Danmarks Nationalbank

Monetary Review 3rd Quarter Part 1

2013

DANMARKS NATIONAL BANK 2013

MONETARY REVIEW 3rd QUARTER 2013

The small picture on the front cover shows the "Banker's" clock, which was designed by Arne Jacobsen for the Danmarks Nationalbank building.

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SUMMARY

It looks as if the global economy will gradually pick up steam, with rising activity in the advanced economies, while the emerging economies have slowed down a little. The US economy grew at a moderate pace in the 1st half of the year despite fiscal tightening, and in the 2nd quarter the euro area recorded positive growth for the first time in 18 months. Japan's growth is relatively high, but is expected to decline in 2014 as the effects of fiscal easing diminish.

Long-term interest rates have risen in most advanced economies, Japan being the exception. This should be viewed in the light of expectations that the Federal Reserve, Fed, will tighten its monetary policy. Combined with increased uncertainty about the growth potential in the emerging economies, the higher interest rates have led to capital outflows and a pronounced weakening of the exchange rates of a number of emerging economies.

A genuine recovery in the Danish economy after the downturn has been a long time coming, but in recent quarters stabilisation has become increasingly evident, and presumably the economy will begin to pick up in the 2nd half of 2013. There are indications that the housing market is beginning to improve in some areas. The gross domestic product, GDP, is expected to grow by 0.3 per cent this year. Growth forecasts for 2014 and 2015 say 1.6 and 1.7 per cent, respectively. This entails that Denmark's growth will be higher than that of the euro area, but in line with Germany's, in the coming year. Employment is expected to rise in 2014 and 2015.

The gap up to the potential of the economy is not tremendously large, and the output gap will to some extent close in the coming years. The assessment is that the labour force may be boosted by approximately 40,000 if the economic situation normalises and that a further 15,000 or so of those currently unemployed may also find employment without creating pressures in the economy.

From a cyclical perspective, there is no foundation for discretionary fiscal easing. There is a substantial risk that the timing will be wrong so that fiscal policy boosts an economy which is already on its way up. That will increase the risk that the economy overheats again.

Fiscal policy is now subject to a set of framework conditions which Denmark is committed to observing, due to its EU membership among other factors. The planned fiscal policy is already as expansionary as this framework permits. In Danmarks Nationalbank's assessment, easing of fiscal policy beyond the current plans would neither be appropriate in the current economic situation nor compatible with the fiscal framework adopted.

In its bill to amend the Financial Business Act, the government envisages that the Minister for Business and Growth should be the executive authority in relation to e.g. the countercyclical capital buffer. In Danmarks Nationalbank's opinion, this responsibility should be vested in the Danish Financial Supervisory Authority or the Systemic Risk Council. Otherwise, there is a risk that macroprudential initiatives are taken too late or are insufficient, as such measures must often be launched at a time when it may be difficult for the general public to see a need for them.

THE INTERNATIONAL ECONOMY AND THE FINANCIAL MARKETS

Economic developments in the advanced economies

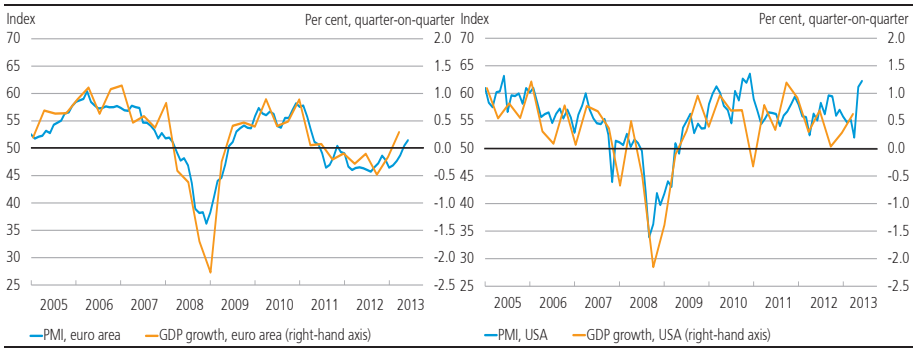
The international economy is recovering at a moderate pace. Over the summer, there have been indications of a slight acceleration in activity in the advanced economies, while growth seems to be declining in the emerging economies.

The euro area economy grew by 0.3 per cent in the 2nd quarter. This was the first quarter with positive growth since the 3rd quarter of 2011. The recovery in the 2nd quarter was mainly attributable to strong growth in Germany and France, but there were also signs that several southern European economies were beginning to pick up. All the same, GDP continued to fall in Italy and Spain. The latest key indicators have generally pointed to positive developments in the euro area economy in the 3rd quarter, and the composite Purchasing Managers' Index, PMI, which normally provides a good indication of where the economy is heading, points to marginally positive growth for the euro area overall in the 3rd quarter, cf. Chart 1 (left).

There have also been signs of recovery in the UK, where the economy displayed broad-based growth of 0.7 per cent in the 2nd quarter. In contrast, Sweden and Norway seemed to be slowing down in the 2nd quarter, mainly because private consumption was weak. Norway's GDP grew by 0.2 per cent, while Sweden's contracted by 0.1 per cent.

The USA saw moderate growth in the 1st half of the year, but this should be viewed in the light of considerable fiscal tightening. Growing

PMI AND GDP GROWTH IN THE EURO AREA (LEFT) AND THE USA (RIGHT) Chart 1



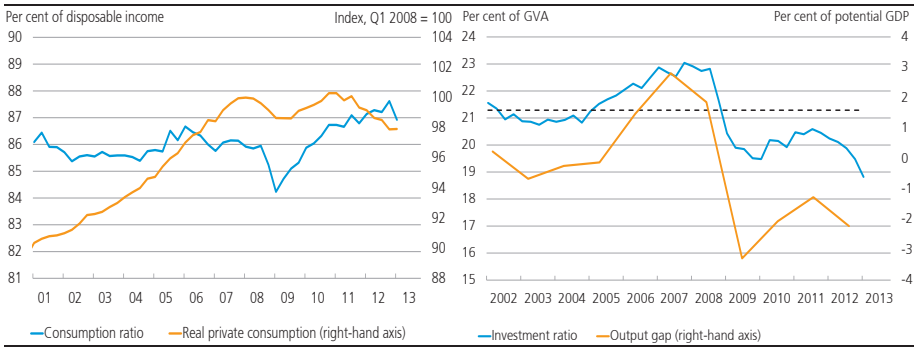
Note: The indices are the Purchasing Managers' Index, PMI, for manufacturing and services (composite output).
Source: Reuters EcoWin.

private wealth as a result of rising equity prices and house prices has supported private consumption, while higher taxes have dampened income growth. Most economic indicators, including the composite PMI, cf. Chart 1 (right), point to accelerating activity in the 3rd quarter.

In Japan, GDP increased by 0.9 per cent in the 2nd quarter. This reflects the effects of the accommodative fiscal and monetary policies, as well as growing confidence among firms and consumers since the beginning of the year.

Private consumption in the euro area has declined in recent years and is now below the 2008 level. One of the reasons is that household real disposable income has fallen since 2008. Consequently, households today spend a larger part of their incomes, and the consumption ratio has risen, cf. Chart 2 (left). Without renewed growth in disposable income, private consumption is hardly likely to rise further in the near term.

CONSUMPTION RATIO FOR HOUSEHOLDS IN THE EURO AREA (LEFT) AND INVESTMENT RATIO FOR FIRMS IN THE EURO AREA (RIGHT) Chart 2



Note: The dashed line indicates the average for the period from the 1st quarter of 2000 to the 1st quarter of 2013.
Source: Reuters EcoWin.

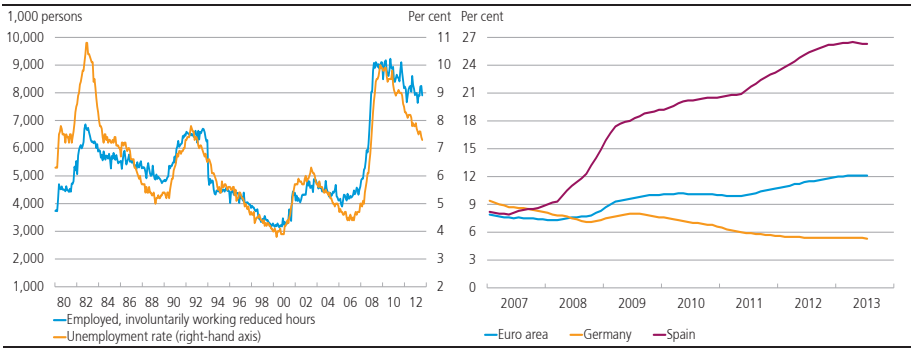
There has been a pronounced drop in business investment since 2008. The investment ratio has fallen in recent years and is now well below the average for the last 10-15 years, cf. Chart 2 (right). The low level of investment reflects that there is spare capacity and that the economic outlook is weak. In addition, firms are reducing their debts. A more favourable economic outlook could cause the investment curve to rise again.

The upswing in the US economy has contributed to robust growth in employment, and unemployment was down to 7.3 per cent in August, cf. Chart 3 (left). Although US unemployment has fallen in recent years, it remains considerably above the pre-crisis level, and several factors indicate that actual unemployment is higher. Especially the participation rate has fallen substantially in recent years, reflecting both demographic changes and an impact from the economy. Moreover, many of those in employment work fewer hours than they would like.

In the euro area, the labour market has shown initial signs of stabilising in the last few months. It looks as if unemployment has stopped rising, in that the unemployment rate has been constant at 12.1 per cent for five months in a row, cf. Chart 3 (right). In Spain, unemployment fell slightly in both May and June, but remains high. German unemployment has been flat for about a year after having fallen consistently since mid-2009.

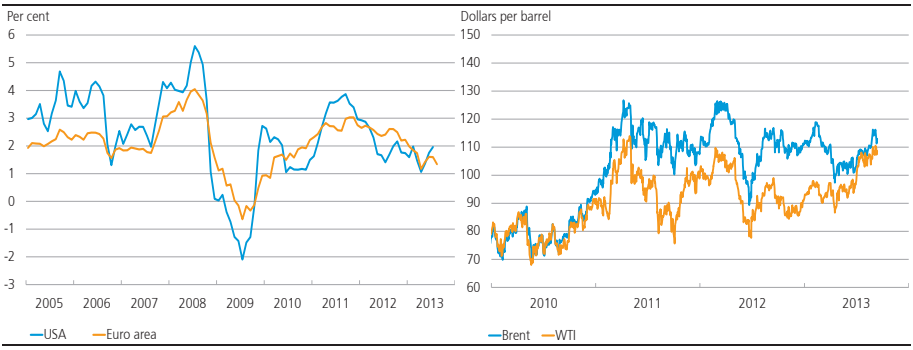
Price developments in the advanced economies have been subdued on account of the high rate of unemployment. In the USA, consumer prices rose by 2.0 per cent in July compared with the same month of 2012, cf. Chart 4 (left), while core inflation, i.e. inflation exclusive of energy and food prices, was 1.7 per cent.

UNEMPLOYMENT IN THE USA (LEFT) AND IN THE EURO AREA, GERMANY AND SPAIN (RIGHT) Chart 3



Source: Reuters EcoWin.

CONSUMER PRICE INFLATION IN THE USA AND THE EURO AREA (LEFT) AND OIL PRICES (RIGHT) Chart 4



Source: Reuters EcoWin.

In the euro area, prices rose by 1.3 per cent in August compared with the same month one year earlier, cf. Chart 4 (left). But core inflation was only 1.1 per cent. In general, inflation is highest in the northern and lowest in the southern euro area member states. In several southern euro area member states, annual consumer price inflation is being buoyed up by higher indirect taxes.

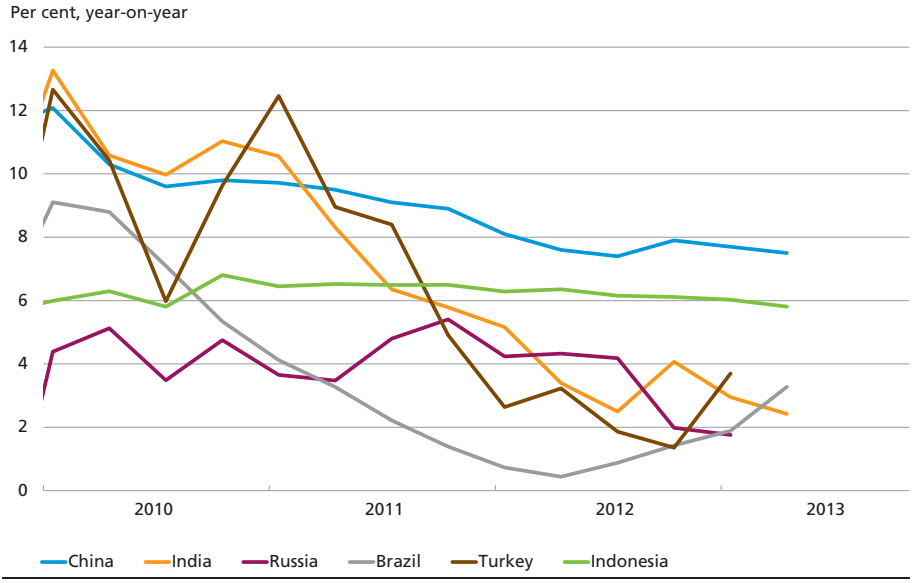
The oil price (Brent) rose by 10-15 dollars per barrel over the summer, cf. Chart 4 (right), due to stronger demand in the USA and Europe, disruptions to production in a number of non-OPEC countries and geopolitical risks, mainly from Syria and Egypt. The price of the US oil standard, WTI, has risen relative to Brent, and WTI is now only a few dollars cheaper per barrel than Brent. In 2011 and 2012, the difference was 15-20 dollars per barrel. One of the reasons why the gap has narrowed is that the possibilities for transporting and selling crude oil in the USA have improved.

Economic slowdown in the emerging economies

In the emerging economies, GDP growth has slowed down compared with previous years, cf. Chart 5. In China, it has fallen to around 7.5 per cent year-on-year. The lower growth rate is attributable to a decline in export growth and the effects of tighter credit conditions. Since the global financial crisis, growth has been sustained by credit growth, fiscal easing and a high level of investment. According to the IMF, lending has risen from 129 per cent of GDP in 2009 to 195 per cent of GDP in the 1st quarter of 2013.

Growth has also slowed down in several other large emerging economies. In general, these economies have shown strong performance despite the weak growth in the advanced economies, reflecting factors

GDP GROWTH IN THE BRIC COUNTRIES, INDONESIA AND TURKEY Chart 5



Note: The BRIC countries are Brazil, Russia, India and China.
Source: Reuters EcoWin.

