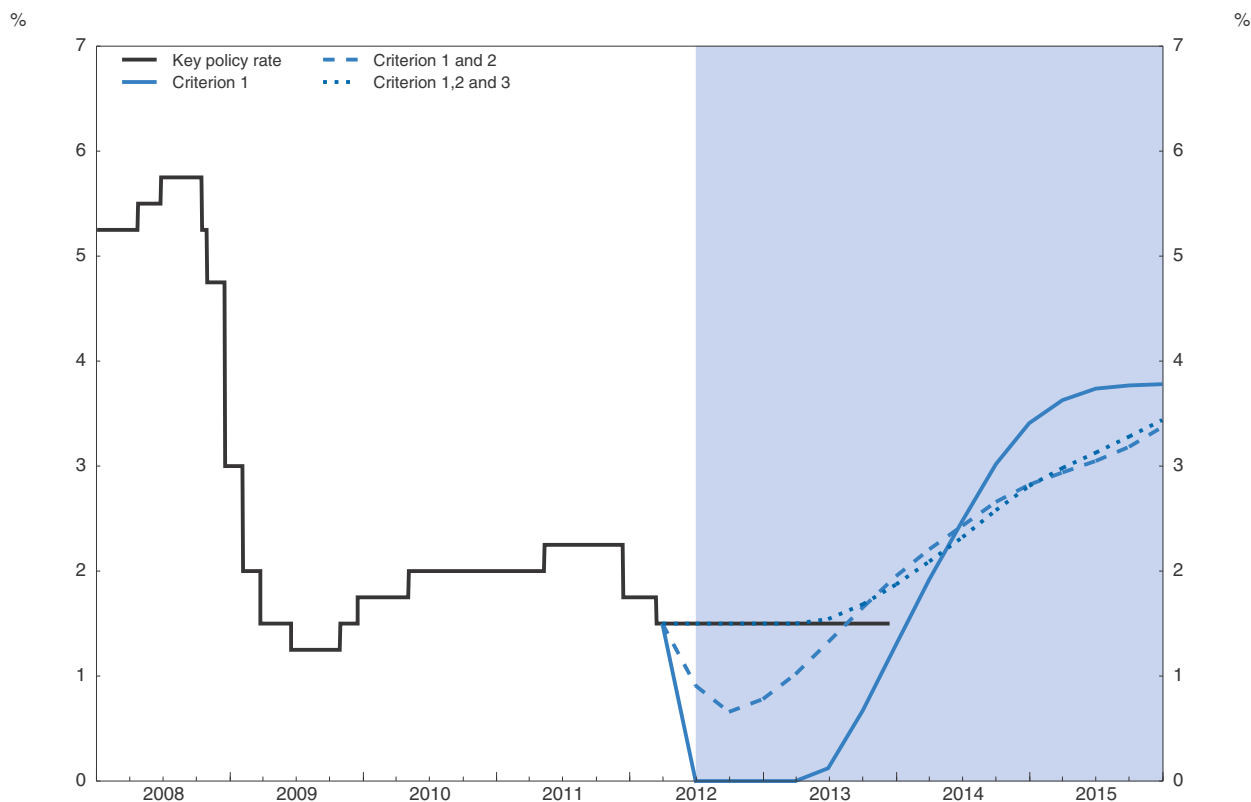
Criterion 1: set the interest rate with a view to stabilising inflation at target or bringing it back to target after a deviation has occurred.
Criterion 2: set the interest rate path to provide a reasonable balance between the path for inflation and the path for overall capacity utilisation in the economy.
Criterion 3: set the interest rate so that monetary policy mitigates the risk of a build-up of financial imbalances, and so that acceptable developments in inflation and output are also likely under alternative assumptions about the functioning of the economy.
Source: Norges Bank.

How to read this figure: if the sole objective of monetary policy were to maintain inflation at target, a Taylor rule would have implied a very low policy rate (line "criterion 1"). Taking the output gap into account in addition would have implied a higher path (line "criteria 1 and 2"). Norges Bank estimated that taking financial stability into account as well would have warranted a stable interest rate (line "criteria 1, 2 and 3") and this is very close to the path that has in fact been followed.

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distress, namely the crisis in the early 1990s and the 2008-09 crisis. This study found that the credit-to-GDP ratio seemed to best predict the occurrence of a financial crisis during the subsequent 2 to 3 years when it exceeds estimated trends by around 10% (if the threshold value is too high the indicator would not predict a financial crisis and if it is too low the indicator would wrongly predict a financial crisis).

Counter-cyclical measures will be installed

With Norges Bank' advice, the Ministry of Finance decided to set up a counter-cyclical buffer of 1% (of risk-weighted assets) in December 2013, and this will be effective as of 30 June 2015. It may increase further if there still remain signs of financial imbalances. In the meantime, banks have time to adjust their behaviour to reach the higher capital

Table 1.1. **Policy instruments for financial stability**

Category	Measure	Implementation
Monetary policy	Consideration of financial stability	In place.
Macro-prudential policy	Installation of counter-cyclical capital buffer	Announced in December 2013, to be effective as of 30 June 2015.
	Setup of a monitoring system	In place (and continuously being developed).
Micro-prudential policy (unless indicated otherwise)	Capital Requirement (Basel III/EU CRD IV)	EU CRD IV entering into force in July 2013. – Minimum requirement of 4.5%: In place. – Conservation buffer of 2.5%: In place. – Systemic risk-buffer[1] of 3%: 2% for the first year which will be raised to 3% in July 2014. – Buffer for systemically important bank[1] of 2%: will be introduced in 2015 (1% during the first year).
	Adjustment of risk-weights calculated by Internal Rating Based (IRB) approach	The floor of Loss Given Default (LGD, a risk parameter in the calculation of internal model based risk-weights) on home mortgage loans was raised to 20% in October 2013, from 10% previously. This is expected to raise risk-weights on home mortgage loans calculated by banks using internal rating based (IRB) approach to around 20% (from currently 10-13%). Considering similar measures for Probability of Default (PD, another key risk parameter in the calculation of internal model based risk-weights), which would result in higher and more equal risk-weighting of residential mortgage loans among banks, if introduced.
	Cap on loan-to-value (LTV) ratios	Guidelines: Limit LTV ratios on home mortgage loans to 85%, reduced in December 2011 from 90% previously; Limit LTV ratios on interest-only loans to 70%; Limit LTV ratios on home equity loans to 70%; If LTV ratios deviate from those guidelines: additional collateral is required, or a special prudential assessment must satisfy internal criteria by banks.
	Other measures	Affordability assessment: Loans are basically not given if borrowers' cash flow becomes negative due to the mortgage loan payment, in a stress test where a further increase in the interest rate by 5 percentage points is assumed.

Note: Reciprocity is required for the counter-cyclical buffer and the measures related to mortgage loans, when national authorities impose stricter requirement. Thus branches of foreign financial institutions which reside in Norway are also subject to the same requirement as Norwegian banks.

1. These measures are classified as macro-prudential policy.

requirement. Their effect can then be monitored along with that of the prudential measures on mortgage risk weighting discussed further below.

The optimum level of the counter-cyclical buffer may also depend on the rules for removing it, since its effects may depend on how long it is expected to be in place. The Ministry of Finance has stated that the counter cyclical buffer will be reduced in the event of a severe economic downturn and large banking losses. Norges Bank has suggested that the indicators used to set up the counter-cyclical buffer are not well suited to judge whether it should be removed or reduced. It argues that other factors such as indicators of market stress and the outlook for banks' losses would be taken into account (Norges Bank, 2013). Given the discretionary nature of the use of the buffer, it will be important to avoid implicitly tailoring macroprudential policy to developments in individual banks.

The capital buffer for systemically important banks is another new prudential tool which aims at mitigating long-term non-cyclical systemic risk. The authorities plan to introduce this buffer from July 2015 for banks which will be identified as systemically important. They use such criteria as the share of each bank's assets and lending in the market. In addition to the sheer size of banks, the authorities look at interconnectedness of banks; it is this interconnectedness that is perhaps most important as far as medium-sized banks are concerned. There are new approaches to determine the contribution of

Table 1.2. **Estimated effects of increased capital requirement**

Basis points impact of 1 percentage point increase in capital requirement over 8 quarters

	After 18 quarters		After 32 quarters	
BCBS (2010a)				
Lending rate	17	[5, 25]	15	[5, 26]
Credit	-140	[-360, -6]	-190	[-360, -80]
GDP:				
[standard approach]	-12	[-96, 39]	-10	[-314, 3]
[DSGE]	-11	[-41, -1]	-7	[-25, -2]
[reduced form]	-30	[-87, 18]	-24	[-88, 2]
Norway:(Akram, 2012)				
Lending rate	14	{12, 16}	12	{10, 13}
Credit	-23	{-31, -16}	-71	{-97, -45}
GDP	-7	{-11, -2}	-10	{-20, -2}

Note: The effects are measured in basis points.