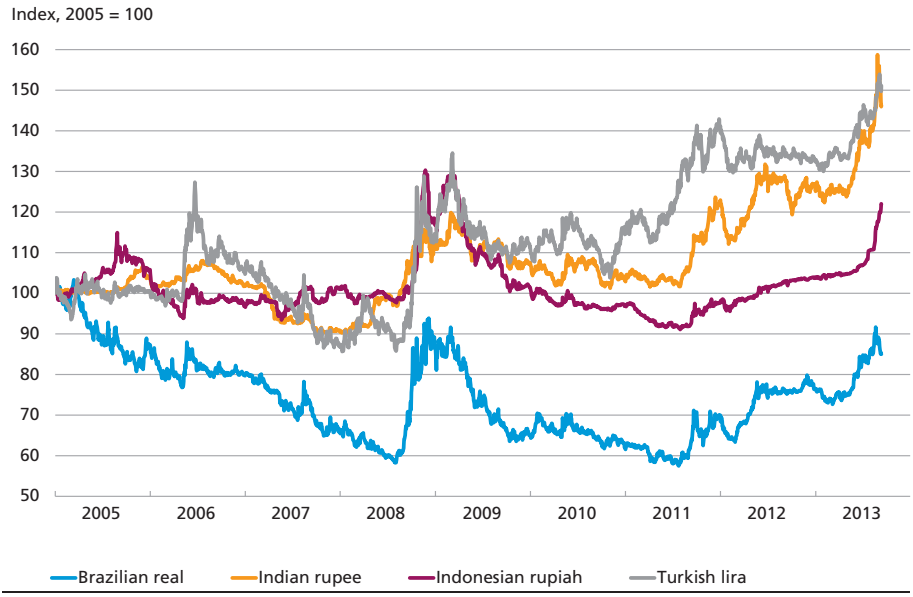
such as rising earnings from commodity production and accommodative monetary policies. In future these factors will not be able to lift growth to the same extent. In addition, potential growth in several of these countries is impeded by structural problems, including poor infrastructures and capacity limits in key sectors. Capital outflows and increasing economic imbalances may also entail a need to tighten economic policy in some countries, which will reduce growth prospects in the short term.

For example, the slowdown in India should be viewed in the context of sustained economic imbalances in the form of large current-account and budget deficits and high inflation of around 10 per cent, reflecting accommodative fiscal policy. The considerable expenditure on energy and food subsidies poses a fiscal policy challenge. Moreover, substantial structural reforms are required in order to boost India's growth potential.

In Brazil, GDP grew by a mere 0.9 per cent in 2012, but this is to some extent ascribable to a poor harvest. Capacity limits in the form of e.g. bottlenecks in the labour market and a poor infrastructure reduce growth opportunities. In Turkey, growth declined in 2012 due to lower domestic demand, partly in response to measures taken by the authorities to curb the very strong credit growth. As a result, the current-account deficit decreased considerably, but still remains large at around

EXCHANGE RATES OF SELECTED EMERGING MARKET CURRENCIES VIS-À-VIS THE DOLLAR

Chart 6



Note: Local currencies relative to the dollar.
Source: Reuters EcoWin.

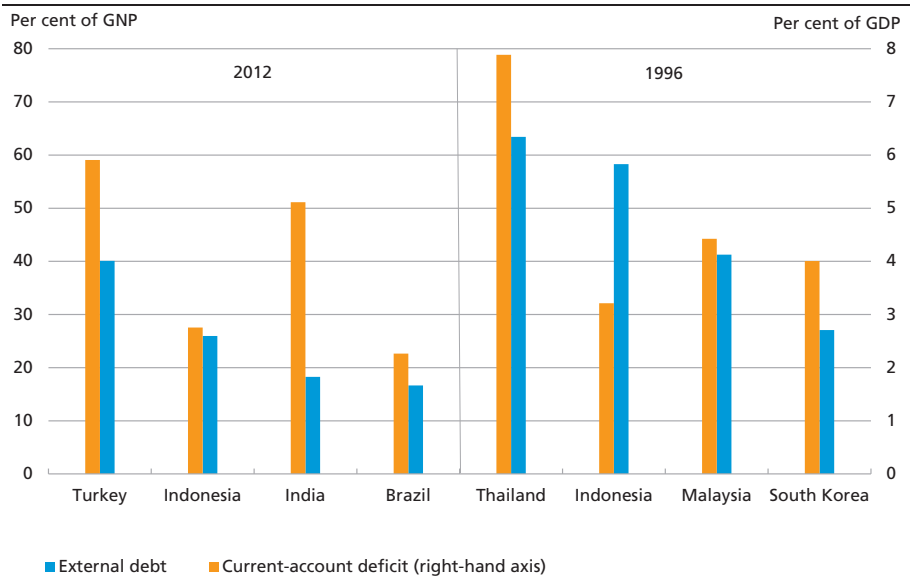
6 per cent of GDP. Indonesia's GDP growth has remained high throughout this period.

Combined with rising long-term interest rates in the advanced economies, cf. below, increased uncertainty about the growth potential in the emerging economies has contributed to a reversal of capital flows. Exchange rates in several emerging economies, including Brazil, India, Indonesia and Turkey, have weakened in this connection, cf. Chart 6. For example, the Indian rupee depreciated by approximately 18 per cent against the dollar from early May to mid-September. In several emerging economies, central banks have attempted to stabilise the exchange rate by intervening in the market. This is reflected in their foreign-exchange reserves, which have diminished in recent months, especially in India and Indonesia. The depreciation in exchange rates should also be seen in relation to previous years' development. For example, the Brazilian real is still stronger relative to the US dollar than it was in January 2005.

Countries with current-account deficits and large external debts are particularly vulnerable to changes in funding conditions and to capital outflows. However, the current levels of external debt in the emerging economies are lower than those seen in the crisis-ridden countries during the Asian crisis in the second half of the 1990s, cf. Chart 7.

EXTERNAL DEBT AND BALANCE OF PAYMENTS 2012 AND 1996 FOR SELECTED EMERGING ECONOMIES

Chart 7

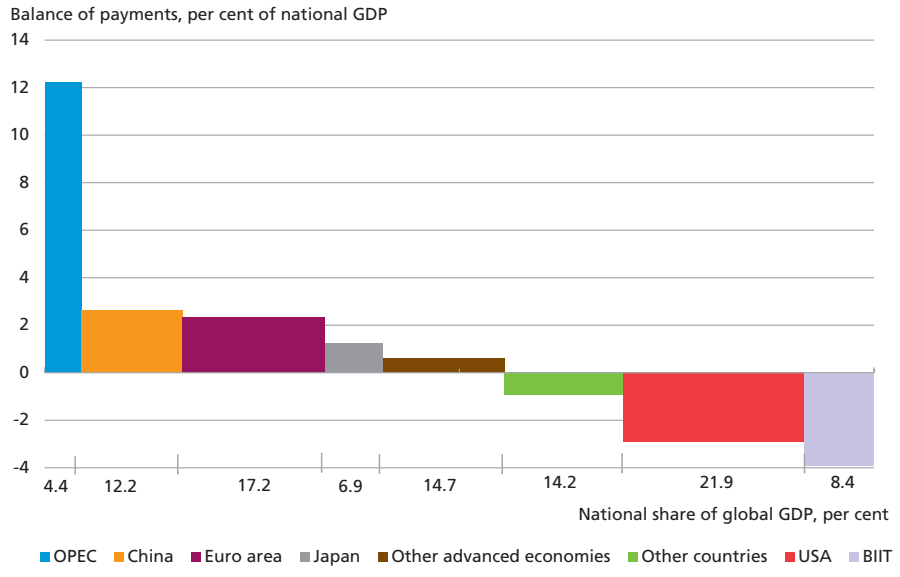


Note: The figures for external debt relate to 2011.
Source: World Bank and IMF.

The current-account deficits are not as pronounced as in the years before the Asian crisis either, and they account for only a minor part of the global imbalances, the reason being that these countries' share of global GDP remains limited, cf. Chart 8. However, the growing deficits in India and the persistently large deficits in Turkey could indicate greater vulnerability to capital outflows. A sustained outflow of capital from the emerging economies is projected to lead to lower growth despite the stimulating effect of currency depreciation on exports. This is because disposable income falls as a result of higher import prices and rising interest rates.

Capital flows to and from emerging economies pose a challenge in relation to monetary policy and increase the requirements for financial supervision and macroprudential policy. In this context it should be borne in mind that credit growth was strong in the years with capital inflows, although it has generally been lower than in the period leading up to the Asian crisis in the second half of the 1990s. The immediate risk to financial stability seems to be greatest in India, where the share of bad loans in the financial sector has risen from 4 per cent of total lending in 2009 to around 9 per cent. In Brazil and Turkey the share of bad loans has remained at around 3 per cent, while it has fallen to approximately 2 per cent in Indonesia.

BALANCE OF PAYMENTS AND SHARE OF GLOBAL ECONOMY IN 2013 Chart 8



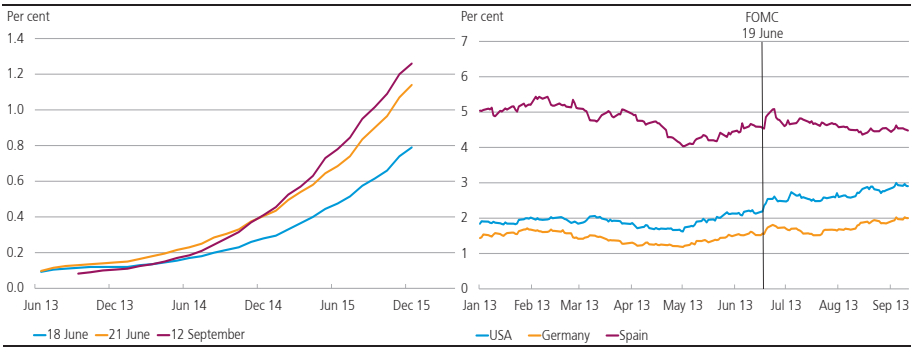
Note: The BIIT countries are Brazil, India, Indonesia and Turkey. The horizontal axis indicates the various economies' shares of global GDP. The area of each bar indicates the size of the balance of payments relative to global GDP.
Source: IMF, World Economic Outlook.

Financial conditions

The depreciation of the currencies of emerging economies should also be viewed against the backdrop of the monetary policy announcements made by several large central banks over the summer. On 19 June, the Federal Reserve announced that it would be appropriate to begin to reduce the pace of its asset purchases later this year if the economy develops as expected, which means that the labour market continues to improve and growth accelerates. This announcement led the financial markets to expect a tighter monetary-policy stance from the Federal Reserve, and the futures markets now factor in increases in interest rates in the spring of 2015, cf. Chart 9 (left). However, a majority of the members of the Federal Open Market Committee, FOMC, do not expect interest rates to be raised until later in 2015, cf. the most recently published forecasts from the FOMC in connection with its June meeting. These expectations are based on factors such as the high level of unemployment and the low price pressures in the US economy.

The announcements by the Federal Reserve led to increased volatility in the financial markets and generally pushed up long-term government yields. Since early May, the yield on 10-year government bonds has risen by approximately 1 percentage point in the USA and approximately 0.5 percentage point in the euro area, cf. Chart 9 (right). The yield on 30-year

FED FUNDS FUTURES (LEFT) AND YIELDS ON 10-YEAR GOVERNMENT BONDS IN SELECTED COUNTRIES (RIGHT) Chart 9



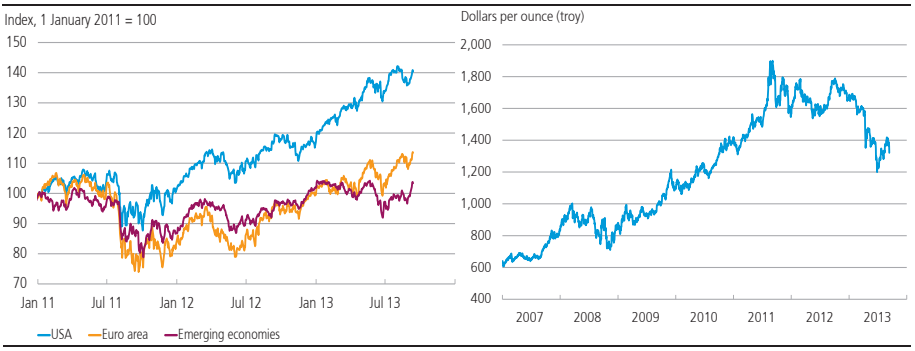
Source: Bloomberg and Reuters EcoWin.

US mortgage loans has also risen by 1 percentage point during this period. Presumably the diverging developments reflect expectations that interest rates will rise sooner and more rapidly in the USA than in the euro area due to higher growth in the USA.

US equity prices have risen considerably as the US economy has picked up and financial conditions have been eased. By the end of August, the benchmark US stock index had risen by almost 40 per cent since early 2011, cf. Chart 10 (left). Price developments in the euro area and the emerging markets have been notably weaker in the same period. The price of gold has dropped sharply since the autumn of 2012, cf. Chart 10 (right).

At its interest-rate meeting in early July, the ECB applied forward guidance for the first time. The ECB announced that it would keep monetary-policy interest rates at the present or lower levels for an extended period. No specific time horizon was stated, and future

DEVELOPMENT IN BENCHMARK STOCK INDICES (LEFT) AND PRICE OF GOLD (RIGHT) Chart 10



Note: The stock indices applied are S&P 500, Eurozone Stoxx index and MSCI Emerging Markets, respectively.
Source: Reuters EcoWin.

tightening was not linked to developments in macroeconomic variables the way that e.g. the Federal Reserve has chosen to do, cf. Box 1. This announcement had been expected by the markets.

The Bank of England, BoE, also chose to introduce forward guidance in early August and has opted for a strategy whereby developments in monetary-policy interest rates are explained relative to developments in

FORWARD GUIDANCE Box 1

Due to the economic crisis, monetary-policy interest rates have hit the zero lower bound at the most important central banks such as the Federal Reserve, Fed, the ECB and the Bank of England, BoE. Consequently, these central banks have limited scope for stimulating economic activity via traditional monetary-policy measures such as reducing interest rates. As a result, they have introduced extraordinary measures, e.g. quantitative easing. One of the more recent initiatives is known as "forward guidance". Both the Fed and the Bank of Japan, BoJ, have previously applied forward guidance, and the ECB and the BoE introduced it over the summer.

Basically, forward guidance is a communication strategy. For example, a central bank may communicate that it will keep interest rates low for a certain period. The aim is to influence financial market expectations of future monetary policy and e.g. create expectations of more accommodative monetary policy than would otherwise be the case. The central banks have applied three different types of forward guidance – an open-ended strategy, a time-contingent strategy and a state-contingent strategy, cf. Table 1. The three strategies differ in terms of e.g. whether a date has been set for when interest rates can be expected to rise. Furthermore, the state-contingent strategy explains changes in interest rates relative to a macroeconomic variable such as the unemployment rate.

FORWARD GUIDANCE STRATEGIES Table 1

Strategy	Examples of application	Time horizon for low interest rates	Linked to macroeconomic variable
Open-ended	Fed, March 2009 BoJ, April 2013 ECB, July 2013	Indefinite	No
Time-contingent	Bank of Canada, April 2009 Sveriges Riksbank, April 2009 Fed, August 2011	Until Q2, 2010 Until early 2011 Until mid-2013	No
State-contingent	Fed, December 2012 BoE, August 2013	Conditional upon unemployment rate	While unemployment > 6.5 per cent[1] While unemployment > 7 per cent[2]

[1] Two other conditions are that inflation is not estimated to rise above 2.5 per cent 1-2 years ahead and that long-term inflation expectations are firmly anchored.

[2] The BoE basically applies the same two conditions as the Fed, but also stipulates that the stance of monetary policy must not pose a threat to financial stability.

unemployment. This means that the BoE's interest rates will be kept at a low level until unemployment falls below 7 per cent, unless (i) inflation is expected to exceed 2.5 per cent 18-24 months ahead, (ii) medium-term inflation expectations no longer remain sufficiently well anchored, or (iii) the Financial Policy Committee[1] judges that the stance of monetary policy poses a significant threat to financial stability.

Overall, euro area credit growth is negative because lending in Greece, Ireland, Italy, Portugal and Spain has contracted strongly, while credit growth in the northern euro area member states remains positive. The weak development in lending is attributable to both weak demand and tightening on the supply side. According to the ECB's lending survey, credit conditions for non-financial corporations in the euro area were tightened again in the 3rd quarter. On the other hand, credit conditions for households were eased for the first time since late 2007.

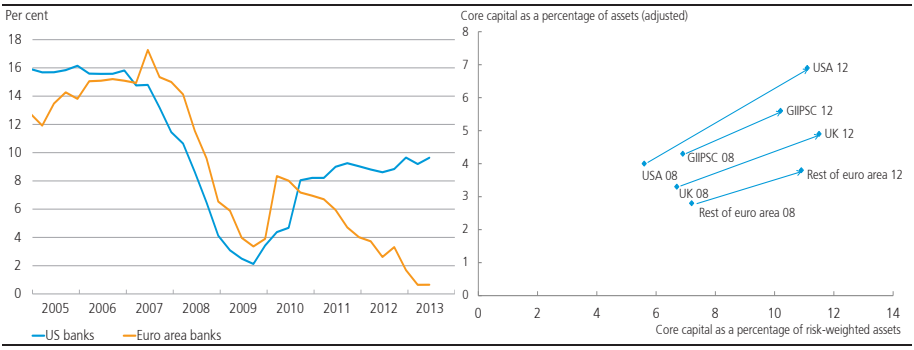
European banks are reducing their balance sheets and building up capital buffers. The latter process is challenged by low earnings, cf. Chart 11 (left). The low earnings reflect a combination of a weak economy, pressure on banks' net interest income due to the low level of interest rates and declining lending volumes. The accumulation of capital has contributed to a general increase in the ratio of Tier 1 capital to risk-weighted assets in the euro area member states since 2008, cf. Chart 11 (right).

Both in 2008 and in 2012 the capitalisation of European banks more or less matched that of their US counterparts, measured by Tier 1 capital as a percentage of risk-weighted assets, cf. Chart 11 (right). However, the weak development in the European economy means that European banks must reckon with lower earnings and larger loan impairment charges than US banks. Moreover, European banks are more vulnerable to liquidity stress due to their stronger reliance on market-based funding.

Another indicator of banks' vulnerability is their leverage ratios. Strengthening of banks' capitalisation has reduced their leverage in both the USA and Europe. The increase in Tier 1 capital as a percentage of risk-weighted assets has generally exceeded the fall in the leverage ratio. Among other things, this reflects a shift in the composition of banks' assets towards assets with lower risk, and in some cases banks have optimised their risk-weighting models. But European banks still have higher leverage ratios than US banks, one reason being that Euro-

[1] Independent committee at the Bank of England that monitors financial stability in the UK, among other things.

BANKS' RETURN ON EQUITY IN THE USA AND THE EURO AREA (LEFT) AND BANKS' LEVERAGE RATIOS AND TIER 1 CAPITAL IN THE USA AND THE EURO AREA (RIGHT) Chart 11



Note: GIIPSC is Greece, Ireland, Italy, Portugal, Spain and Cyprus. Equity as a percentage of assets has been adjusted by removing the portfolio of financial derivatives so as to increase comparability between the USA and Europe.
Source: IMF and Reuters EcoWin.

pean banks have larger portfolios of e.g. housing loans, which are less risky than other assets. In addition, the accounting treatment of financial derivatives differs. The difference in the composition of banks' assets means that European banks inherently have higher leverage ratios than their US counterparts.

While the euro area financial sector is still in the process of restructuring, the US financial sector has basically emerged from the crisis according to the IMF, the Bank for International Settlements, BIS, and others. Credit conditions are generally being eased and credit growth is positive. At the same time, US banks are posting higher earnings, cf. Chart 11 (left).

International economic outlook

Inflationary pressures in the euro area and the USA are expected to remain subdued in the near term, even though activity is set to rise, cf. Table 2. This should mainly be seen in the light of the high levels of unemployment in these economies. In Japan, inflation is expected to be positive in 2014, so there are signs that recent decades' persistent deflationary trend may have been broken. The accommodative monetary policy is aimed at avoiding too low or negative inflation. Looking ahead, the challenge is to plan the speed and dosage of the phasing-out of this extraordinary economic stimulus, so that an upswing is supported but the risk of high inflation or asset price bubbles is avoided.

It looks as if the global economy will gradually pick up steam, but with large regional differences. In July, the IMF lowered its growth estimates for most economies by approximately 0.2 percentage point, cf. Table 3.

INFLATION AND CORE INFLATION IN THE EURO AREA, THE USA AND JAPAN — Table 2

Per cent, year-on-year	2010	2011	2012	2013	2014
Euro area					
Inflation	1.6	2.7	2.5	1.5	1.2
Core inflation	1.0	1.4	1.5	1.2	1.2
USA					
Inflation	1.6	3.1	2.1	1.6	1.9
Core inflation	1.5	1.4	1.7	1.3	1.9
Japan					
Inflation	-0.7	-0.3	0.0	-0.1	1.8
Core inflation	-1.2	-0.9	-0.5	-0.5	1.7

Note: Data for the euro area is exclusive of Cyprus and Malta and is based on the harmonised index. Core inflation is inflation exclusive of energy, food, alcohol and tobacco.
Source: OECD, *Economic Outlook*, June 2013.

This reflected weaker-than-expected developments in the spring and early summer in a number of emerging economies and in the euro area, as well as expectations of tighter fiscal policy in the USA than the IMF had predicted in the spring.

In the USA, growth is expected to be supported by private consumption. This will be stimulated by improvements in the labour market and rising wealth as a result of higher equity and house prices, which more than offset the impact of recent increases in interest rates. The government budget deficit is expected to be reduced substantially in the coming years as a result of the considerable fiscal tightening and the economic recovery. In the assessment of the IMF, US public finances will

GROWTH ESTIMATES — Table 3

				Change relative to April 2013	
Per cent	2012	2013	2014	2013	2014
USA	2.2	1.7	2.7	-0.2	-0.2
Euro area	-0.6	-0.6	0.9	-0.2	-0.1
Germany	0.9	0.3	1.3	-0.3	-0.1
France	0.0	-0.2	0.8	-0.1	0.0
Italy	-2.4	-1.8	0.7	-0.3	0.2
Spain	-1.4	-1.6	0.0	0.0	-0.7
UK	0.3	0.9	1.5	0.3	0.0
Japan	1.9	2.0	1.2	0.5	-0.3
Emerging economies and developing countries	4.9	5.0	5.4	-0.3	-0.3
China	7.8	7.8	7.7	-0.3	-0.6
Brazil	0.9	2.5	3.2	-0.5	-0.8
Russia	3.4	2.5	3.3	-0.9	-0.5
India	3.2	5.6	6.3	-0.2	-0.1

Source: IMF, *World Economic Outlook Update*, July 2013.

be consolidated by 2.5 per cent of GDP in 2013 and by 0.7 and 0.2 per cent of GDP in 2014 and 2015, respectively. However, negotiations on next year's budget allocations and raising of the debt ceiling are still outstanding. The debt ceiling is expected to bind in mid-October.

As regards the euro area, a gradual return to positive growth is in sight; this is supported by recent positive trends in macroeconomic indicators. Growth is fuelled by rising external demand and increased private-sector investment. Private consumption is expected to show a weak trend, given that income growth is weak and unemployment high. Moreover, in some member states households are still reducing their debts and may see their wealth shrink due to falling house prices. Consolidation of public budgets will continue in the near term, but according to the IMF the rate of consolidation will decline from 1.4 per cent of GDP in 2012 to 0.9 per cent in 2013 and 0.3 per cent in 2014, measured by the change in the structural balance.

In Japan, economic growth is expected to be relatively strong in 2013, but to subside in 2014 as the effect of the fiscal easing fades away. Looking forward, Japan is faced with considerable fiscal challenges in the form of gross government debt amounting to some 240 per cent of GDP in 2012.

According to the most recent IMF estimate from July, the Chinese economy is expected to grow by 7.8 per cent in 2013 and 7.7 per cent in 2014. This is a downward adjustment compared with the April assessment. The outlook for the other emerging economies has also been adjusted downwards as a result of growing economic imbalances and a reversal of capital flows, leading to rising interest rates.

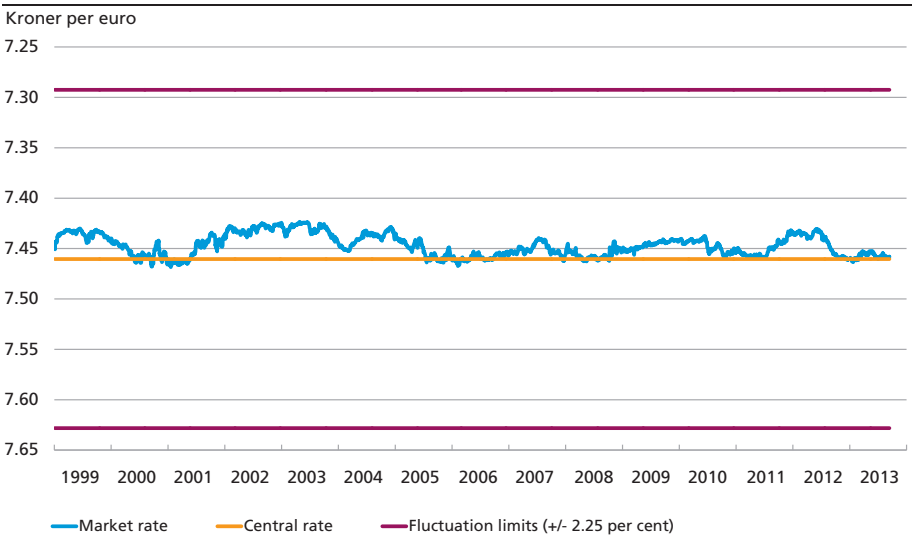
The loan programmes for crisis-ridden southern European countries have generally developed as agreed. However, in the case of Greece an additional funding requirement has arisen, which must be resolved during the autumn. In its most recent programme review, the IMF estimates that further funding of around 4.4 billion euro must be found in 2014 if the programme is to continue. The outcome may be further consolidation requirements for Greece and/or further funding by euro area member states.

On 1 July, Croatia joined the European Union. On 9 July, the Council of Ministers approved Latvia's entry into the euro area as member state number 18 from 1 January 2014.

MONETARY AND EXCHANGE-RATE CONDITIONS

In recent months, the krone has been stable vis-à-vis the euro at a level close to its central rate in ERM 2, cf. Chart 12. The krone weakened mar-

EXCHANGE RATE OF THE KRONE VIS-À-VIS THE EURO Chart 12



Note: Reverse scale. The most recent observations are from 12 September 2013.
Source: Danmarks Nationalbank.

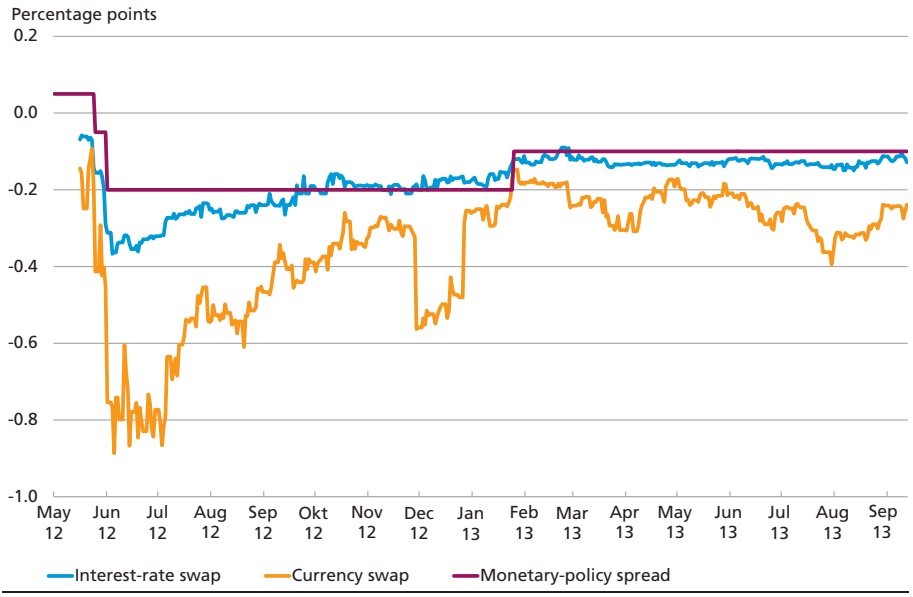
ginally in the first part of June, as is often the case when the euro strengthens against the dollar. The weakening tendency should be viewed against the backdrop of the improved situation in the euro area, where uncertainty about the sovereign debt crisis has lessened. These first signs of normalisation are also reflected in expectations of future interest rates in the money market and in government bond yields, which have risen in recent months, while short-term interest rates have been virtually unaffected. Over the summer months, the exchange rate of the krone has been influenced by relatively low liquidity in the market, so that smaller transactions may have affected the exchange rate.

Danmarks Nationalbank has not intervened in the foreign-exchange market since January 2013. The foreign-exchange reserve was practically unchanged in June, July and August and amounted to kr. 491.8 billion at end-August.

Following the reduction of the overall current-account limit of the monetary-policy counterparties on 7 June 2013 in response to their repayments of 3-year loans from Danmarks Nationalbank, Danmarks Nationalbank converted current-account deposits into certificates of deposit six times during June, July and August.[1]

[1] On 7 June, 14 June, 2 July, 5 July, 2 August and 30 August, respectively.

INTEREST-RATE SPREADS BETWEEN DENMARK AND THE EURO AREA Chart 13



Note: 1-month interest-rate and currency swaps. Interest-rate swaps are the spread between CITA and EONIA. The monetary-policy spread is the spread between Danmarks Nationalbank's rate of interest on certificates of deposit and the ECB's deposit rate. The most recent observations are from 12 September 2013.
Source: Reuters and Danmarks Nationalbank.

Short-term Danish money-market interest rates have mirrored euro area interest rates, rising in June in response to market expectations after the ECB's and the Federal Reserve's monetary-policy meetings. The ECB's introduction of forward guidance had a dampening effect on money-market interest rates, which remained stable throughout July and August, cf. the section on the international economy. The implied interest-rate spread between kroner and euro in the FX swap market became more negative in late July, cf. Chart 13. This meant that euro funding via FX swaps against kroner became more expensive relative to direct funding in the European money market. This development should be seen in the context of a small decline in excess liquidity among euro area banks in July, which may have reduced their willingness to lend euro against kroner, even though excess liquidity remains high.