Panel I shows median estimates a 1 percentage point increase in the equity ratio reported in BCBS (2010a) Median Estimates of 97 simulations for 17 countries. Minimum and maximum values in square brackets.

Panel II reports comparable evidence for Norway, with the 68% confidence intervals in curly brackets (Akram, 2012).

"Standard approach": The effects for lending rates are derived using an accounting approach and the effects for GDP are obtained by implementing the change in the lending rate in the national models.

"DSGE": An integrated approach where a group of DSGE models with banks are used.

"Reduced form": An integrated approach where a group of reduced-form models are used.

Source: BCBS (2010a) and Akram (2012)

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financial intermediaries to systemic risk, such as those based on network analysis and multi-agent financial network models (Markose, 2013).

Prudential policy and home mortgage loans

The development of macro-prudential instruments to target wider macroeconomic stability has been paralleled by some changes, or planned changes, in traditional prudential policy. This has been particularly directed at household indebtedness, and concerns that existing regulations may have skewed banks' incentives excessively in favour of such lending. The two key instruments here are the capital requirements and risk weights regime. Appropriate risk-weighting is also important to make the counter-cyclical buffer exert expected effects on mortgage lending. Other specific measures such as limits on loan to value (LTV) ratios also protect individual consumers against potential consequences of risky borrowing. They can promote financial stability and consumer protection and limit the spill-over risk stemming from the housing sector.
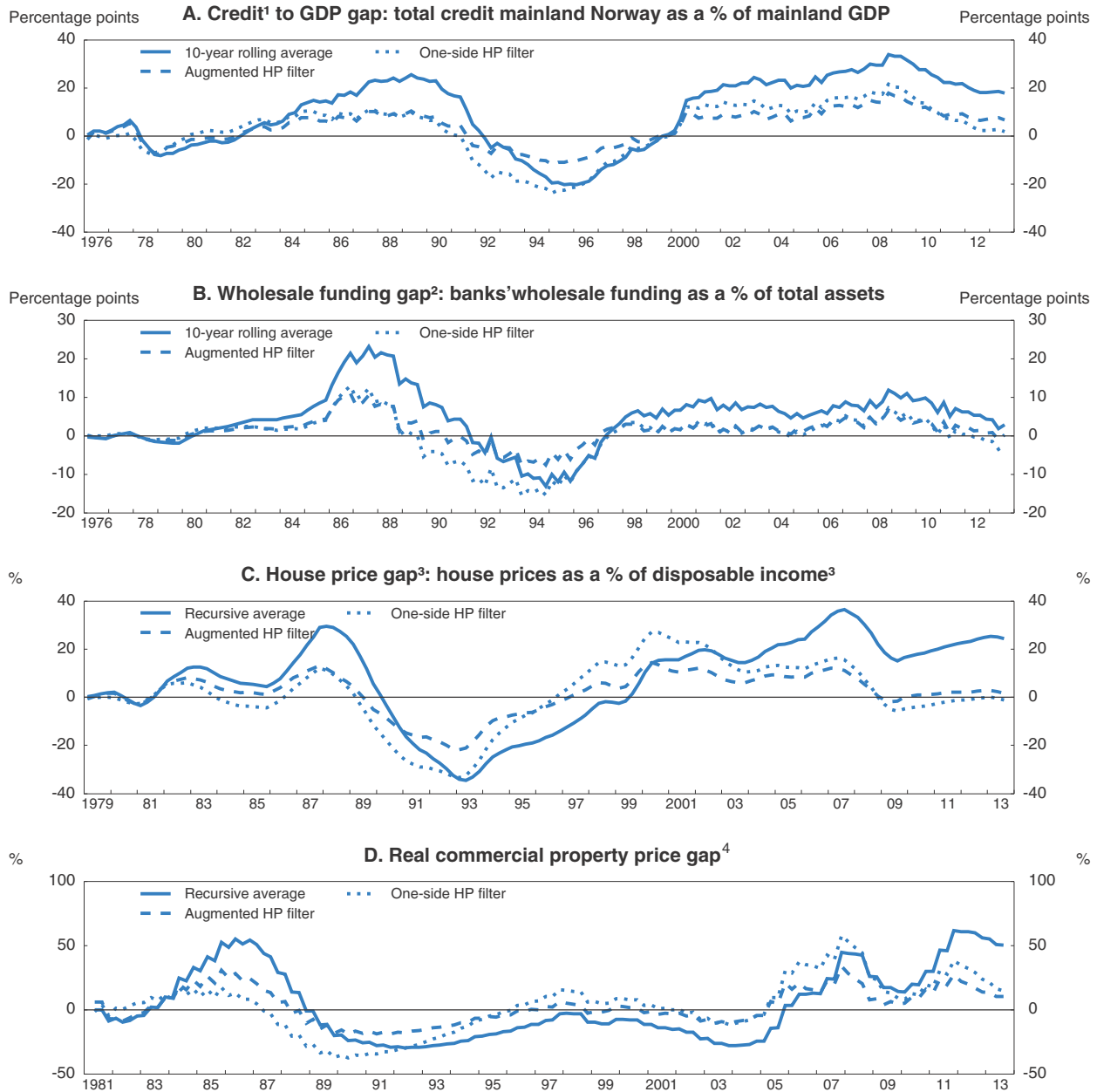
The implementation of new capital requirements arrangements is well under way

The implementation of Basel III is progressing in Norway, in some cases well ahead of the required schedule. The capital and buffer requirements of the European Union's CRD (capital requirements directive) IV entered into force in Norway in July 2013. The authorities plan to install a permanent systemic risk buffer of a least 3% and a buffer of 2% for systemically important institutions. The former will be 2% in the first year under transitional arrangements and the latter will be introduced from July 2015. By mid-July 2016 total requirements will be between 10% (for a bank which is not systemically important, and without a counter-cyclical buffer) and 14.5% (for a systemically important institution, if a counter-cyclical buffer is in place at its maximum 2.5%) (Figure 1.12).

Figure 1.11. **Indicators of financial imbalances**

Deviations from estimated trends

A. Credit[1] to GDP gap: total credit mainland Norway as a % of mainland GDP

B. Wholesale funding gap[2]: banks' wholesale funding as a % of total assets

C. House price gap[3]: house prices as a % of disposable income[3]

D. Real commercial property price gap[4]

Note: For Hodrick-Prescott filter, lambda = 400 000. The variable "Augmented HP filter" refers to the one-side HP filter estimated on data augmented with a simple projection.

1.   Sum of non-financial corporations in Mainland Norway (total economy pre-1995) and households.
2.   All banks and covered bond mortgage companies excluding branches and subsidiaries of foreign banks in Norway. Quarterly figures pre-1989 are calculated by linear interpolation of annual figures.
3.   Quarterly pre-1990 figures are calculated with linear interpolation of annual figures. Data have been adjusted for estimated reinvested dividend income for 2000-2005 and redemption/reduction of equity capital for 2006 Q1-2012 Q3.
4.   "Imputed" prices using rental prices for high-standard office premises in central Oslo, deflated by GDP deflator for mainland Norway.
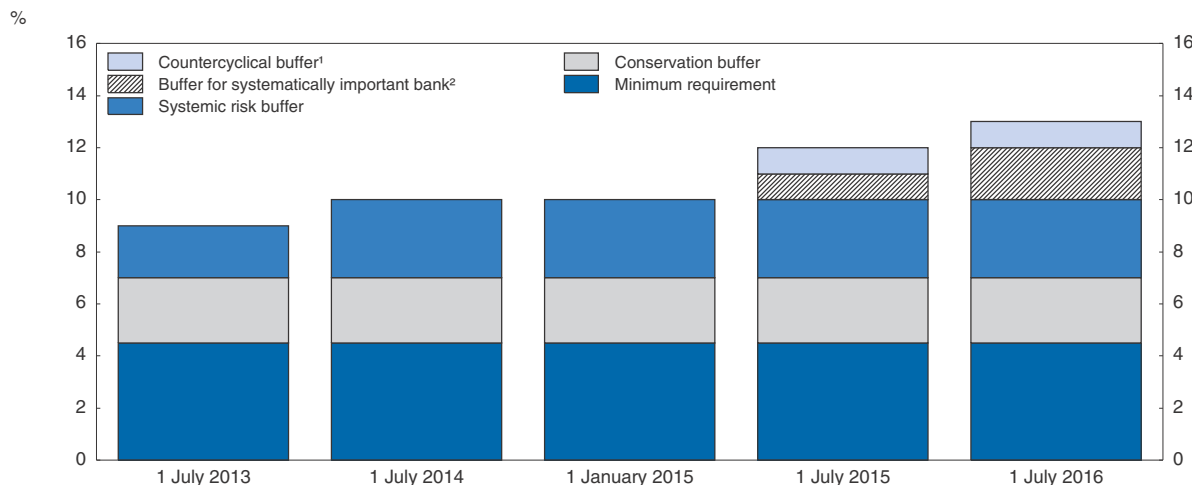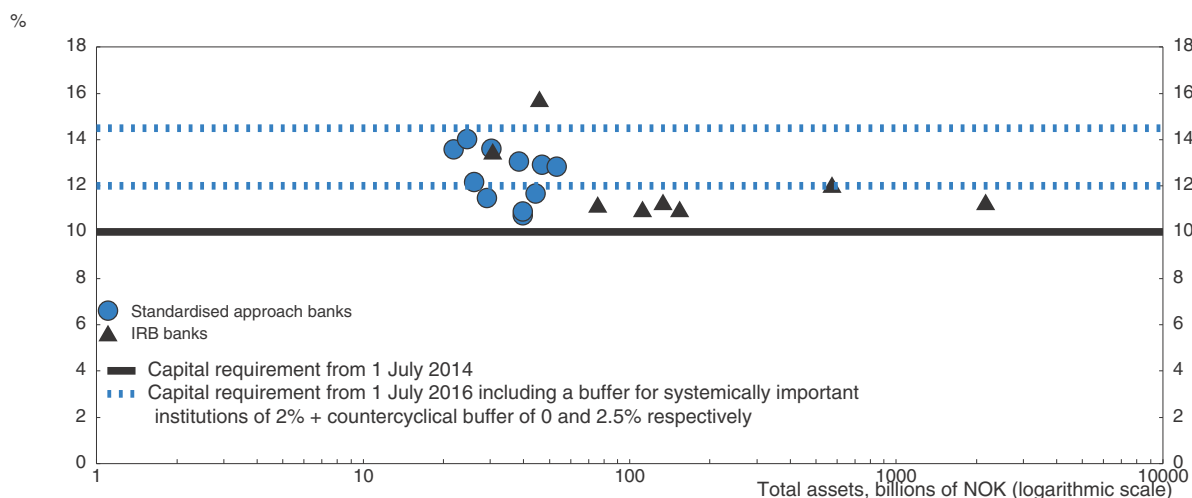*Source:* Norges Bank, *Monetary Policy Report 04/13.*