The more negative interest-rate spread between Denmark and the euro area meant that it became more attractive for foreign market participants to conclude FX swaps and invest the kroner received in T-bills. This boosted demand in the T-bill auction on 30 July, at which issuance totalled kr. 8 billion. In the auction on 29 August, issuance was just over kr. 12 billion at interest rates of -0.1 and 0.02 per cent, respectively, for 3- and 9-month issues. No 6-month T-bills were issued.

Capital market

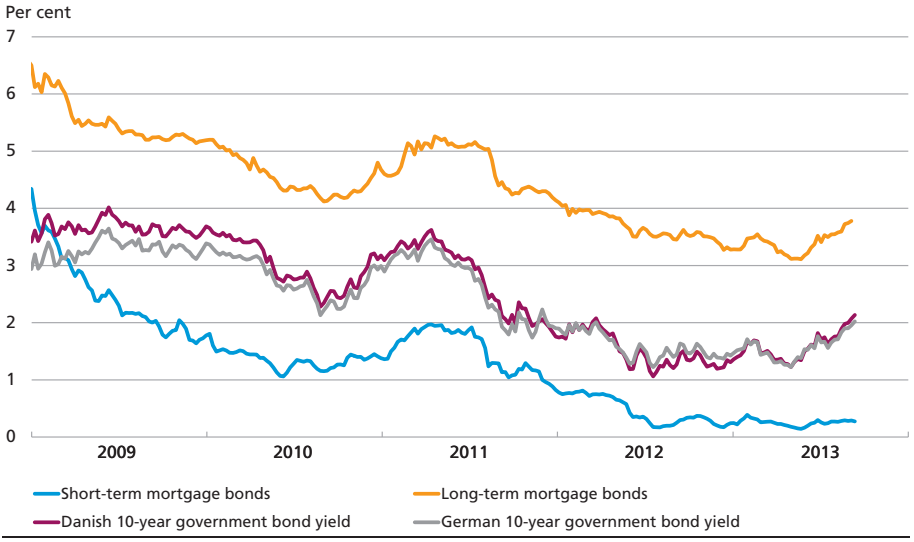
10-year Danish government bond yields have risen considerably since end-April this year, which is in line with developments in a number of other European countries. The yield on a 10-year Danish government bond was 2.1 per cent in mid-September. The yield has more or less mirrored the equivalent German yield, cf. Chart 14. In June, the German yield fell a little more than the Danish yield, however, so that the spread became positive again, standing at 0.11 percentage points in mid-September.

Implied market-based inflation expectations, which can be derived from the yield on the 10-year inflation-linked government bond and the equivalent nominal bond, fell a little in June and were around 1.6 per cent in mid-August. This indicates that the markets expect inflation to average 1.6 per cent towards 2023. This level matches the corresponding German break-even inflation.

Yields on short- and long-term mortgage bonds were 0.3 and 3.7 per cent, respectively, at end-August. Compared with the level at the turn of the year, the short-term yield is more or less unchanged, while the long-term yield has risen by 0.5 percentage point, cf. Chart 14.

In August and early September, some mortgage banks held auctions for bonds underlying adjustable-rate loans for refinancing on 1 October. Beforehand the mortgage banks expected the total refinancing require-

YIELDS ON MORTGAGE BONDS AND GOVERNMENT BONDS — Chart 14



Note: Weekly data. The short-term yield is the 1-year yield based on fixed bullets. The long-term yield is an average yield to maturity based on 30-year fixed-rate callable mortgage bonds. Mortgage bond yields are exclusive of brokerage fees and administration margins. Government bond yields are par yields. The most recent observations are from calendar week 37.

Source: Nordea Analytics, Association of Danish Mortgage Banks and Danmarks Nationalbank.

ment to be just under kr. 170 billion. Interest rates on 1-, 3- and 5-year loans averaged 0.53, 1.06 and 1.78 per cent, respectively. The very short-term interest rate has risen by 0.12 percentage points since last year's auction, while interest rates on 3- and 5-year loans have risen by 0.38 and 0.56 percentage point, respectively. This is partly attributable to some mortgage banks having increased their brokerage fees. In addition to interest and brokerage, total loan costs include administration margins. The latter have mainly been increased for loans with short fixed-interest periods, deferred amortisation and high loan-to-value ratios.

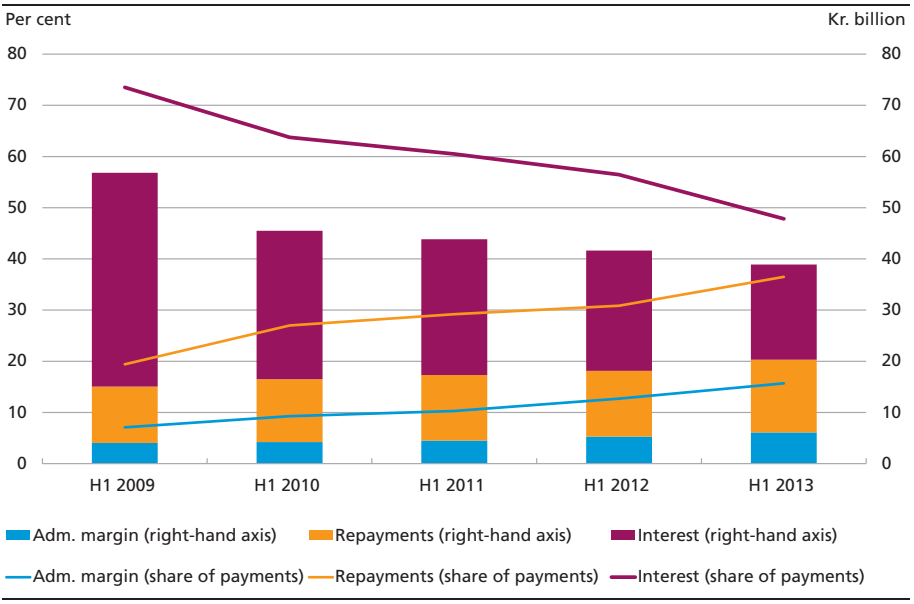
In the autumn of 2012, the Ministry of Business and Growth concluded an agreement with the financial organisations concerning the establishment of loans with CITA as the reference interest rate. Under the agreement, members of the Danish Bankers Association, the Association of Danish Mortgage Banks and the Danish Mortgage Banks' Federation who offer loans based on CIBOR must offer loans based on CITA as an alternative by 1 July 2013 and 1 January 2014, respectively. A number of banks already offer loans at interest rates based on CITA. Some mortgage banks have also introduced CITA-based loans, with biannual fixing of the rate of interest and triennial refinancing of the loan.

The changed price structures and new products announced and/or introduced by several mortgage banks over the last year have helped to create a greater match between the price and risk of loans. This gives individual borrowers an increased incentive to raise loans with e.g. lower refinancing risk.

Household mortgage payments have been falling steadily over the last few years despite an increase of 12 per cent in lending from end-2008 to the end of the 2nd quarter of 2013. This is mainly because the level of interest rates has fallen. The lower interest rates also mean that borrowers with adjustable-rate loans automatically repay more of their debt as the loans are refinanced at lower interest rates, cf. Chart 15. Recently many borrowers have shifted towards loans with longer fixed-interest periods. For mortgage loans against owner-occupied dwellings as collateral, the share of loans with a fixed-interest period of up to one year has fallen from 46 per cent at end-April 2012 to 40 per cent at end-July 2013. This should be viewed in the light of the above change in administration margins. The administration margins payable by households on mortgage loans rose by just over kr. 2 billion from the 1st half of 2009 to the 1st half of 2013, cf. Chart 15.

The vast majority of mortgage loans for owner-occupied dwellings are serviced on time. The mortgage arrears ratio has just about halved since the peak during the financial crisis in 2009. Compared with the early

HOUSEHOLD PAYMENTS ON MORTGAGE LOANS Chart 15



Source: Danmarks Nationalbank.

1990s, the level of arrears is considerably lower today. The article "Danish Families in Mortgage Arrears" in Part 2 of this Monetary Review shows that even a serious downturn in the Danish economy would lead to only a modest increase in the number of families in arrears.

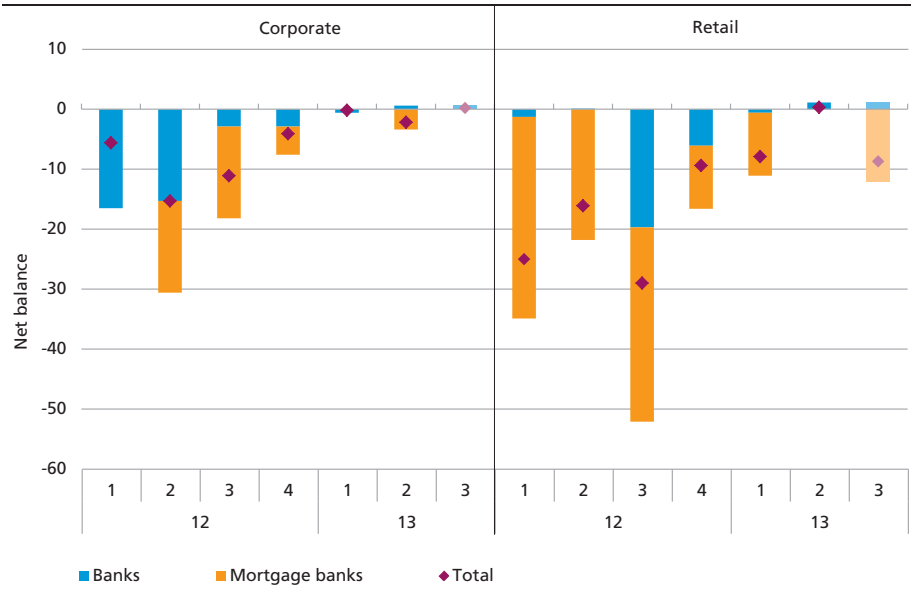
Banks' interest rates on lending to households and the corporate sector have fallen by 0.1 and 0.3 percentage point, respectively, in the last year, to 5.4 and 4.0 per cent, respectively, at end-July. Lending rates have fallen even though Danmarks Nationalbank in January raised the rate of interest on certificates of deposit by 0.1 percentage point, to -0.1 per cent. Over the last year, deposit rates for households have fallen by 0.1 per cent, while they have remained unchanged for the corporate sector. Thus, the rising trend in interest-rate margins in the period from the spring of 2011 to the spring of 2012 seems to have been replaced by a stable interest-rate margin for households and a slightly decreasing margin for the corporate sector.

Credit developments

According to Danmarks Nationalbank's lending survey, the banks' and mortgage banks' credit policies vis-à-vis both retail and corporate customers were more or less unchanged in the 2nd quarter of 2013 compared with the preceding quarter, cf. Chart 16. However, some banks

CHANGE IN CREDIT STANDARDS VIS-À-VIS CORPORATE AND RETAIL CUSTOMERS

Chart 16



Note: The net balance lies within the interval -100 to 100. A negative net balance means that credit managers in Danmarks Nationalbank's lending survey have, overall, stated that credit standards have been tightened relative to the preceding quarter. Conversely, a positive net balance indicates easing. The shaded series indicate expectations for the coming quarter.
Source: Danmarks Nationalbank.

have reduced interest rates and/or fees for corporate customers, whereas mortgage banks have raised their administration margins for some loan types. The financial institutions expect this development to continue into the 3rd quarter of 2013. As regards retail customers, credit policies are expected to be tightened a little in the coming quarter. More specifically, while the medium-sized banks expect to reduce interest rates and/or fees for retail customers a little, the large banks and mortgage banks expect to raise their prices. As in the previous quarters, the banks and mortgage banks overall stated that demand for loans had risen in the 2nd quarter. Both for retail and corporate customers, demand mainly came from new customers, which could indicate that customers shop around for suppliers and/or loan products. The rise in demand for corporate loans was particularly pronounced for small and medium-sized enterprises.

Seasonally adjusted lending by banks and mortgage banks to households rose by almost kr. 6 billion, corresponding to 0.2 per cent, in the first seven months of the year, while lending to non-financial corporations fell by just over kr. 1 billion, corresponding to 0.2 per cent. Since the end of 2008, total lending by banks and mortgage banks to

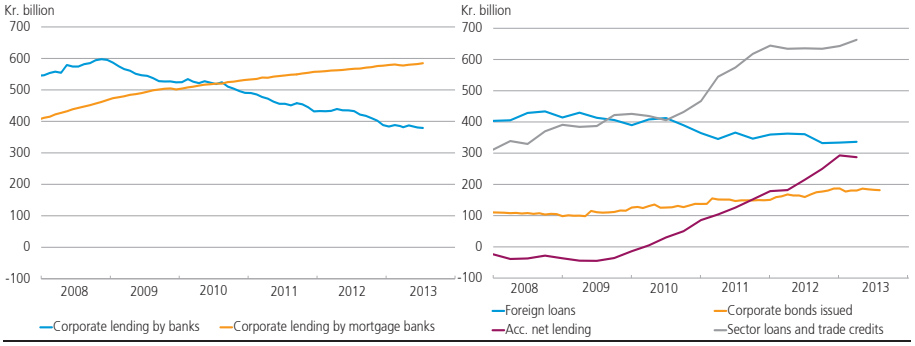
households and the corporate sector has been virtually unchanged. This masks a decrease of kr. 99 billion in corporate lending and an increase of kr. 142 billion in lending to households, cf. Chart 17 (left). During the same period, total bank lending has fallen by kr. 267 billion, while mortgage bank lending has risen by kr. 309 billion. A good 40 per cent of the fall in bank lending is attributable to realised losses on lending, as well as the fact that most loans acquired by the Financial Stability Company have been eliminated from the lending statistics.

The redistribution of loans between banks and mortgage banks may reflect the need for some banks to consolidate after the financial crisis, encouraging customers – especially firms – to raise mortgage loans rather than bank loans. At the same time, some firms may have found mortgage loans more attractive, partly because of low interest rates, partly because mortgage loans, unlike bank loans, cannot be terminated by the lender.

In relation to the decline in corporate lending, it should be remembered that other funding opportunities are available to firms besides loans from Danish banks and mortgage banks. These include internal funding via accumulated savings and external funding via foreign loans, and for large firms also bond issuance. In addition, individual firms may obtain funding from other firms by raising intra-group or sector loans and trade credits. Overall, these loans do not inject external credit into the non-financial sector, however.