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Figure 1.12. **Implementation of new capital requirements**

A. Common Equity Tier 1 capital ratio requirements in the new regulatory framework

B. Banking groups[3]: common equity Tier 1 capital ratio, 30 September 2013

1. This can be increased up to 2.5% (or above it with different conditions applying).
2. Only for those banks which are recognised as such (to be determined) by the authorities.
3. Banking groups with total assets in excess of NOK 20 bn, excluding branches of foreign banks in Norway.
*Source:* Norges Bank, *Monetary Policy Report 04/13.*

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The impact of the new capital requirements on the cost of different kinds of lending will be affected by the different risk-weights across assets. Risk weights for mortgage loans are generally low in Norway, reflecting the very low rate of default in the past. Eight Norwegian banks use the Internal Rating Based (IRB) approach. This allows financial institutions to use their own models to set key risk parameters such as the probability of default and loss given default in mortgage lending. Non-IRB banks use standard risk weights. The eight IRB banks accounted for around 75% of total assets in 2012. The standard risk weighting for mortgages is 35%. With the IRB approach, capital requirements for a given loan type, LTV ratio, and other factors, may vary across financial institutions. The resultant risk-weight for mortgage loans on average is estimated to be 10-13% among

banks with the IRB approach, much lower than the standard approach (Finanstilsynet, 2013). By contrast, the risk weight for low-risk corporate loans is estimated to average 60% in IRB banks, higher than the 50% in the standard approach. Some banks have increased their focus on mortgage lending over lending to the corporate sector, likely partly due to the low risk weights on home mortgage loans (Finanstilsynet, 2013). The difference between banks' total assets and risk-weighted assets further widened in 2012 (Figure 1.13) and this may suggest that banks are shifting their exposures to categories with lower risk weights and/or that risk weights are being lowered.

Figure 1.13. **Common equity tier 1 ratio and unweighted capital share**
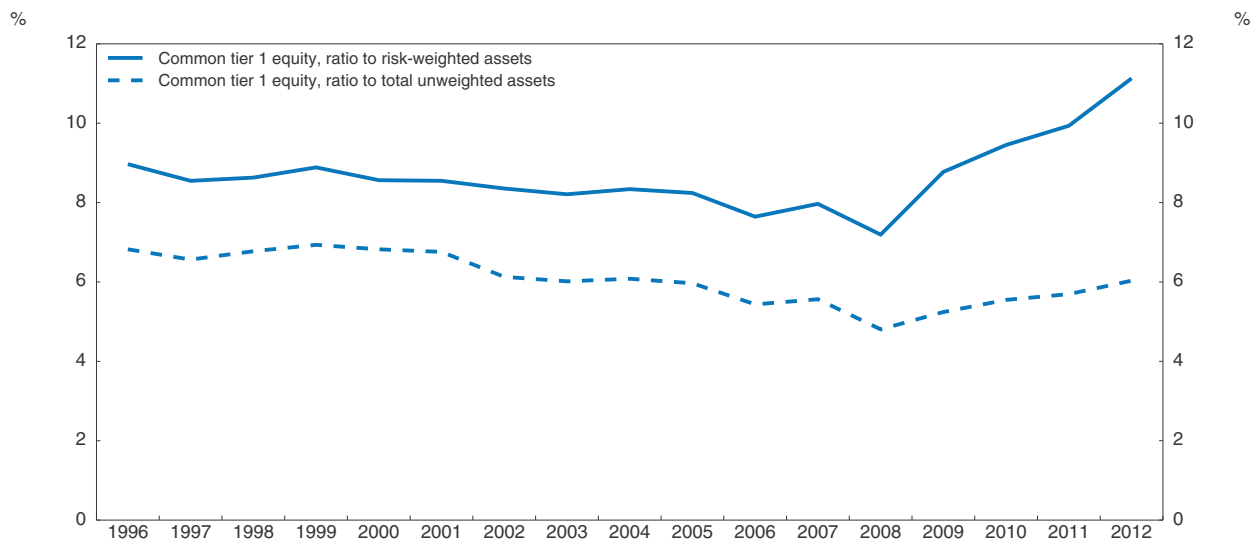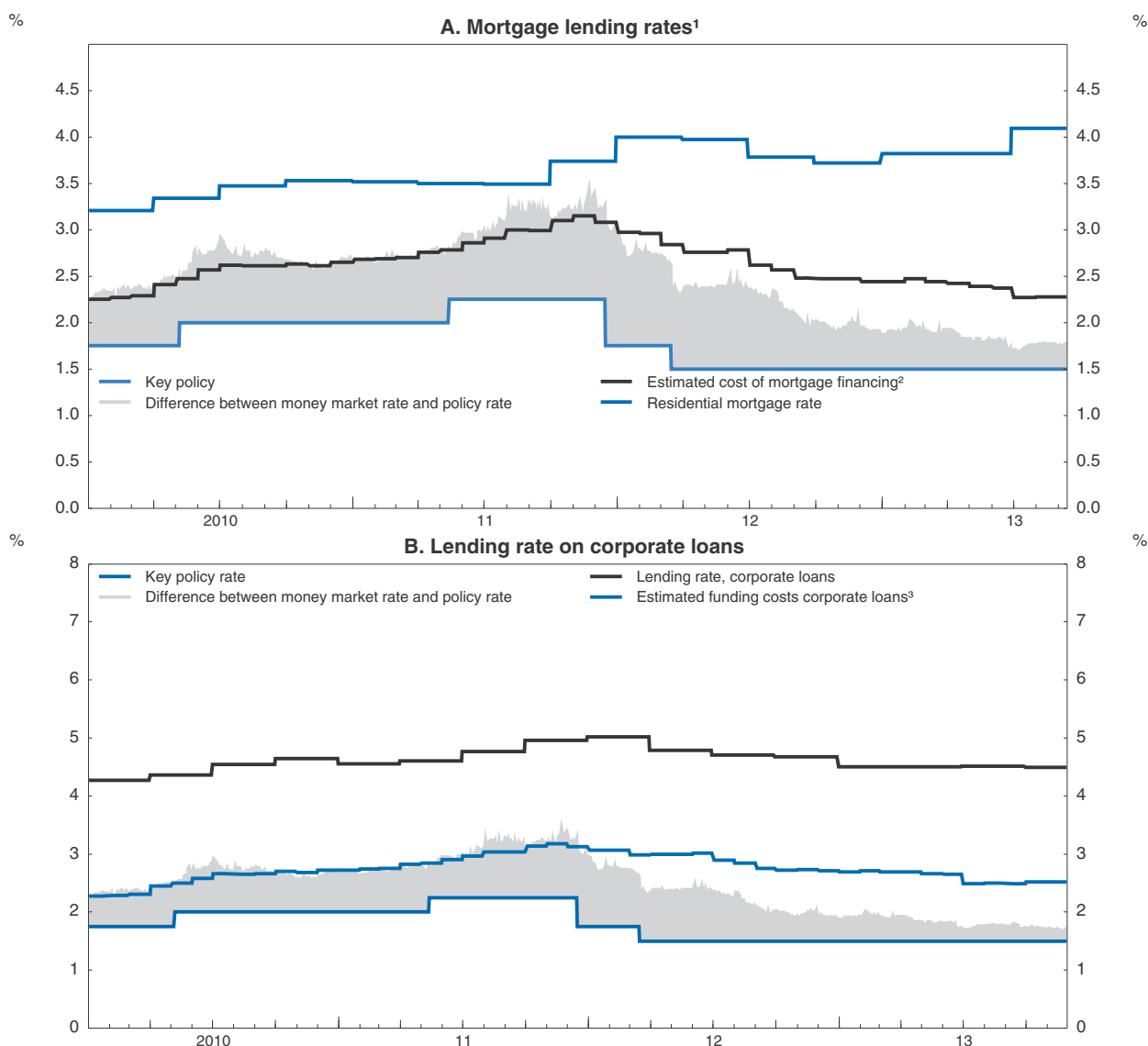

Source: Finanstilsynet.