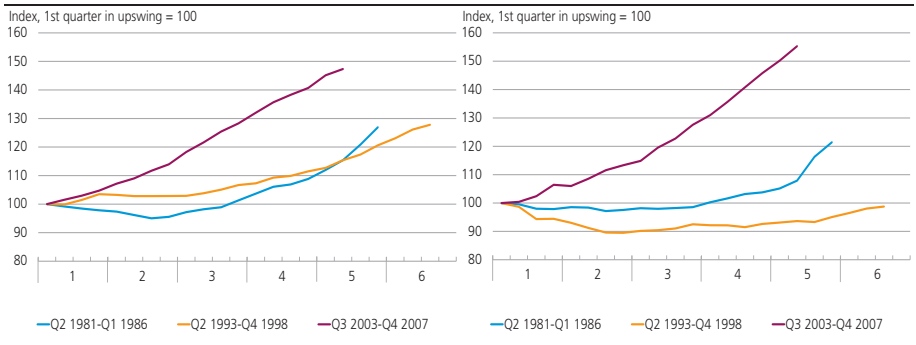
Turning to the various sources of external funding, Danish non-financial corporations' foreign loans have fallen by kr. 72 billion since end-2008, mainly as a result of reduced foreign borrowing from outside the group, while intra-group trade credits from abroad have risen slight-

LENDING BY BANKS AND MORTGAGE BANKS TO THE CORPORATE SECTOR (LEFT) AND FIRMS' OTHER SOURCES OF FUNDING (RIGHT) Chart 17



Note: Seasonally adjusted lending. The most recent observations for lending and corporate bonds issued are from July 2013. The most recent observations for foreign loans, sector loans and trade credits as well as net lending are from the 1st quarter of 2013.
Source: Danmarks Nationalbank.

LENDING BY BANKS AND MORTGAGE BANKS TO HOUSEHOLDS (LEFT) AND THE CORPORATE SECTOR (RIGHT) DURING THREE BOOMS Chart 18



Note: The horizontal axis indicates how far (in years) into the upswing the economy is.
Source: Statistics Denmark and Danmarks Nationalbank.

ly. In the same period, the outstanding volume of corporate bonds has risen by kr. 83 billion, to just over kr. 180 billion at end-July 2013. The volume of sector loans and trade credits has also risen since end-2008. Corporate savings are substantially higher than usual, also in a cyclical context. Accumulated net lending since end-2008 is kr. 324 billion, cf. Chart 17 (right).

Previous economic recoveries have shown that firms typically rely on internal funding at the beginning of an upswing, while they tend to rely more on borrowing later on, cf. Chart 18. This supports the view that borrowing does not begin to increase until the internal funding options become more limited and the need for investment and investment funding rises because spare capacity has gradually been used. The most recent upswing, which began in 2003, differed from the two previous upswings in that growth in credit – to both households and the corporate sector – accelerated strongly and rapidly. Part of the explanation is that the preceding recession was short and mild and that firms therefore consolidated to a lesser degree, so that there was a greater need to borrow when the upswing set in.

Designated authority in relation to macroprudential policy

In the aftermath of the financial crisis, many countries are establishing frameworks for macroprudential policy. Macroprudential policy should contribute to preventing and mitigating systemic risks in the financial system. One way to do this is to activate the countercyclical capital buffer.[1] Macroprudential policy is a new policy area, and in late 2012

[1] See e.g. Danmarks Nationalbank, *Financial stability*, 2012, for a description of the countercyclical capital buffer and other macroprudential instruments.

the Folketing (Danish parliament) decided to establish the Systemic Risk Council to monitor systemic financial risks and recommend initiatives to prevent and address such risks. The Council is an advisory council.

When implementing the new capital adequacy rules (CRR/CRD IV), the Folketing must, among other things, decide who is to be the designated authority in Denmark in relation to e.g. the countercyclical capital buffer. In principle this could be the government, the Systemic Risk Council, the Danish Financial Supervisory Authority or Danmarks Nationalbank. In its bill to amend the Financial Business Act, the government proposes that the Minister for Business and Growth, i.e. the government, should be the designated authority in Denmark.

In Danmarks Nationalbank's opinion, this responsibility should be vested in the Danish Financial Supervisory Authority or the Systemic Risk Council.[1] There is a risk that macroprudential initiatives are taken too late, that no political initiatives are taken or that the initiatives taken are insufficient. The reason is that such measures often have to be launched at a time when it may be difficult for the general public to see the need for them. Consequently, the independence of the macro-prudential authority should be given high priority.

So far, indications from other European countries suggest that the vast majority will vest implementing powers in an independent authority, thereby following international recommendations, cf. Box 2.

[1] See also the consultation response (in Danish only) from Danmarks Nationalbank in connection with the Danish Financial Supervisory Authority's consultation on amendment of the Financial Business Act,_etc._at:
http://nationalbanken.dk/C1256BE200574B9C/side/Hoeringssvar_paa_Finanstilsynets_hoering_om_aendring_af_lov_om_finansiel_virksomhed_og_forskellige_andre_love.

PERSPECTIVES ON A DESIGNATED MACROPRUDENTIAL AUTHORITY Box 2

To promote effective implementation of macroprudential policy, international organisations emphasise e.g. the following:[1]

- central banks should have a significant or leading role in macroprudential policy on account of their expertise and existing responsibilities in relation to financial stability;
- the participation of government ministries may be useful, but a strong role increases the risk of initiatives being delayed, not being taken or being insufficient;
- the macroprudential authority should have access to all relevant data, including information from the financial supervisory authority;
- cooperation with other authorities responsible for financial stability is important in order to identify systemic risks.

The European Systemic Risk Board, ESRB, recommends that the macroprudential authority should be politically independent, as pressure may be exercised on macroprudential political decision-makers not to tighten policies in an upswing. This is because the preventive nature of macroprudential policy may entail making decisions at a time when it may be difficult for the general public to see the need for them. The gain to society in the form of a more sustainable contribution from the financial sector to the economy, including lower risk of financial instability, is visible only in the longer term. Existing areas of political independence include the Danish Financial Supervisory Authority's powers to determine financial institutions' individual capital needs and Danmarks Nationalbank's responsibility for monetary policy.

Internationally, parallels are drawn between macroprudential policy and monetary policy.[2] Besides the risk of inaction, insufficient or late action, both areas operate with a number of indicators that may point in various directions and which must be taken into account when assessing the need to take action. The uncertainty linked to the information available and the expected political opposition both point to rules-based decisions with the option of derogation.

So far, only few countries have decided who is to be the designated authority. In most cases, progress has mainly been made in relation to determining countercyclical capital buffers, and powers are expected to be vested in different authorities, depending on the relevant country's organisation of its supervisory authority, among other things, cf. Chart 19.

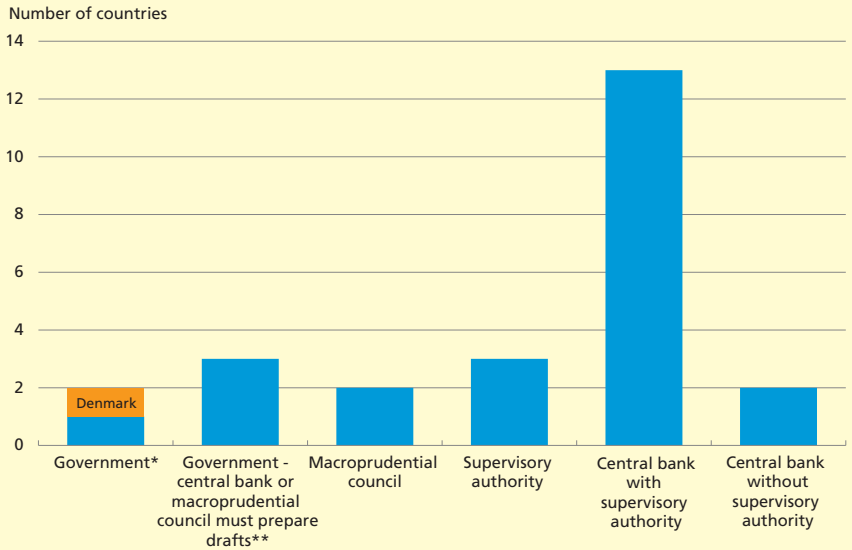
In most European countries, responsibilities are expected to be assigned in accordance with the recommendations from the international organisations, i.e. with independent institutions as designated authorities. The majority expect delegation of responsibilities to the supervisory authorities, central banks or central banks with supervisory authority. In three of the cases where a government is given a strong role in relation to determining the countercyclical capital buffer, it is also a formal requirement that the central bank or the macroprudential council prepares drafts for the government. If Danish macroprudential policy is to have a preventive impact, it is probably essential that the distribution of responsibilities is brought in line with international recommendations.

[1] Nier, Erland W., Jacek Osiński, Luis I. Jácome and Pamela Madrid, Institutional models for macroprudential policy, *IMF Staff Discussion Note*, November 2011, and ESRB, Recommendation on the macro-prudential mandate of national authorities, No. 3, December 2011.

[2] See e.g. Yellen, Janet L., Macroprudential supervision and monetary policy in the post-crisis world, comments at the annual meeting of the National Association for Business Economics, October 2010, and Haldane, Andrew, Macroprudential policies – When and how to use them, paper presented at the Rethinking macro policy II: first steps and early lessons conference, April 2013.

CONTINUED Box 2

LIKELY DESIGNATED AUTHORITY AND DISTRIBUTION OF RESPONSIBILITIES FOR COUNTERCYCLICAL CAPITAL BUFFER Chart 19



Note: The chart shows the likely designated authority and distribution of responsibilities; in many cases national legislation is still pending. The graphics comprise 23 EU member states and 2 European non-EU member states.

Source: National authorities and own assessments.

* The Danish bill states that the Minister for Business and Growth may determine the countercyclical capital buffer on the basis of a recommendation from the Systemic Risk Council. In the other country in this category, the supervisory authority determines the capital buffer, subject to approval by the government.

** The government is the designated authority. The central bank or the macroprudential council must prepare drafts for the government's decisions.

THE DANISH ECONOMY

GDP rose by 0.5 per cent in the 2nd quarter of 2013, adjusted for price developments and seasonal fluctuations, cf. Table 4. Growth was fuelled by exports, fixed gross investments and public consumption, while private consumption and imports were unchanged. In other words, public consumption increased although, viewed in isolation, the lockout of teachers in the spring had a downward impact. The increase followed a sizeable fall in public consumption in the 1st quarter.

Stockbuilding made a negative contribution to GDP growth in the 2nd quarter. This was partly a reversal of the trend seen in the 1st quarter, reflecting that stocks were built up in the 1st quarter and sold in the 2nd quarter.

Private consumption has shown a moderate trend in recent years, reflecting the weak development in household disposable income and

KEY ECONOMIC VARIABLES Table 4

Real growth on preceding period, per cent	2012	2013	2014	2015	2012/2013 Q4	Q1	Q2
GDP	-0.4	0.3	1.6	1.7	-0.7	-0.2	0.5
Private consumption	0.5	0.4	1.5	1.7	0.7	-0.1	0.0
Public consumption	0.7	0.4	0.7	0.7	1.4	-2.8	0.7
Residential investment	-8.6	-1.5	4.7	2.4	-2.4	-2.2	2.5
Public investment	10.7	-4.5	0.3	0.9	-0.1	-5.3	6.1
Business investment	1.4	3.0	5.2	4.4	3.5	0.1	-0.9
Inventory investment[1]	-0.4	0.3	0.1	0.1	-1.0	1.6	-0.7
Exports	0.2	0.9	3.5	3.2	-2.3	0.4	1.8
Industrial exports	2.3	1.5	4.7	4.9	-4.3	1.3	1.4
Imports	1.0	1.8	4.2	3.6	-1.1	1.7	0.1
Employment, 1,000 persons	2,729	2,729	2,742	2,755	2,727	2,726	2,717
Gross unemployment, 1,000 persons	162	153	148	140	163	156	154
Net unemployment, 1,000 persons	118	118	117	111	123	120	117
Balance of payments, per cent of GDP	5.9	6.1	4.9	5.0	6.0	5.4	7.6
Government balance, per cent of GDP	-4.2	-1.5	-2.0	-2.9	-3.0	-1.1	-1.8
House prices, per cent year-on-year	-3.2	2.5	2.3	2.5	0.7	2.2	2.9
Consumer prices, per cent year-on-year	2.4	0.6	1.8	1.8	2.1	0.9	0.5
Hourly wages, per cent year-on-year	1.8	1.7	2.2	2.7	1.7	1.5	1.7

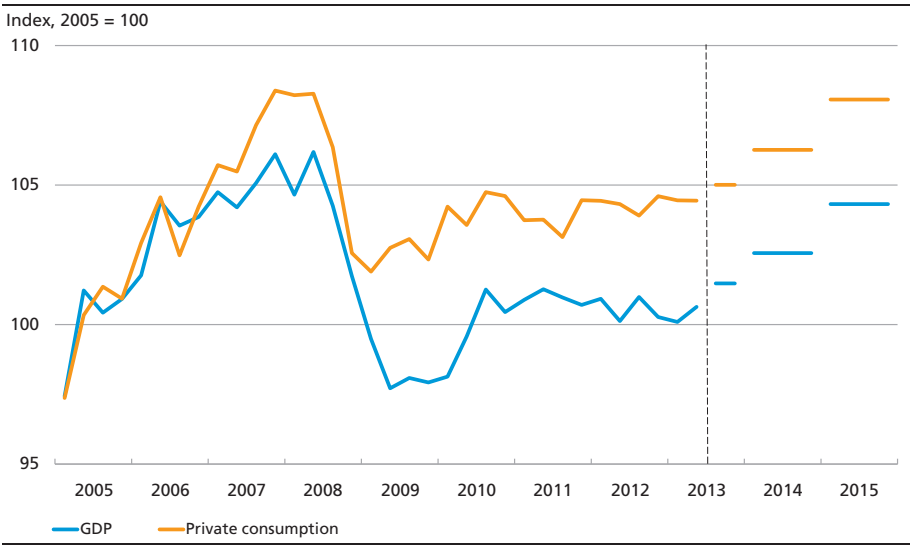
[1] Contribution to GDP growth.
Note: Calculations based on statistical information up to and including 11 September 2013.

wealth. Wealth has in fact increased since the summer of 2011, but this is mainly because pension wealth and equity prices have increased, and they normally have a smaller impact on consumption than other wealth components. The low level of interest rates and resultant modest interest payments help to buoy up disposable income.

The consumption ratio, calculated as household consumption relative to disposable income before contributions to and disbursements from pension savings schemes, was slightly below the historical average in the 1st quarter of 2013. As disposable income increases, stronger consumption growth of around 1.5 per cent is expected in the coming years. This means that the consumption ratio will remain at its current level. At the end of the forecast period, private consumption will be in line with the peak from the upswing in 2006-08, cf. Chart 20.

Viewed in relation to value added in the non-agricultural sector, business investment in machinery, transport equipment, software, etc. has shown an upward trend over the last couple of years. In the projec-

GDP AND PRIVATE CONSUMPTION Chart 20



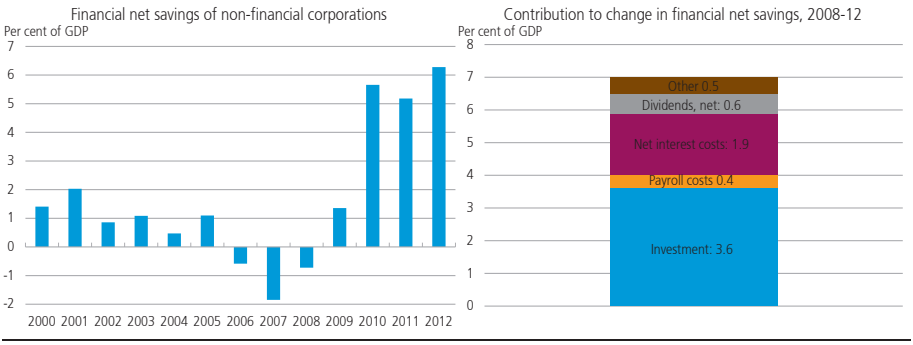
Note: GDP and private consumption in volumes. Actual figures until and including the 2nd quarter of 2013. The projections for the 2nd half of 2013 are half-year averages, while 2014-15 are annual averages.
Source: Statistics Denmark and own forecast.

tion, the investment ratio rises a little more from its current level. Capacity utilisation in the industrial sector remains low, but the investment window in 2012-13, which was part of the tax agreement from the summer of 2012, is expected to support investment in the rest of 2013. At the same time, the very low level of interest rates makes it advantageous for firms to invest.

Non-residential construction fell further throughout 2012 and into 2013 from an already low level. The need for new construction is limited by low activity and a considerable number of vacant premises. Based on the low level of interest rates, the forecast operates with some growth in non-residential construction in the coming years, as gross value added in the corporate sector increases. Residential construction is also expected to pick up a little.

Private financial net savings, i.e. the difference between gross savings and investment, have been high for some years, particularly among non-financial corporations. In the period 2008-12, the latter increased their financial net savings by 7 per cent of GDP, to kr. 114 billion in 2012, corresponding to 6.3 per cent of GDP, cf. Chart 21 (left). This is attributable to both lower investment and higher gross savings, since output has been unchanged while interest payments, payroll costs and dividend payments have decreased, cf. Chart 21 (right). The sizeable financial net savings have been invested in various assets, especially foreign equities, while only a small share has been used to reduce firms' debts.

FINANCIAL NET SAVINGS OF NON-FINANCIAL CORPORATIONS Chart 21



Note: Right-hand chart: "Investment" comprises increased net savings as a result of a fall in business investment measured in kroner as a share of GDP in 2012. To this should be added savings from lower payroll and interest costs as well as lower dividend payments, also as a share of GDP in 2012. "Investment" includes inventory investment. "Other" includes e.g. output and taxes.
Source: Statistics Denmark.

Total exports of goods have been virtually flat over the last year, with relatively low growth in the export markets. However, growth is expected to pick up in the 2nd half of 2013, and in the coming years particularly industrial exports are expected to accelerate as the global economy recovers. The market share of the Danish industrial sector has been more or less unchanged in recent quarters, but is expected to fall slightly during the forecast period.

New information about service items has led Statistics Denmark to adjust the current-account surplus upwards by kr. 8.5 billion for the 1st half of the year relative to the previously published figures. The surplus in the period January to July was kr. 28.2 billion, up from kr. 21.6 billion in the same period of 2012.

Activity in the Danish economy remains below its potential level. Progress has been made in terms of adjusting balance sheets in the economy following the years of overheating and the subsequent downturn, and the foundations for renewed growth are in place. There are also clear indications that the economy is recovering. This is expected to have an impact from the 2nd half of 2013, so that growth will be stronger than in the 1st half. Overall, growth in real GDP is expected to be 0.3 per cent this year, rising to 1.6 per cent in 2014 and 1.7 per cent in 2015. The gradual increase in growth is mainly attributable to higher private consumption and investment. This forecast entails that Denmark's growth will be higher than that of the euro area, but in line with Germany's, in the coming year. Stronger growth will gradually cause the negative output gap to narrow, but it is not expected to have closed completely by the end of the forecast period in 2015. Initially, a lift in productivity towards its structural level will contribute to the

narrowing of the output gap. Employment will not begin to rise until later, presumably some time during 2014.

Viewed in isolation, the above correction of the balance of services will increase GDP in 2012 and 2013, so that GDP in the 2nd quarter of 2013 is 0.8 per cent higher than in the forecast, cf. Appendix 1 on the forecast assumptions.

The forecast risks are assessed to be more or less balanced. If the last year's positive signals in the housing market continue, this may bring forward a lift in domestic private-sector demand relative to the forecast scenario. Another risk is linked to the effects of a speedier normalisation of the level of interest rates. Since June, long-term interest rates have risen notably, while short-term interest rates have remained at a low level. Given that adjustable-rate loans are in widespread use, the latter is important in terms of limiting the impact of rising interest rates on private consumption.

Foreign trade and balance of payments

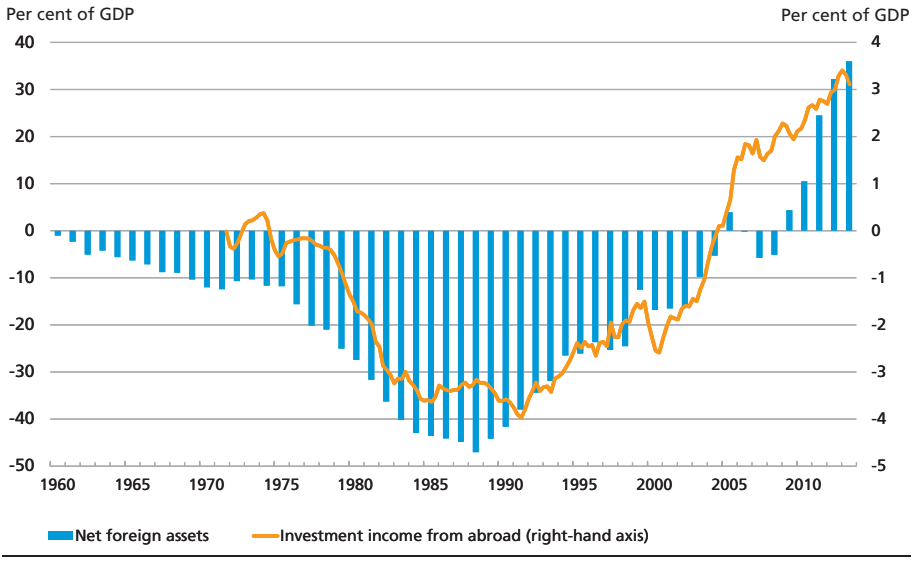
The seasonally adjusted value of exports of goods, excluding ships and aircraft, was flat in the 2nd quarter of 2013, while the value of imports fell by 3.8 per cent. The latter reflects lower imports of fuel. In this context it should be noted that the first three months of the year were colder than usual, which increased the domestic demand for energy. On the other hand, imports of transport equipment, especially ships and aircraft, rose considerably in the 2nd quarter. Exclusive of energy, exports grew by 0.6 per cent from the 1st to the 2nd quarter, while imports fell by 0.2 per cent. The rise in exports excluding energy is related to larger industrial exports of mainly transport equipment and pharmaceuticals. In July, exports were flat, while imports rose a little. Following a dive around the turn of the year, industrial exports are now back at the level from the 3rd quarter of 2012.

In the period from April to July 2013, the seasonally adjusted monthly trade surplus, excluding ships and aircraft, was approximately kr. 7 billion. This means that it is back at the average for the last few years, following a drop in the 1st quarter of 2013.

Growth in Denmark's export markets is expected gradually to pick up in the coming years. This will lead to modest growth in Danish exports, which are expected to increase by 0.9 per cent in volume terms this year and by 3-4 per cent in the next couple of years.

In the 12 months up to and including July 2013, the current-account surplus was kr. 117 billion, corresponding to 6.3 per cent of GDP. That is slightly higher than the surplus for the preceding 12 months. Over the last year, the balance of goods and services has showed a surplus of kr.

DENMARK'S NET FOREIGN ASSETS Chart 22



Note: The most recent observations are from the 2nd quarter of 2013.
Source: Statistics Denmark and Danmarks Nationalbank.

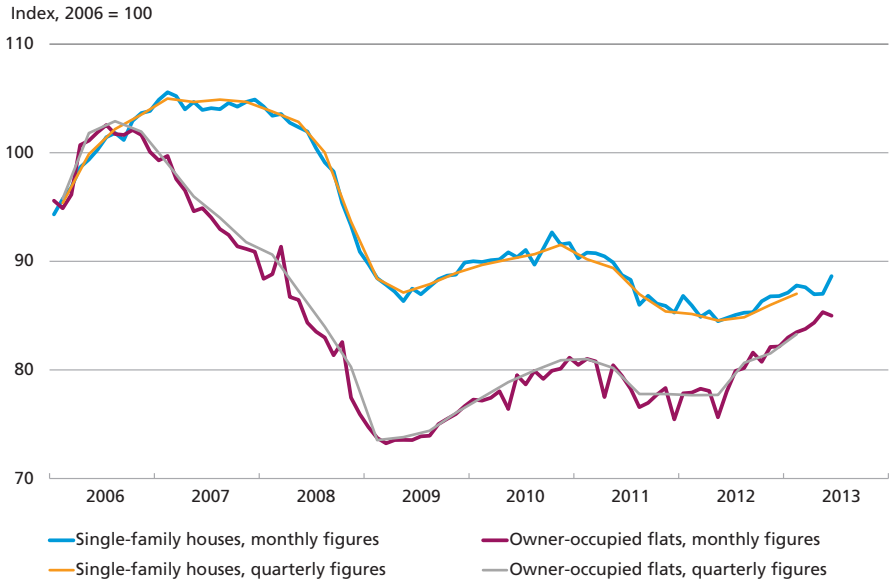
97 billion and wage and investment income a surplus of kr. 56 billion, which is the largest surplus ever. However, current transfers, which include e.g. EU payments and development aid, showed a deficit of kr. 36 billion.

The persistently high current-account surplus entails underlying growth in Denmark's external assets, which now total more than 35 per cent of GDP, cf. Chart 22. Short-term developments may be influenced by positive or negative value adjustments. For some years, value adjustments have been positive, but recent developments with rising interest rates point to a negative value adjustment in 2013. This should be viewed in the context of the pension sector's hedging of interest-rate risk by means of derivatives. Over a longer period, the annual value adjustments tend to cancel out each other. The net return on external assets has been around 3 per cent of GDP over the last year. This means that the Danes' total income (GNP) is 3 per cent higher than the value of domestic output (GDP).

Housing market

There are indications that the housing market is beginning to improve in some areas, where seasonally adjusted prices have been rising since the spring of 2012. For Denmark overall, house prices were 2.9 per cent higher in the 2nd quarter of 2013 than one year earlier, while flats had

HOUSING PRICES Chart 23



Note: The most recent monthly observations are from June 2013. The most recent quarterly observations are from the 1st quarter of 2013. Seasonally adjusted figures.
Source: Statistics Denmark and own seasonal adjustment.

risen by almost 10 per cent, cf. Chart 23. Higher prices are mainly seen in and around Copenhagen and the provincial cities, while prices continue to decline in other parts of the country. Compared with the level before the downturn, nominal prices of houses and flats are 15-20 per cent lower at the national level.

Surveys show that households have begun to take a more optimistic view of the housing market over the last year, and more people expect house prices to rise. At the same time, the initial asking price and the traded price have converged since early 2012. This reflects that it has become easier for buyers and sellers to agree on a price. All the same, at 13 per cent in the 1st quarter of 2013, the average reduction of the asking price before the sale is closed remains considerable for houses. For owner-occupied flats it is somewhat lower, 7 per cent.

Despite the rising prices, trading activity does not seem to have increased yet. The number of transactions remains low. At the same time, the supply of houses for sale is high and has been more or less constant at just over 40,000 since the autumn of 2012. The low turnover and large supply means longer time on market. In July, the seasonally adjusted time on market was 300 days for houses and 185 days for flats. However, both figures were lower than they had been six months earlier. The shortest time on market is seen in the Capital Region, where

it is almost one third below the national average for both types of housing.

The recovery in the market for owner-occupied flats is to a large extent attributable to developments in Copenhagen proper, where prices were 10 per cent higher in the 1st quarter of 2013 than one year earlier. Over 30 per cent of all owner-occupied flats in Denmark are found here. Sales have risen by 50 per cent since they bottomed out in late 2008, while the supply has dropped notably and is now back at the low 2005 level. In connection with the price rises in Copenhagen it should be noted that this was also where prices dived most sharply in the wake of the financial crisis.

The upward trend in prices of owner-occupied flats in Copenhagen and the provincial cities is to some extent expected to spread to their environs in the coming years. But prices will be kept at bay by the continued high supply of homes for sale and the prospect of rising long-term interest rates. Moreover, much of the recovery in Copenhagen presumably reflects migration from other parts of Denmark, so that price increases are dampened in the areas people are moving out of. In the article "Prices of Flats in Northern European Capitals" in this Monetary Review, prices in Copenhagen are compared with those in a number of other capital cities. The forecast estimates that the recovery will continue in the near term, with Danish house prices rising by a moderate 2-3 per cent a year on average.

Wages

Danish wage inflation has generally declined since 2008. The level is low in a long-term perspective. According to Statistics Denmark's compilation, which covers the entire private-sector labour market, wage inflation was 1.3 per cent in the 2nd quarter of 2013 compared with the year before. In the competitive industrial sector, the increase was 1.7 per cent, while it was a mere 0.5 per cent in the building and construction sector. In the sectors covered by the Confederation of Danish Employers, DA, wages rose by 1.8 per cent year-on-year in the 2nd quarter of 2013. Statistic Denmark's and DA's compilation of wage developments differs in terms of both coverage and method.

Danish wages continue to rise more slowly than those of a weighted average of foreign competitors, whose industrial wages increased by 2.1 per cent year-on-year in the 2nd quarter. In other words, wage competitiveness is still improving as it has been for the last couple of years.

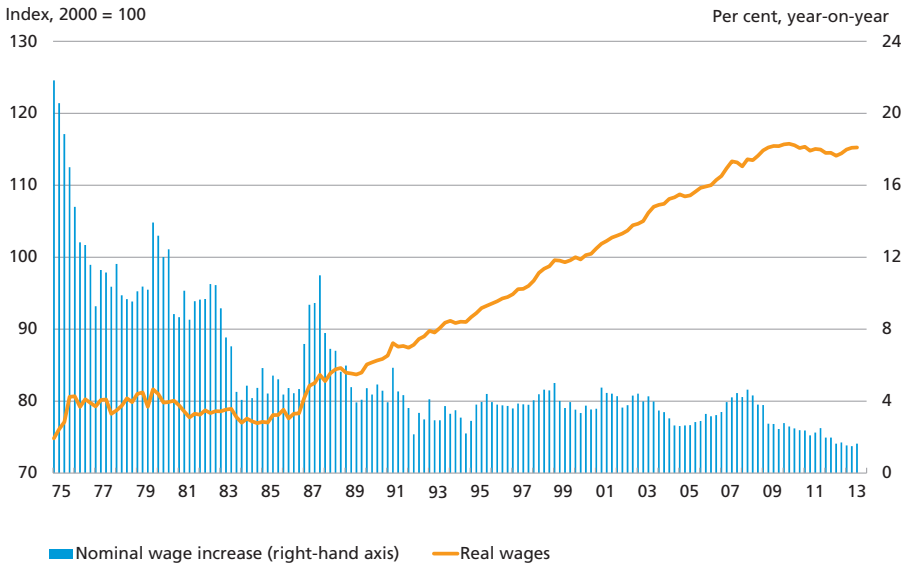
Wage inflation was higher in the public than the private sector throughout most of 2012. Consequently, the regulatory mechanism, whereby public-sector wages mirror private-sector wages with a certain

lag, has resulted in a pronounced slowdown in public-sector wage inflation in 2013. In the 2nd quarter, wages for central government employees were 0.5 per cent higher than one year earlier. For local government employees, the rate of increase was 0.3 per cent, while it was 0.2 per cent at regional level. The 2-year collective agreements for the public sector that entered into force on 1 April 2013 entail that public-sector wage increases will also be small in the next two years.