The risk of mortgage loans should be correctly reflected in risk-weights

The European Union's capital requirements directive recommends that national authorities adopt procedures for increasing the risk weights that banks derive from their IRB approach. These procedures can be to impose a minimum weight, or to apply an add-on or multiplier to banks' internal estimates.

In October 2013, the Norwegian authorities decided to increase the floor (the floor imposed on IRB banks' risk models) on the estimate of loss given default from 10% to 20%. This is expected in turn to increase the average risk-weighting of residential mortgage loans to about 20%, according to the Ministry of Finance (2013). This is a welcome step forward. The authorities should monitor its effects and consider whether further tightening might be needed. Andersen et al. (2012) estimate that Norwegian banks would have to raise residential mortgage rates by 0.1-0.4 percentage points in a hypothetical case in which the risk weight on residential mortgage loans is doubled,[5] assuming that banks keep their capital equity ratio and aim at maintaining the return on equity from mortgage lending.[6] This estimate is of a similar order of magnitude to the increase in mortgage rates relative to money market rates that was seen during 2013 (see Figure 1.14). Finanstilsynet also continues to review banks' IRB models with a view to, *inter alia*, raising the lowest estimates of probability of default. This is likely to result in somewhat higher and more equal risk-weighting of residential mortgage loans in Norwegian banks.

Figure 1.14. **Mortgage loan interest rate**

A. Mortgage lending rates[1]

Key policy
Difference between money market rate and policy rate
Estimated cost of mortgage financing[2]
Residential mortgage rate

B. Lending rate on corporate loans

Key policy rate
Difference between money market rate and policy rate
Lending rate, corporate loans
Estimated funding costs corporate loans[3]

1.   The lending rate on lines of credit secured on dwellings provided by all banks and mortgage companies in Norway.
2.   Estimated using weighted interest rates on covered bonds outstanding and weighted deposit rates.
3.   Estimated using weighted interest rate on senior bank bonds outstanding and weighted deposit rates.
Source: Norges Bank, *Monetary Policy Report 04/13.*

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The Basel I floor on total risk-weighted assets serves as a backstop in the capital adequacy framework. The Basel I floor as applied in Norway prescribes that total risk-weighted assets cannot be set lower than 80% of what would have been required under the Basel I regime. This means that if total risk-weighted assets are at or below the Basel I floor (which is the case for the Norwegian IRB banks), the risk weight for home mortgage loans is 40% and 80% for low-risk corporate lending. Thus, mortgage lending would still be favoured relative to corporate lending in terms of capital requirements, but to a lesser degree.

Covered bonds are increasingly being used as a source of finance for mortgage loans. Their increasing use could also lead to higher credit risk if the underlying risk of the securitised assets is not clear. Covered bonds enable financial institutions to fund in a less costly way because of multiple guarantees.[7] In Norway covered bonds must be issued by mortgage lending companies. The majority of such companies are wholly owned by a parent bank. Home mortgage loans are transferred from banks to mortgage lending companies and 60% of all home mortgage loans are estimated to reside in mortgage lending companies. There are considerable financial ties between banks and mortgage lending companies in the form of guarantees and credit facilities available to the latter. Given that many covered bonds are issued by mortgage companies to their parents, and regulatory oversight applies to consolidated accounts, the risks appear limited. But these commitments exist on a large scale, potentially increasing credit risk at parent banks or to outside purchases of the bonds, so it is important to be sure that regulatory arbitrage is not a contributory factor.

Another particular concern in Norway is that tightening risk-weights on home mortgage loans gives an incentive for regulatory arbitrage by foreign-owned branches. Risk-weights on home mortgage loans are very low among banks that use the IRB approach in other Nordic countries. Under CRD IV, reciprocity is now under some circumstances required for real estate exposures when national authorities impose stricter requirements. Reciprocity means a certain prudential requirement will apply for exposures incurred in the country setting the requirement, regardless of whether the exposures are incurred by institutions domiciled there or by branches of foreign institutions. Thus branches of foreign financial institutions are also subject to some measures specifically related to mortgage loans in Norway, which was not the case previously. However, reciprocity is not automatic for all capital requirement, which still leaves potential scope for such regulatory arbitrage. Since 2011, five Nordic countries (Denmark, Finland, Iceland, Norway and Sweden) have been co-operating in order to reinforce reciprocity and this should be pursued.

The guideline LTV ratios could be tightened further

The mortgage market has been characterised by high leverage, as in many other countries. Loan-to-value (LTV) ratios have risen over the past decade, increasing households' borrowing capacity. Both borrowers and lenders may be confident that rising prices will quickly increase the margin between the size of the loan and value of the property for which it is security. High LTV ratios are found to have strengthened the effects of positive economic shocks on house prices across countries (e.g. IMF, 2011, Crowe et al., 2011). This means, however, that house price dynamics would be all the more affected with higher LTV ratios in the downturn. High LTV ratios are also found to have increased home ownership rates across OECD countries (Andrews et al., 2011). In Norway, the overall house ownership rate has been high and has barely changed, but it has increased among young people. This suggests that high LTV ratios have indeed induced housing demand among credit-constrained and lower-income households.

To dampen this part of the potentially self-reinforcing cycle of rising borrowing and rising prices the authorities have sought to limit high LTV loans. Finanstilsynet introduced LTV-related guidelines in early 2010 and tightened them in December 2011. This action is technically part of normal prudential policy in the interests of limiting risk for both

borrowers and lenders, but was taken with a view to the macroeconomic situation as well. The current guidelines prescribe that, for loans given under a bank's normal procedures:

● Loans should not normally be given with an LTV ratio above 85%.

● LTV ratios should not normally exceed 70% for interest-only loans.

● LTV ratios should not normally exceed 70% for equity withdrawal loans.

When these threshold values are exceeded, the guidelines require additional collateral to be posted or a special prudential assessment, which must satisfy banks' internal criteria, to be made. By the autumn of 2013, this applied to 15% of new loans under the first criterion, i.e. where the LTV ratio exceeded 85%. Up to now, these have been guidelines rather than strict regulations, but according to Finanstilsynet banks are largely compliant.

These guidelines on LTV may in effect be less stringent than they appear if house prices are unsustainably high. One possibility would be to adjust the guideline ratios in line with some estimates of financial cycles, as was advocated for the countercyclical capital buffer (see above). This might currently imply more stringent guidelines. An alternative would be to complement the guideline LTV ratios with other measures such as loan-to-income (LTI) ratios. The LTI ratio has the advantage that it more directly measures affordability of borrowers. Also, the evolution of income is more stable through economic cycles (Sutherland and Hoeller, 2012).

Borrower protection: Stringent affordability assessment is important for risky forms of lending

In Norway, affordability assessment of borrowers applying for new loans is quite stringent. When assessing affordability, a borrower's income is typically verified from the most recent tax return form as well as the most recent monthly pay cheque. Borrowers with impaired credit histories are generally identified against customers' payment records. Then, the borrower's net cash flow is assessed with stress tests. Net cash flow, defined as regular income (mainly in the form of salary from their main employer) less total expenditure, should not become negative if the interest rate on the current loan were to increase further by five percentage points. If it does become negative, a loan is normally not granted.

Since the deregulation of the 1980s diverse categories of mortgage product have emerged. Recently, Finanstilsynet has identified the increased use of interest-only loans and equity release loans as factors that may contribute to fast growing household debt, along with macroeconomic forces and other policies such as taxation (Finanstilsynet, 2013).

Interest-only products accounted for 12% of all new loans in 2013. The share of interest-only loans has been especially high among the youngest age group, accounting for roughly 21% in the three preceding years. Experience in other countries suggests that many interest-only mortgages have been taken out on affordability grounds (FSA UK, 2009), and are based on the assumption that the borrower's income will grow over time sufficiently to cover principal repayment. However, with such loans borrowers are entirely dependent on house price increases to build up an equity cushion over time, which can cover them against the need to sell in a falling market. This implies increased risk for the lender on such loans. Lenders should perhaps assess the creditworthiness of borrowers on interest-only loans by assessing them on the basis of the cash flow implied by an equivalent repayment mortgage. This would reduce the maximum amount that less well-off

borrowers could borrow, but protect them and lenders from the temptation to take risky bets on rising house prices.

The share of equity withdrawal loans remains high, some 23% of total new loans in 2013. Equity withdrawal allows borrowers to spend their housing wealth within certain limits. This may conceal, and potentially exacerbate, consumers' affordability problems, but is also a useful facility especially for older home owners. UK experience suggests that, where such loans become problematic, in more than nine out of ten cases the household concerned has other debts or more than one loan secured on the house (FSA UK, 2009). Therefore, the total debt of borrowers should be considered in creditworthiness assessment for loans, and standard metrics such as debt-to-income (DTI) ratios could be used.

Household indebtedness and the possible process of deleveraging

Excessive debt has been problematic in other countries after property prices peaked

A rapid increase in debt or leverage can potentially lay the ground for a protracted downturn (Sutherland and Hoeller, 2012). Empirically, in periods when aggregate debt in an economy increases rapidly and deviates significantly from trend, there is a higher probability that an economy enters a recession. Also, the expansions associated with much higher debt than trend are typically longer and larger, but the subsequent recessions are on average more severe. Then activity is likely to remain depressed due to tighter credit conditions and balance sheet weakness.

Historical evidence shows that rapid increases in debt ratios during property market booms have tended to be reversed subsequently (Tang and Upper, 2010, see also Figure 1.16). In the United States, Spain and Ireland, which all experienced property booms before the 2008-09 crisis, households' deleveraging has occurred once house prices peaked. Since the most recent peak, house prices declined by around 20.0%, 30.3% and 49.9%, respectively, until they reached the most recent trough (except for Spain where the trough has not been reached yet). In the United States, the debt-to-income ratio declined from 136.8% in 2007 to 111% in 2012. MGI (2012) reports that defaults may account for two-thirds of the decline of US household debt over 2008-11. In Spain and Ireland, the debt to income ratio was 149.3% and 238.4% respectively in 2007, and it has been reduced by slightly less than 10 percentage points in the following five years, reflecting the weak evolution of income in these countries. In contrast with the United States, the banks' main response in Ireland has often been limited to principal payment holidays or extended loan terms – a strategy dubbed "extend and pretend" (OECD, 2013b).

While debt write-downs can hasten deleveraging, the bankruptcy law (see below) is likely to prevent this happening on a large scale in Norway. Thus vulnerability to a rise in interest rates will arise from households' reaction to reduced cashflow after paying mortgage interest. A simulation conducted by Statistics Norway illustrates how vulnerable the Norwegian economy might be to the interaction of high debt and rising interest rates (Cappelen and Prestmo, 2013; Box 1.4). The results show that with an assumption of an increase in the interest rate by five percentage points, household consumption would be lower by some 10% and mainland GDP by 5% in the long-run.

Would household debt in Norway be really problematic?

It is difficult to know *a priori* whether and to what extent deleveraging may occur. Deleveraging tends to occur when associated with such factors as a realisation that house

Box 1.4. **Simulation of an further interest rate increase**

The simulation illustrates how sensitive Norwegian households are to a large increase in interest rates. This simulation uses a large scale macro-econometric model used regularly by Statistics Norway. The baseline is the forecast published by Statistics Norway in December 2013. In the baseline forecast, the three month market rate increases roughly in line with Norges Bank's forecast (MPR 3/13). The simulation assumes an increase in this interest rate by further 5 percentage points (1 percentage point per quarter beginning in Q1/2014). It is also assumed that the exchange rate is fixed.

According to this simulation, compared with the baseline scenario, mainland GDP growth will be lower by 0.2% point in the first year, the effects are gradually increasing. Mainland GDP would be lower by 5% and household consumption by 10% in the long-run.

Figure 1.15. **Simulation results: further increase in interest rates**
Percentage deviation from the baseline projections
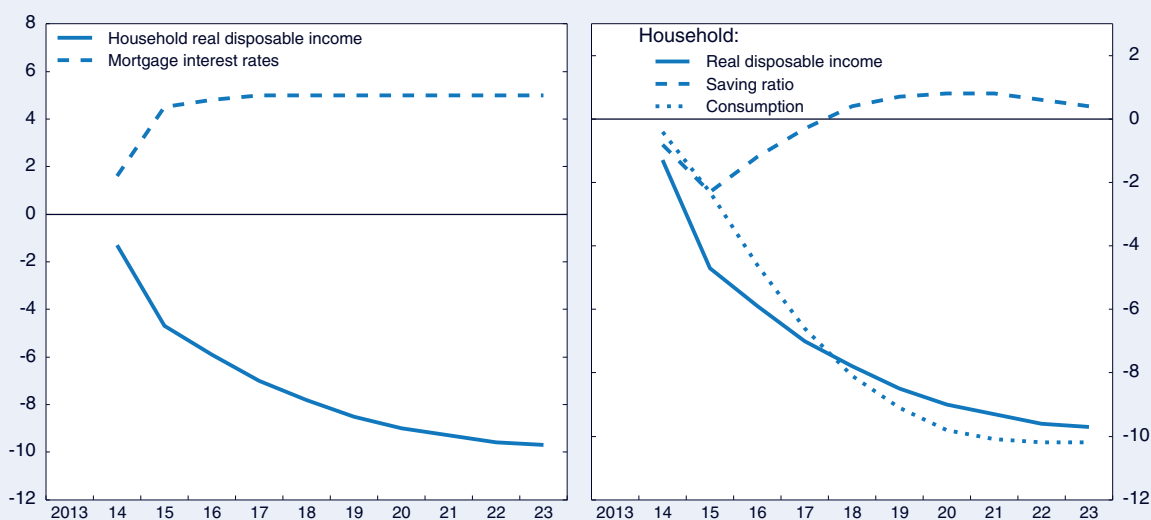
Note: This chart shows deviations in key variables from those in the baseline scenario when the interest rate is raised further by 5 percentage points. Deviations in household real disposable income and consumption are measured in terms of %. Deviations in mortgage interest rates and the saving ratio are measured in terms of percentage points.
Source: Statistics Norway, Cappelen and Prestmo (2013).

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The main channels through which the difference between the baseline and the adverse scenario arises are:

● The standard income effect in the household sector: households' assets and liabilities are specified in some detail in the model. Household debt consists mainly of loans from private banks and the interest rate on these loans follows the three month money market rate with a short lag. A large share of household assets is not linked to interest rates. Thus there is a large shock to household disposable income that leads to lowering consumer expenditure and demand for housing with an associated fall in house prices. This leads to lowering housing investment which will further have multiplier effects through the economy.

● The credit channel: the increase in interest rates lowers demand for credit, which affects housing prices and investment in housing through a financial accelerator mechanism (see Anundsen and Jansen, 2013). In 2015 real house prices are already reduced by 15%.

In this simulation, it is assumed that households make no attempt to reduce their overall debt burden. If such deleveraging occurs, which is plausible in a context of an increased interest burden, then it would further weigh on household demand through a rise in the saving ratio.

prices were overvalued and a sharp revision in income expectations (IMF, 2012, and the references therein). Household consumption could be reduced via wealth effects if property prices decline. If housing price fluctuations simply reflect shifts in (broadly accurate) income expectations, then they play no separate causal role for consumption. But if prices overshoot they may in turn influence expectations. Additionally, households might seek to restore assets in response to a negative wealth shock, knowing that they cannot borrow as easily as before to offset negative income shocks (i.e. a precautionary saving motive, see e.g. Mody et al., 2012).

Deleveraging may have significant economic consequences (e.g. Koo, 2011), though these will differ depending on the current pace of debt reduction, the time period over which debt is to be reduced and the debt reduction strategies adopted (Bouis et al., 2013). In Norway, if households in aggregate decided to aim for the pre-boom debt ratios through higher savings, the saving rate would rise by several percentage points for an extended period. Moving close to pre-boom debt ratios by compressing household investment ratios could also have adverse effects on growth. In fact, the adverse effects on economic activity might be larger, given that investment multipliers tend to be stronger than consumption multipliers.