In the forecast, wage inflation is expected to remain subdued in the coming years. This is because pressures on the labour market are low and the increases agreed for the area covered by the Danish Confederation of Trade Unions/the Confederation of Danish Employers until the spring of 2014 are moderate. For 2013 overall, wages are expected to increase by 1.7 per cent, rising to 2.2 and 2.7 per cent, respectively, in 2014 and 2015. Hence, wages will constitute a decreasing share of value creation in the economy in the coming years, while the opposite was the case in the boom years.

Despite the prospect of continued low wage inflation, the currently even lower price inflation means that real wages are rising for large groups in the labour market. This is expected to continue in the coming years. Seen over the last few decades, large nominal wage increases have not always gone hand in hand with a positive trend in real wages – on the contrary, cf. Chart 24.

INFLATION AND REAL WAGES — Chart 24



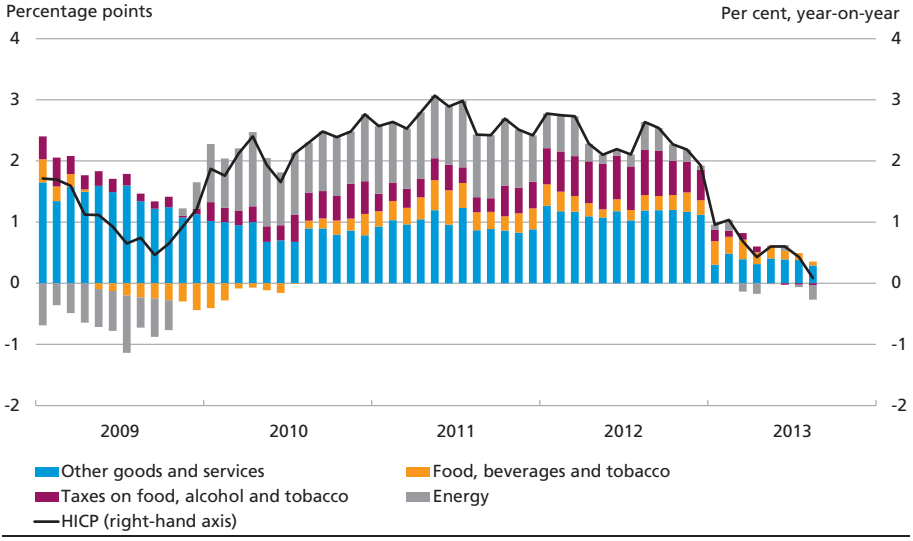
Note: Wage developments in the industrial sector deflated by the consumer price index. The most recent observations are from the 2nd quarter of 2013.
Source: Statistics Denmark and Danmarks Nationalbank.

Prices

Inflation, measured as the annual rate of increase in the EU's Harmonised Index of Consumer Prices, HICP, fell from a level of around 2 per cent to approximately 0.5 per cent at the beginning of 2013. In August, the rate of increase declined further, to 0.1 per cent, cf. Chart 25. The lower consumer price inflation is mainly attributable to price developments for goods, but also for a number of services. For instance, insurance has become cheaper and the contribution from bank fees has declined. In addition, the "fat tax" was abolished at the turn of the year, and taxes on soft drinks and beer were lowered from 1 July 2013. Moreover, food prices are rising only slightly at present, while energy prices have fallen over the last year. That also has a downward impact on HICP inflation. The low contributions to inflation from food and energy are atypical as these items have frequently boosted HICP inflation in recent years. Stripped of indirect taxes, prices rose by 0.5 per cent year-on-year in August. In the euro area, HICP rose by 1.3 per cent in August, supported by higher indirect taxes.

Core inflation, i.e. inflation exclusive of energy and food prices, was 0.4 per cent in August. The index for domestic market-determined inflation, IMI, which reflects developments in wages and profits, was 0.9 per cent, cf. Table 5. The annual rate of increase in the price index for the domestic supply of goods, wholesale prices, was 0.5 per cent in July. All in all, this indicates that domestic price pressures remain low, in line

PRICE INFLATION IN DENMARK — Chart 25



Note: HICP inflation with explanatory contributions.
Source: Statistics Denmark.

CONSUMER PRICES Table 5

Per cent, year-on-year	Weight[1]	2012	2013	2014	2015	2013					
						Q2	Q3	Q4	Aug.	Sept.	Oct.
HICP		2.4	0.6	1.8	1.8	0.5	0.3	0.6	0.1	0.3	0.4
Index of net retail prices	100	1.9	0.9	1.8	1.7	1.0	0.7	0.9	0.5	0.8	0.8
Exogenous:											
Energy	7.6	3.2	-1.1	2.0	-1.6	-1.1	-2.6	-0.6	-3.9	-2.9	-2.2
Food	13.7	2.5	2.1	2.3	2.3	2.3	1.7	1.5	1.5	1.7	1.5
Adm. prices	4.5	2.3	2.6	1.5	2.5	2.5	2.9	2.2	3.0	2.9	2.6
Rent	22.3	2.6	2.3	2.3	2.1	2.3	2.2	2.2	2.1	2.2	2.2
Excl. exogenous	51.9	1.1	0.3	1.4	1.8	0.4	0.2	0.4	0.1	0.3	0.3
Imports	14.7	0.8	-1.2	0.6	1.7	-1.3	-1.6	-2.1	-1.7	-1.8	-2.1
IMI	37.2	1.2	0.9	1.7	1.8	1.0	0.9	1.4	1.0	1.1	1.3

Note: The most recent actual figures are from August 2013.
[1] Weight in the index of net retail prices, per cent.

with developments in 2012. This is because the economy still has spare capacity.

Consumer expectations of future inflation indicate that the currently very low inflation is deemed to be temporary. A survey of short-term inflation expectations among professional investors and analysts shows that they take the same view. In Danmarks Nationalbank's forecast, annual price inflation is predicted at 0.6 per cent this year, rising to just under 2 per cent in 2014 and 2015.

Public finances

It is estimated that real public consumption will grow by 0.4 per cent this year and 0.7 per cent next year. Growth in 2013 is below budget. In recent years, local councils have stayed within budget. From next year, the Budget Act lays down 4-year current spending ceilings for central, regional and local government. So it is hoped that the long period of systematic budget overruns up through the 2000s will not be repeated.

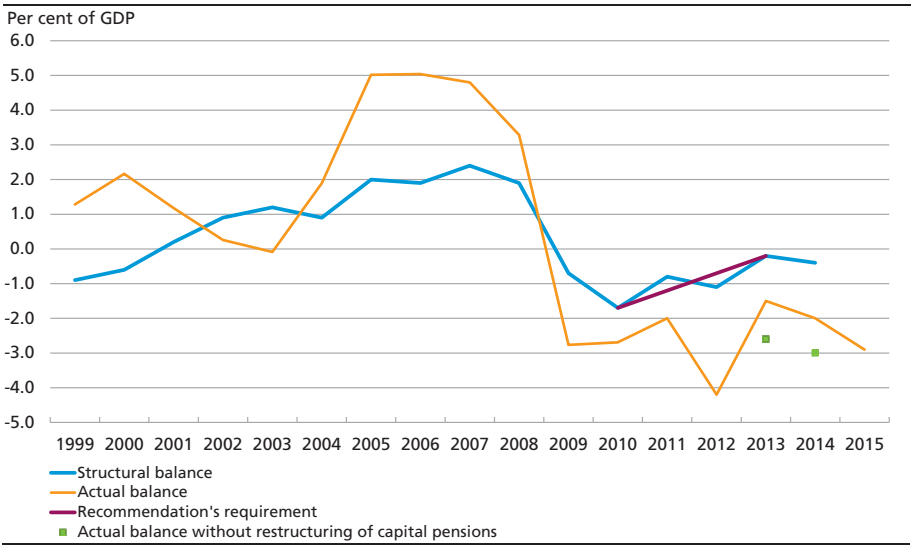
Real public investment is expected to fall by approximately 4 per cent this year, but remains high. That will also be the case in the coming years.

The government deficit was 4.2 per cent of GDP in 2012. One of the reasons for this considerable deficit was that participants in the early retirement scheme could opt out and have their accumulated contributions disbursed. This year the deficit is expected to be kr. 28 billion, corresponding to 1.5 per cent of GDP, rising to 2.0 per cent of GDP in 2014. This year and next year, the government budget balance will be affected by the access to early payment of taxes on existing capital pensions at a lower rate. The forecast applies the government's

estimate that such tax payments will bring revenue of kr. 20 billion in both 2013 and 2014. Other things being equal, this will reduce the government deficit in these two years. Moreover, revenue from taxation of pension yields (PAL tax) is estimated to be higher than the normal level of approximately 1 per cent of GDP. Revenue from both PAL tax and early taxation of existing capital pensions is subject to great uncertainty, but if the estimates prove to be right, both will provide considerable extraordinary revenue for the central government this year and next year, thereby contributing to a temporary improvement of the government balance, i.e. a lower budget deficit.

It looks as if Denmark will observe the recommendation from the EU to reduce its government deficit to less than 3 per cent of GDP in 2013. This also applies if the extraordinary revenue from early taxation of capital pensions is not included in the compilation of the deficit, but in that case the 3-per-cent requirement will only just be met, cf. Chart 26. It also looks as if the EU recommendation to improve the structural balance by 1.5 per cent of GDP in the period 2011-13 will be met, but the Ministry of Finance estimates that next year's structural balance will show a deficit of 0.4 per cent of GDP, so once again there is little room for manoeuvre relative to the Budget Act's threshold of minus 0.5 per cent. The structural balance will deteriorate by 0.2 percentage point from 2013 to 2014.

GOVERNMENT BUDGET BALANCES — Chart 26



Note: "Structural balance" is the government's estimate. "Actual balance" with and without restructuring of capital pensions are Danmarks Nationalbank's estimates. The revenue from restructuring of capital pensions has been estimated at kr. 20 billion in both 2013 and 2014.

Source: Ministry of Finance and own calculations.

Compliance with the EU's recommendation is necessary, but not sufficient, for the excessive deficit procedure to be abrogated for Denmark. Under this procedure, the EU sets limits for allowable budget deficits in order to ensure sound public finances. In its spring forecast 2014, the European Commission must also assess that Denmark will not exceed the reference limit of 3 per cent of GDP in 2014 and 2015 if the excessive deficit procedure is to be abrogated. Danmarks Nationalbank's forecast estimates the deficit at 2.0 and 2.9 per cent of GDP, respectively, in those two years.

Labour market and capacity

Statistics Denmark has adjusted employment downwards by approximately 30,000 in the period 2009-13 in connection with the incorporation of the new working time accounts, based on the e-income Register, in the national accounts. The curve for the period 2010-11 has become more flat, and the general picture now points to a slight fall in seasonally adjusted employment since 2010. In the 2nd quarter of 2013, seasonally adjusted employment, including those on leave, rose by 9,400 according to the national accounts. If people on leave are included, the employment effect of the lockout of teachers in the spring is eliminated.

Seasonally adjusted gross unemployment fell by a total of 4,900 from April to July. Fewer people were receiving unemployment benefits, while the number of people receiving social benefits who were ready to enter the labour market was at the highest level since 2007. The latter group includes people receiving training allowance. Fewer people receiving unemployment benefits and more people receiving social benefits has been the pattern since New Year, when the shorter entitlement period for unemployment benefits began to have an impact.

In the forecast, employment is expected to rise from 2014 and in 2015. The labour force will grow, and at the same time gross unemployment will fall slightly over the forecast period due to the economic recovery.

The revision of the employment figures has not affected Danmarks Nationalbank's assessment of spare capacity in the economy, and the negative output gap is still estimated at around 2.5 per cent of GDP in the 2nd quarter of 2013. Part of the spare capacity can be found in the labour market.

One measure of spare capacity in the labour market is the "labour-market gap", which indicates how much employment can rise without causing inflationary pressures in the economy. Danmarks Nationalbank estimates the labour-market gap at 50-60,000 in 2013, which means that there is spare capacity in the labour market, but not as much as the Ministry of Finance and the Economic Councils reckon with. The Min-

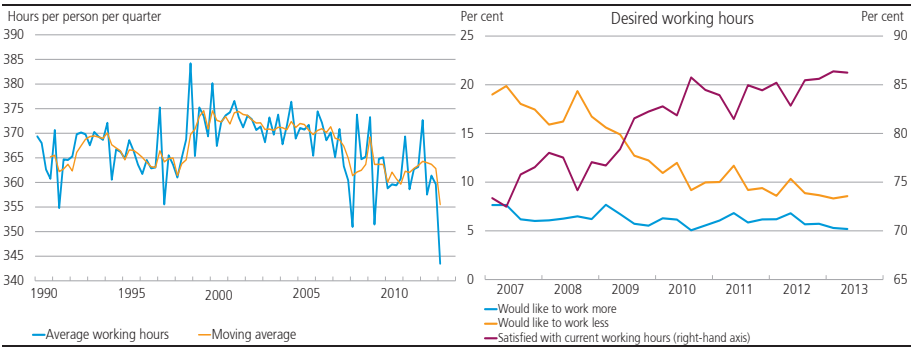
istry's estimate is that employment is 88,000 below the structural level. The Economic Councils estimate that employment is approximately 100,000 full-time equivalents below the structural level in 2013.

Danmarks Nationalbank's estimate of the labour-market gap is primarily based on a potential increase of some 40,000 in the labour force (the labour-force gap) if the economy normalises. In addition, a further 15,000 or so of those currently unemployed may find employment creating pressures on the economy (the unemployment gap). In Danmarks Nationalbank's assessment, there is little potential for increasing average working hours, which would be another way of increasing capacity in the labour market, cf. Chart 27 (left). The labour-force survey, AKU, shows that the share of people in work who would like more hours has been virtually constant at 6 per cent since 2007, while the share that is satisfied with its working hours has risen, cf. Chart 27 (right). The survey shows that approximately three fourths of those who are AKU-unemployed would like full-time employment, while the rest are seeking part-time employment. This distribution has also been more or less unchanged since 2007. This indicates that working hours have fallen from a high level during the overheating to a more normal level, and hence there is no significant mismatch between actual and desired working hours (hour gap).