If highly indebted households were to face serious debt-servicing problems, how to write down their debt would become an issue. Debt write-downs on home mortgage loans can hasten deleveraging but these are usually associated with foreclosure. There may be costs related to large-scale home evictions and distressed property prices with the market flooded with foreclosed homes. Foreclosure is also difficult in practice due to highly complex legal procedures which result in discharge, even if it is allowed, only after a long period. This is also the case in Norway and often steers debtors into out-of-court negotiations as a means of solving the problems, according to the Norwegian Advisory Council on Bankruptcy. Most household debt consists of mortgage debt contracted with one bank. Such arrangements enable both parties to negotiate debt restructuring without the framework of a formal bankruptcy procedure (OECD, 2012a). The Irish government introduced a new personal insolvency regime in 2013 to circumvent such complex procedures. This is essentially an alternative debt settlement procedure to bankruptcy for individuals, whereby the debtor and creditors first make an agreement which is then approved by the courts. The advantage of this regime is that the main negotiation is done outside the court, thereby potentially speeding up the process (OECD, 2013b).

More generally, there is an issue as to how the debt burden is split between lenders and borrowers. Debt forgiveness would allow for a swift reduction in household debt without extensive foreclosures. To the extent that banks would ultimately have to write down mortgages if borrowers had repayment difficulties, banks' financial positions would not be affected. Such programmes could also be initiated by the government. In Iceland, the government and mortgage lenders concluded an agreement to introduce mortgage write downs for households deeply "underwater" in 2010. Households with an LTV ratio above 110% were beneficiaries and their debt principal was reduced to 110% of the value of the pledgeable assets. The burden of restructuring the loans fell on lenders, but they signed on because the written-down value exceeded the recovery likely through bankruptcy (IMF, 2012). However, such debt forgiveness would induce undesirable effects such as an increase in costs of capital in general as well as potential moral hazard on the part of borrowers.

Figure 1.16. **Household debts in selected OECD countries**

As a percentage of net disposable income
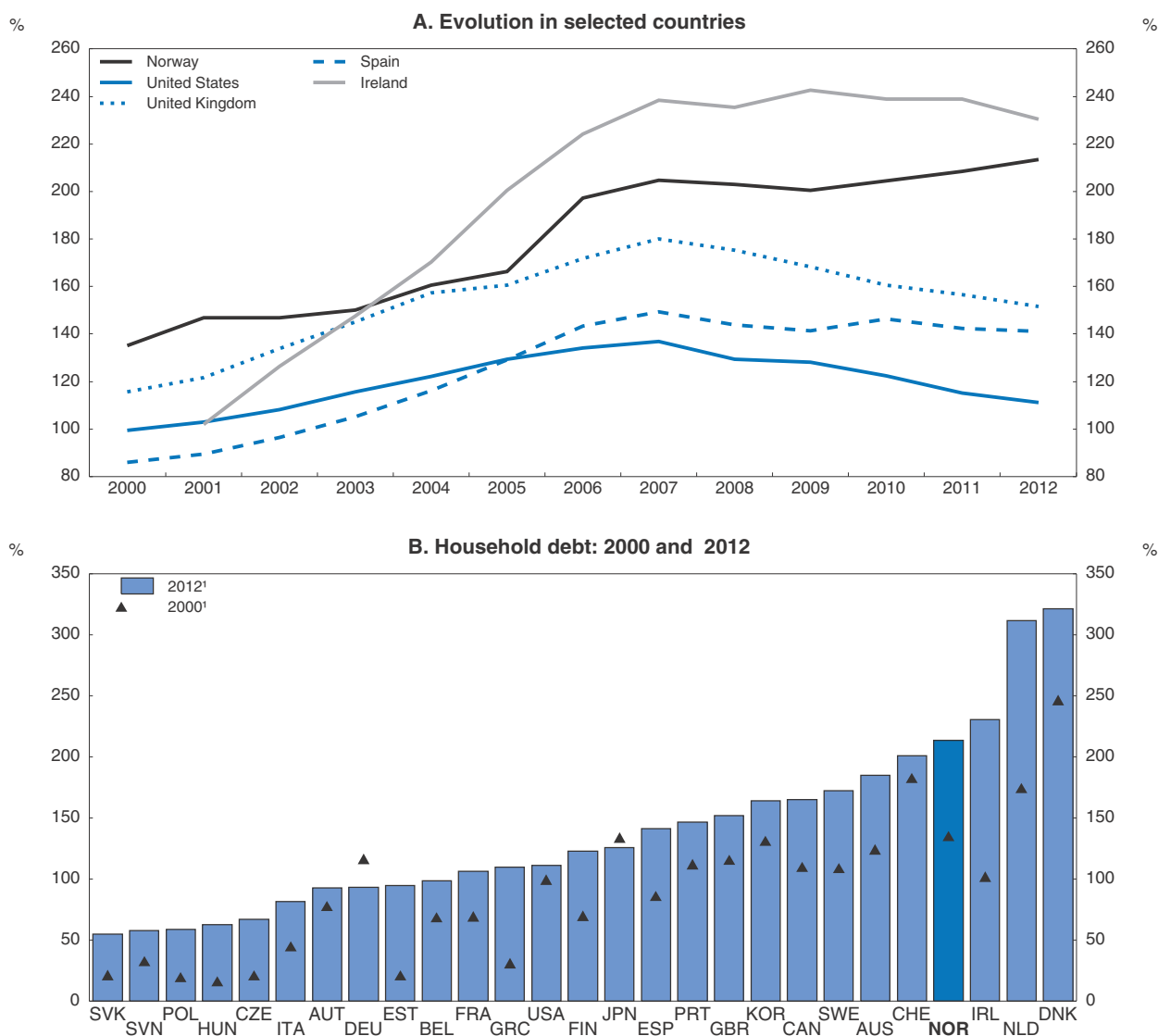

1. Or nearest/latest year available.

Source: OECD Annual National Accounts Database and *OECD Economic Outlook Database.*

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Better allocation of resources in the long run

The share of housing investment in GDP has been fairly stable in recent years, much more so than in most of the countries that experienced housing boom and bust cycles (Figure 1.17). A large part of the rise in household indebtedness is the counterpart of higher prices for existing dwellings rather than a more rapidly increasing stock.

In Norway, in addition to possible risk-weight effects discussed earlier, the rise in property prices itself seems to have prompted banks to devote more resources to mortgages, to the detriment of other loans, including loans to businesses. The impact could have been strong in a country such as Norway where non-financial corporates

Figure 1.17. **Housing investment as a percentage of GDP**
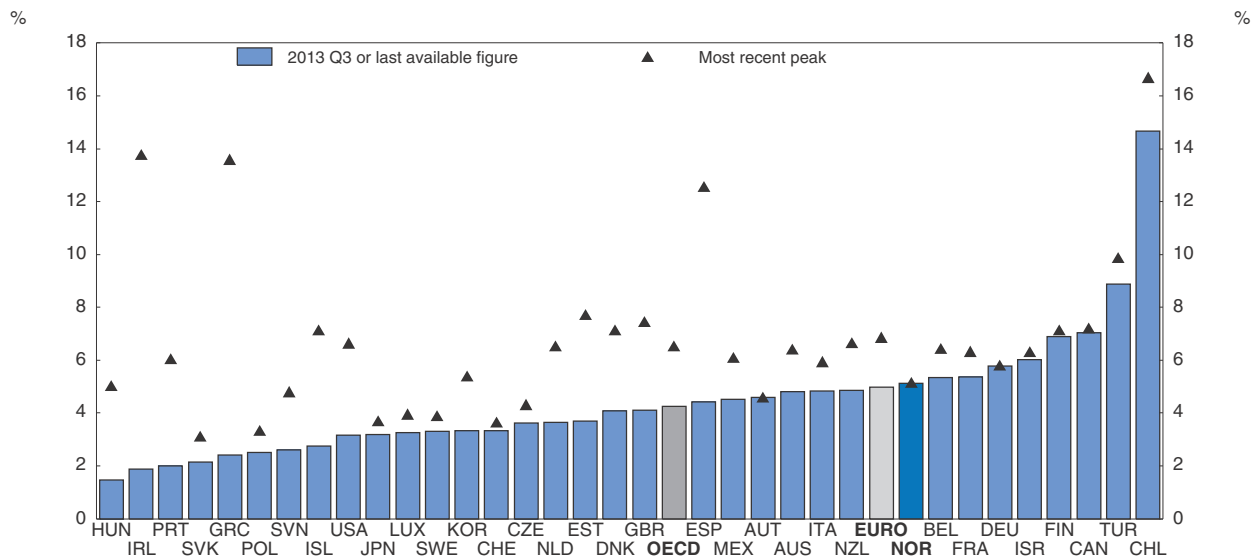
Source: OECD Economic Outlook Database.

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essentially rely on banks rather than capital markets for funding. Chakraborty et al. (2013) provided some evidence with micro-level data that banks may respond by reallocating capital away from more productive uses when asset prices increase in the housing market. Similar evidence can be found for Norway where some banks have increased their focus on mortgage lending over lending to the corporate sector (see above). The relatively low and stable share of GDP devoted to housing investment may be evidence that suggests that these distortions have more effect on the financial structure than on allocation of real resources in the economy.

Other aspects of Norwegian policy may contribute to distorted incentives to borrow against, and invest in, housing, distorting the allocation of resources in the long run. A range of policies promote home ownership, most notably very favourable tax treatment. Since the supply response is rigid, a significant part of higher demand induced by such policies tends to be capitalised into higher prices. Although this may reduce the possible distortionary effects, because fewer productive resources are sucked into the construction sector, they are not eliminated, likely creating economic rents in the area of any bottlenecks in supply. Furthermore, to the extent that some of these policies are intended to increase access to housing, they are undermined and may even be counter-productive if they simply increase prices. Rising prices, other things being equal, represent a shift in wealth towards house-owners, who are typically older and richer. In order to promote home ownership, policies should be coherent both on demand and supply sides.

Housing demand has been affected by favourable tax treatment

Owner-occupied housing has very favourable tax treatment relative to other forms of capital investment in Norway, as documented in detail in the chapter on capital taxation in the previous *Survey* (OECD, 2012b). This favourable tax treatment is a mix of non-taxation of imputed rental income and capital gains, mortgage interest deductibility and undervaluation of housing in the wealth tax. The last *OECD Survey* showed how this

theoretically produces severe distortions in investment behaviour, showing the marginal effective tax rates (METR) on different classes of assets (OECD, 2012b; Denk, 2012).

In Norway, METRs on returns from owner-occupied housing (i.e. the implicit non-monetised returns in the form of housing services) are zero without the wealth tax, since taxation of imputed rental income was abolished in 2005. On the other hand, for financial assets, including equity investment, METRs can be more than 100% when the wealth tax is included, while housing receives very favourable treatment in the wealth tax (OECD, 2012b). At the same time, mortgage interest payments are deductible from ordinary income at the tax value of 28% just as interest income is deductible for other assets whose returns are taxed. As argued in the last Survey, either taxation on imputed rents should be reintroduced, which is theoretically the best choice if the same statutory rate applies to other investment, or mortgage interest deductibility should be abolished as a second-best option. One advantage of the latter approach is that it can be applied progressively, as in the United Kingdom, and it may be easier to achieve when the interest burden is effectively low, as at the moment.

Some small steps have been taken recently to reduce the housing bias in the wealth tax. Net wealth in excess of NOK 1 000 000 is subject to tax on assessed wealth at the rate of 1.0%. The threshold was increased from 700 000 to 1 000 000 NOK in the 2014 budget, and the rate was reduced from 1.1% (national tax 0.4%; municipal tax 0.7%), but this will reduce the still high METRs only slightly. In 2010, the government introduced a new formula for assessing the tax base, according to which a market value is estimated for each dwelling using housing market statistics. In 2013, the tax-assessed value of the primary residence is set to 25% of the estimated market value, while other dwellings are valued at 50% of the estimated market, up from 40% previously. According to the National Budget 2014, the valuation of second properties will rise further, from 50% to 60% of market value.[8]

Exemption of taxation on capital gains on the sale of property may also favour home ownership. In Norway, capital gains tax is not payable if the owner has occupied the house in 12 out of the last 24 months. Different conditions apply to vacation homes. Capital losses are deductible to the extent that capital gains are subject to tax.[9]

Housing supply is less responsive due to regulations

Housing supply responsiveness to price changes varies widely across OECD countries and it is estimated to be lower in Norway than the OECD average (Caldera Sánchez and Johansson, 2011). The low supply response to rising prices is surprising because a comparison of house prices and construction costs suggests that profitability should be very high (Figure 1.18). However, actual costs may have increased more than those reported in the building cost statistics, since land costs, which account for a substantial portion of the total, are not included. Land costs seem to be squeezing the margins of development projects, particularly in areas where demand is high (Barlindhaug and Nordahl, 2011).

Regulations in the housing market, as in many countries, constrain housing supply. Cumbersome land use and planning regulations are found to be correlated with a less responsive housing supply across OECD countries (Caldera Sánchez and Johansson, 2011). In Norway, the number of completed houses has fallen short of the increase in the number of households for many years (Figure 1.19). This may suggest a structural shortage of housing and perhaps the existence of a bottleneck due to regulations. But on the other hand, the average size per dwelling has increased (Figure 1.20).

Figure 1.18. **House prices and construction costs**
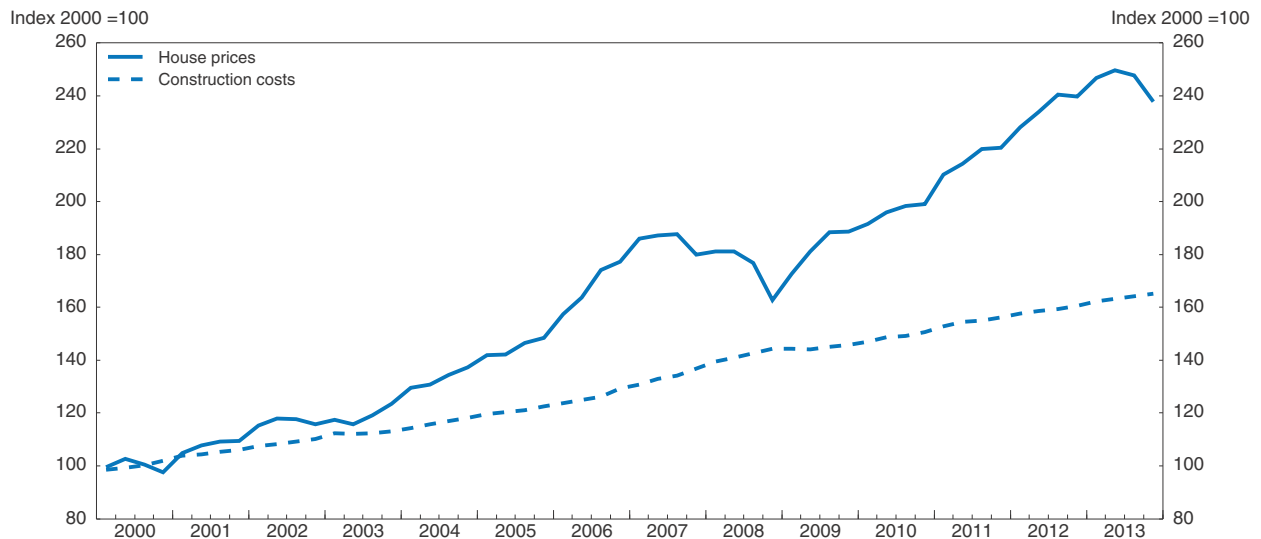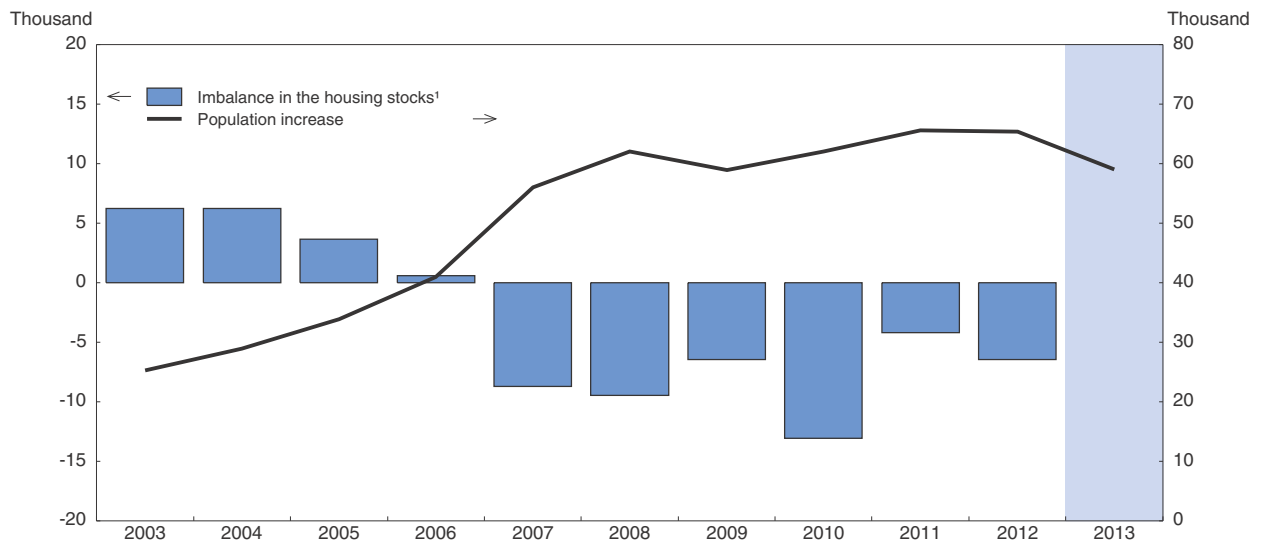

Source: Statistics Norway.

Figure 1.19. **Structural shortage of housing**

1. Difference between the number of completed houses and the increase in the number of households in each year.
Source: Norges Bank, *Monetary Policy Report 04/13*.

The national guidelines on land-use and planning overall aim at enhancing densification and avoiding urban sprawl and abuse of valuable natural land. Thus, existing built-up areas are to be utilised more intensively, which is associated with public transport planning in urban areas. The central government is responsible for national legislation and develops national guidelines for planning in municipalities. The local authorities are responsible for a municipal master plan that provides the framework for land use, or zoning. The municipalities play a key role in housing policy and have primary

Figure 1.20. **Households by size of dwelling**

As a percentage of total occupied dwellings
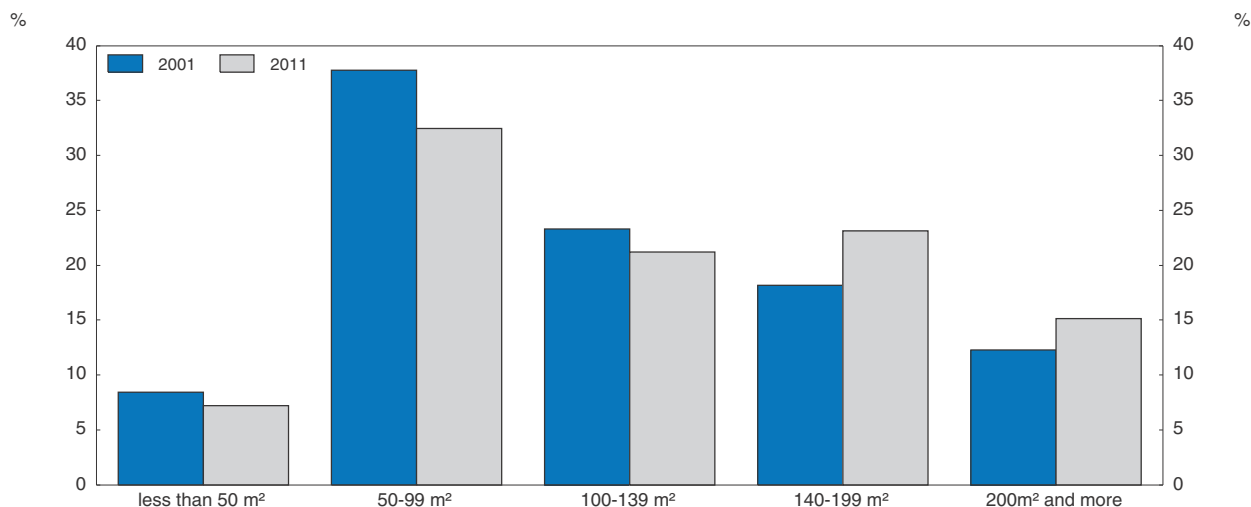
responsibility for local policy implementation. If planning regulations *per se*, which have a wide range of policy objectives, do not have to be modified, there is a scope for time spent and uncertainty on planning to be reduced. These are also reported to be major obstacles for developers (Barlindhaug and Nordahl, 2011).

In recent years, regulations on building have been strengthened. The 2006 law on development agreements requires that developers contribute more to building local infrastructure. In 2007, new minimum standards for technical features of new buildings (TEK07) came into force, which require that new buildings be 25% more energy efficient. In 2010 new technical regulations (TEK10) were introduced concerning accessibility requirements for the bulk of new residential building and dwellings. The background to the measures taken is the ageing population and lack of accessible dwellings. Before the strengthened requirements were put into force, the government carried out an analysis on the impact on construction costs among other factors. According to the government's assessment, the new accessibility regulations produce an additional construction cost of approximately NOK 1 000 per square meter, depending on the way houses are built and dwelling size. This might not be the most cost-effective way to achieve the desired objectives, and it is not clear if cost benefit analysis has been conducted before the measure was adopted.

There is a case to be made that more housing supply is needed, but as housing demand is currently severely distorted by the tax system the apparent supply shortage might diminish if the tax system were corrected. Relaxing supply constraints should lower the overall level of prices, but would exacerbate boom-bust cycles as housing booms would be translated into stronger fluctuations in construction activity, as in the United States, Spain, Ireland and the United Kingdom in the run up to the 2008-09 crisis.

Summary of recommendations on the real-estate market and financial system

Financial stability

- Monitor whether the macro-prudential tightening has the intended effect on financial stability. If necessary, revise the system of indicators and decision-making processes in line with evolving experience.

- The financial vulnerabilities resulting from high household indebtedness at floating interest rates should continue to be addressed, notably by further action on prudential policy, e.g. on loan-to-value ratios and borrowers' debt servicing capacity.

- Consider tightening further the guideline loan-to-value (LTV) ratios and possibly set them in a counter-cyclical way. Consider supplementing LTV guidelines with guidelines on loan-to-income ratios which are less affected by cyclical developments.

- Closely monitor affordability of borrowers for risky lending. Substantially reduce the extension of interest-only loans, and, require affordability assessment for such loans to be based on equivalent repayment mortgage cash-flow.

- Where prudential regulation or guidelines may still give an incentive for regulatory arbitrage by foreign-owned branches or subsidiaries, aim to introduce measures in co-operation with relevant foreign regulators.

- Ensure that regulatory arbitrage does not encourage the use of covered bonds and that the underlying risks, and who is bearing them, are clear.

Taxation

- Reduce the implicit tax subsidy to owner-occupied housing. This implies valuing all assets at market prices in the wealth tax. In the income tax system, either tax the imputed income on owner-occupied housing or abolish mortgage interest deductibility.

- Levy a capital gain tax on net sales of housing on the same basis as for other assets.

Planning and building regulations

- Reduce incentives of local authorities to withhold land for development, other than those related to clear externalities that cannot be compensated with revenue raised from sales.

- Examine costs and benefits *ex ante* when additional measures are adopted in building regulations.

Notes

1. Expectations of future price increases can increase demand even in the absence of speculators purely motivated by the prospects of capital gains. This is because the risk of being priced out of the market is a major concern for potential home buyers, even if they are not generally driven by prospects of investment returns (BSA, 2007). Also, price expectations are essential determinants of demand in the investment or buy-to-let segment.

2. Jurglias and Lansing (2013) for example found a positive correlation between the current price-to-rent ratios and future realised returns in Norwegian data. Gelain and Lansing (2013) show that this situation is better explained when expectations are modified so that they are simply of extrapolative nature (i.e. moving-average) compared with the baseline case where expectations are rational (even when the latter takes into account such factors as changes in risk-aversion) within a framework of the capital asset pricing model.

3. One estimate of the impact of this on house prices suggests that, assuming that the policy interest rate has been effectively lower by one percentage point, house prices in real terms would have been 3-5% higher, all else equal (Bjørnland and Jacobsen, 2009). Such a reduction in house prices would in turn have reduced credit to the household sector in real terms by more or less the same magnitude, according to estimates by Akram (2012).

4. In general, difference arises from: the method chosen, period under analysis, how the central bank's reaction function is quantified, assumptions regarding the length of the phasing-in period, etc.

5. These estimates of the effects from increasing risk weights on residential mortgage loans depend largely on the required equity return on such loans by banks. If the required equity return on mortgage loans is 30% then banks would have to raise mortgage rates by 0.5 percentage point; if the required equity return is 10%, they would need to increase residential mortgage rates by around 0.15 percentage point. This was calculated on the basis of several assumptions, such as the banks would keep their capital adequacy ratio at 10%, banks have ample access to capital, the funding structure for mortgage loans does not change, etc.

6. The increase in mortgage rates will be smaller if banks do not pass on all costs to residential mortgage borrowers. In the long run, it is expected that banks would adjust their lending rates across different loan products and the risk-adjusted returns on equity to different sectors would be approximately the same.

7. Covered bonds are debt obligations secured by a dedicated reference (or "cover") portfolio of assets, with the issuer remaining fully liable for all interest and principal payments. In the event of issuer default, investors have a preferred claim on the assets in the cover portfolio. In order to ensure that the payment obligations are sufficiently over-collateralised, issuers are obliged to immediately replace any nonperforming loans with performing loans. If these assets fail to generate sufficient cash flows upon liquidation to repay these investors, issuers may be fully liable up to their registered capital (IMF, 2011).

8. In Norway, each municipality decides whether to levy property tax (as distinct from wealth tax) and on which property to levy (e.g. only commercial property). The tax-assessed values are based on an assessment by the municipality and in most cases are lower than market values. The tax rate is set within the range of 0.2-0.7%, with standard tax value reductions and basic deductions being allowed. 45% of all municipalities levied a property tax on housing and vacant homes.

9. There are other measures which support housing demand in Norway. Housing allowance is a government-financed support scheme for partial coverage of housing expenses for households with low income. About 5% of households receive housing allowance each year and in average, each household receives NOK 2 200 per month.

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