The participation rate soared during the economic upswing in 2006-08 and then fell when the downturn came, cf. Chart 28. The relative contributions of structural and cyclical factors to these fluctuations are important when assessing the labour-market gap. In Danmarks Nationalbank's assessment, the structural participation rate has fallen since the mid-2000s. This is based on a demographic shift in the period 2005-12 in terms of age, gender and origin, with an increase in the population

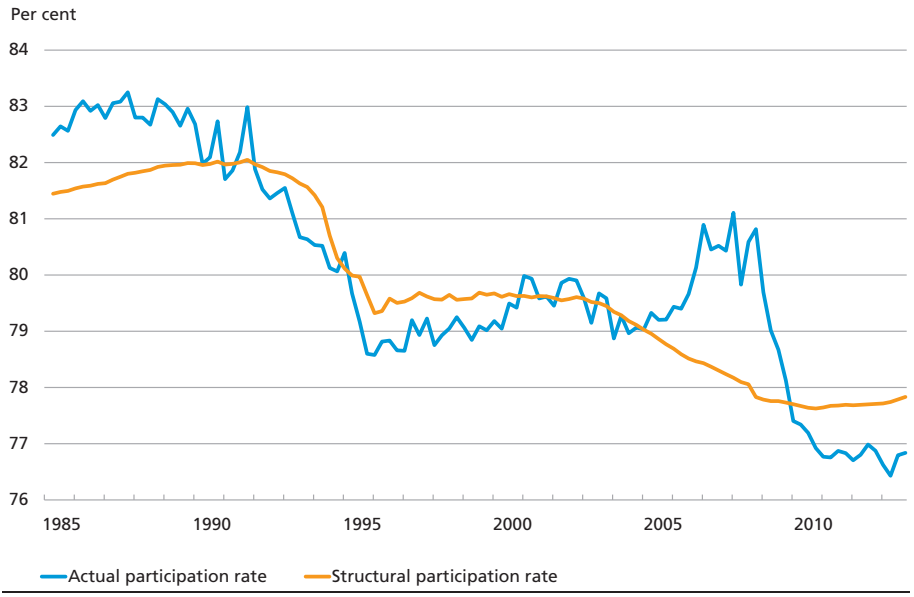
AVERAGE WORKING HOURS AND DESIRED WORKING HOURS FOR AKU-EMPLOYED

Chart 27



Note: Left-hand chart: 4-quarter moving averages.
Source: Statistics Denmark.

PARTICIPATION RATE Chart 28



Note: The participation rate is defined as the total labour force divided by the population aged 16-64 years.
Source: Statistics Denmark and Danmarks Nationalbank.

groups that have lower participation rates. For example, the group "descendants of immigrants from non-western countries" has grown.

In addition, a higher proportion of young people now get an education, which is hardly likely to be fully redressed in a future boom. Students may boost the labour supply to the extent that they also work while they are studying. But typically they seek part-time work only, so, measured in hours, they presumably make up a limited potential labour reserve. Consequently, Danmarks Nationalbank's estimate of the potential for recruiting more young people to the labour force as the economy improves is lower than those of the Economic Councils and the Ministry of Finance.

The low wage increases could imply ample spare capacity in the economy. However, it is assessed that they reflect a wage share which is above its historical average. So unemployment is assessed to be only slightly above its structural level. This is supported by a small increase in the number of firms reporting a shortage of labour, and by a higher influx of foreign labour into the Danish labour market in the last few years. This does not indicate that unemployment is far above its structural level. The labour-market reforms introduced in the last few decades have reduced the level of structural unemployment, and it is important not to ease labour-market policies, including activation

efforts, so as to avoid a renewed increase in the level of structural unemployment.

People who are out of work, but who, according to the labour-force survey, are actively seeking jobs and are ready to start within two weeks provide a potential for increasing employment. Some of these people are not included in the ordinary definition of the labour force as they do not receive any benefits. Some are students, but in that case the potential is assessed to be limited, as stated above. Among the rest, the "other unemployed", three fourths would like full-time employment, while the rest want part-time employment only. This group has increased since 2008 as a result of the cyclical downturn. At the same time, the educational level of its members has increased. Until and including 2008, those defined as "other unemployed" were mainly unskilled workers, but today many of them have short- or medium-cycle educations. This could be because many relatively new graduates have difficulty in entering the labour market these years. All in all, the "other unemployed" represent a potential increase of the labour force.

Economic policy

The Danish economy was also affected by the downturn after the sovereign debt crisis in a number of southern European countries in 2011-12. At that point, the Danish economy had not yet recovered fully from the consequences of the overheating in 2006-08 and the subsequent financial crisis.

A genuine recovery in the Danish economy after the downturn has been a long time coming, but in recent quarters stabilisation has become increasingly evident, and presumably the economy will begin to pick up in the 2nd half of 2013. The gap up to the potential of the economy is not tremendously large, and the economy will approach its potential in the coming years. Furthermore, monetary policy is highly accommodative and there is a considerable savings surplus in the private sector. So from a cyclical perspective, there is no foundation for discretionary fiscal easing. There is also a substantial risk that the timing will be wrong so that fiscal policy boosts an economy which is already on its way up. That will increase the risk that the economy overheats again.

Fiscal policy is now subject to a set of framework conditions which Denmark is committed to observing, due to its EU membership among other factors. The actual government deficit must not exceed 3 per cent of GDP and the structural deficit must not exceed 0.5 per cent of GDP. The second condition is the key element of the new Budget Act adopted by the Folketing as part of Denmark's implementation of the EU Fiscal Compact. The planned fiscal policy is already as expansionary as this

framework permits. In recent years, the budgets laid down have been observed, and the Budget Act will further strengthen budget management. Hence, it is important to ensure confidence in the new Budget Act.

The option to pay tax on capital pensions early and at a reduced rate in 2013 and 2014 makes it very uncertain how large the extra revenue received by the central government will be, and thus how large the government deficit will be this year and next year. When the restructuring of capital pensions was introduced, it was a precondition that the revenue was to be used purely to reduce government debt. This is appropriate since it is one-off income that will entail a shortfall at some point in the future. However, the spring reforms already seem to be undermining this precondition.

Danmarks Nationalbank expects a government deficit of 2.0 per cent of GDP in 2014 if the estimated kr. 20 billion from restructuring of capital pensions is included. Without that income, the deficit is 3.0 per cent, which leaves no scope for fiscal easing. It looks as if the deficit will also be close to the limit in 2015.

As regards the structural balance, the latest estimate from the Ministry of Finance is a deficit of 0.4 per cent of GDP in 2014. This is so close to the limit that, from a general prudential principle, it does not leave scope for further easing either.

All things considered, Danmarks Nationalbank finds that easing of fiscal policy beyond the current plans would neither be appropriate in the current economic situation nor compatible with the fiscal framework adopted.

Although activity in Denmark is now lower than before the crisis, the total lending volume has remained high. At the same time, developments during the most recent upswings show that firms do not begin to require external credit until some time after the upswing has set in, partly because the accumulated savings of non-financial corporations are typically large. So there are no indications that shortage of credit should impede an upswing.

APPENDIX 1: ASSUMPTIONS IN THE FORECAST FOR THE DANISH ECONOMY

The forecast has been produced using the macroeconometric model MONA[1] and is based on available economic statistics, including Statistics Denmark's preliminary quarterly national accounts for the 2nd quarter of 2013. The projection is based on a number of assumptions concerning the international economy, financial conditions and fiscal policy.

Following the publication of national accounts for the 2nd quarter, Statistics Denmark has published a compilation of the balance of payments in which net exports of services have been adjusted considerably upwards. This adjustment has been incorporated into the forecast of the balance of payments in 2012 and 2013, but not into GDP and other items of the supply balance.

The international economy

The international organisations expect weak growth in global activity this year and slightly stronger growth next year. Euro area growth is expected to be negative this year. However, growth among Denmark's most important trading partners, including Germany and Sweden, is expected to be positive this year. Against that background, the market for Danish exports is assumed to grow by a moderate 2.4 per cent this year, after which the rate of growth will increase to just over 5 per cent in 2014 and 6 per cent in 2015, cf. Table 6.

Foreign prices are expected to rise at a modest pace this year and towards 2015, by which time the rate of increase is estimated at 1.8 per cent. Export market prices will follow the same trend. Wage inflation abroad is estimated to rise only little throughout the projection period due to weak labour markets in most countries.

Interest rates, exchange rates and oil prices

Developments in short- and long-term interest rates in the forecast are based on the expectations of future developments that can be derived from the yield curves in the financial markets. Short-term Danish interest rates are expected to mirror money-market interest rates in the euro area. The 3-month money-market interest rate, measured by the CITA swap rate, was just over 0 per cent in early September 2013 and is expected to rise slightly towards 2015.

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[1] The model is described in Danmarks Nationalbank, *MONA – a quarterly model of the Danish economy*, 2003.

OVERVIEW OF FORECAST ASSUMPTIONS Table 6

	2012	2013	2014	2015
International economy:				
Export market growth, per cent year-on-year	1.8	2.4	5.3	6.0
Export market price[1], per cent year-on-year	0.6	3.5	2.3	1.8
Foreign price[2], per cent year-on-year	0.7	3.6	2.4	1.8
Foreign hourly wages, per cent year-on-year	2.5	2.0	2.3	2.6
Financial conditions, etc.:				
3-month money-market interest rate, per cent p.a.	0.1	0.0	0.1	0.5
Average bond yield, per cent p.a.	1.7	1.6	2.1	2.7
Effective krone rate, 1980 = 100	100.6	102.1	102.3	102.3
Dollar exchange rate, DKK per USD	5.8	5.7	5.7	5.7
Oil price, Brent, USD per barrel	111.6	109.8	105.9	99.0
Fiscal policy:				
Public consumption, per cent year-on-year	0.7	0.4	0.7	0.7
Public investment, per cent year-on-year	10.7	-4.5	0.3	0.9
Public-sector employment, 1,000 persons	831	827	835	839

[1] Weighted import price for all countries to which Denmark exports.
[2] Weighted export price for all countries from which Denmark imports.

The average bond yield is defined as an average of the yields to maturity on outstanding government and mortgage bonds. It was 1.7 per cent at the beginning of September and is expected to rise to 2.7 per cent in 2015.

The effective krone rate has strengthened a little in recent months. In the projection, the dollar rate and the effective krone rate are assumed to remain constant at the level from early September.

At the time of forecasting, the oil price was 115 dollars per barrel. In the projection, the oil price is assumed to develop in line with futures prices, falling to approximately 99 dollars per barrel by 2015.

Fiscal assumptions

The fiscal assumptions in the forecast are based on the planned fiscal policy, including the Finance Act for 2013 and the finance bill for 2014, local and regional government budgets for 2013 and the agreement between Local Government Denmark, KL, and the central government, which allows local governments to reallocate up to kr. 2 billion from services to construction projects. The agreements in relation to the government's growth plan, Vækstplan DK, have also been incorporated into the forecast.

The option to pay tax on existing capital pension schemes at a reduced rate is assumed to yield kr. 20 billion in early revenue in both 2013 and 2014. This forecast is based on that assumption.

Real public consumption is assumed to rise by 0.4 per cent this year. In 2014 and 2015, consumption growth is estimated at 0.7 per cent. Public investment is expected to fall by 4.5 per cent this year, followed by moderate increases. Public-sector employment this year will be affected by the lockout of teachers in the spring.

APPENDIX 2: REVISIONS IN RELATION TO THE PREVIOUS FORECAST

Compared with the June forecast, the estimated growth in GDP has been adjusted downwards by 0.2 percentage point for this year and 0.1 next year, to 0.3 and 1.6 per cent, respectively, but remains unchanged at 1.7 per cent for 2015, cf. Table 7, which shows a breakdown of the revisions to GDP and consumer prices by key background factors.

The lower growth estimate this year is mainly attributable to a more sluggish 1st half, with weaker-than-expected export market growth, for example. On the other hand, the international economy is recovering, which in 2014 will entail a positive contribution to growth in Denmark from demand in export markets. A stronger exchange rate of the krone dampens exports and stimulates imports, which will reduce growth this year. Higher oil prices will curb economic growth in 2014, while higher interest rates will lead to lower growth in 2015. The higher interest rates reflect factors such as the more favourable international economic situation; this is one of the reasons why other factors offset the impact of interest rates on growth in 2015.

Consumer price inflation (HICP) has been adjusted downwards by 0.2 percentage point, to 0.6 per cent, this year and by 0.1 percentage point in 2014, to 1.8 per cent. A weaker development in import prices is the primary reason for the lower price inflation this year than estimated in June. Higher oil prices result in stronger increases in energy prices in Denmark this year and next year.

REVISIONS IN RELATION TO THE PREVIOUS FORECAST — Table 7

	GDP			Consumer prices, HICP		
Per cent, year-on-year	2013	2014	2015	2013	2014	2015
Forecast, June 2013	0.5	1.7	1.7	0.8	1.9	1.8
Contribution to revised estimate from:						
Export market growth	-0.1	0.1	-0.1	0.0	0.0	0.0
Interest rates	0.0	0.0	-0.1	0.0	0.0	0.0
Exchange rates	-0.1	0.0	0.0	0.0	0.0	0.0
Oil prices	0.0	-0.1	0.0	0.1	0.1	0.0
Other factors	0.0	0.0	0.1	-0.3	-0.1	0.1
This forecast	0.3	1.6	1.7	0.6	1.8	1.8

Note: The transition from the previous to this forecast may not add up due to rounding. "Other factors" includes data revisions.

Price Formation in Denmark

Ester Hansen, Morten Hedegaard Rasmussen and Jonas Staghøj, Economics

INTRODUCTION AND SUMMARY

The development in Danish consumer prices has been stable for many years. Consumer prices summarise price developments for thousands of goods and services into an annual rate of increase, which has only temporarily deviated from a level around 2 per cent.

In Part 2 of this Monetary Review, we analyse price formation in Denmark with a view to assessing developments over time and identifying potential threats to the stable inflation regime. This overview article contains a non-technical summary of the most important findings and conclusions of the analyses.

Price stability is a key prerequisite for a well-functioning market economy, and both in Denmark and in other countries high-inflation periods have had serious economic consequences, not least because high inflation is typically accompanied by greater variability. Inflation – meaning a sustained increase in the general price level – of more than a few per cent annually has numerous negative implications for a market economy. These include unintended reallocations between various groups in society as well as greater uncertainty in connection with the financial decisions of households and firms regarding savings, consumption and investment.

The primary risk in relation to undesirable price developments is that various types of price shocks can trigger a self-reinforcing process whereby stronger price increases lead to higher wage demands, which in turn accelerate price increases through higher costs for firms. This is a vicious circle with higher-than-wanted price inflation.

An analysis of price and wage formation in the years 1975-2013 confirms interdependency between wages and prices, which may potentially lead to a wage-price spiral. However, the period since 1990 has been characterised by low price increases, which have continuously contributed to ensuring stable inflation expectations. This is a central element of price formation, *inter alia* because firmly anchored expectations reduce the risk that a self-reinforcing process will result in substantial wage and price increases.

Microdata for consumer prices show very marked differences in price setting for various types of goods and services. An analysis of microdata also shows that fluctuations in inflation are first and foremost determined by the frequency of price changes. Excessive price increases are normally the result of more price increases rather than higher average price increases. This indicates that – besides the overall inflation rate – it may also be relevant to examine whether more prices are adjusted upwards.

As regards the ongoing assessment of whether the current price development implies a risk of unwanted inflation, it is relevant to distinguish between the underlying factors causing price increases.

One element in this respect is to use core inflation to distinguish between temporary and permanent price changes. Temporary price changes affect inflation expectations to a lesser degree, while permanent price fluctuations can change the formation of expectations. On the basis of an analysis of price developments in Denmark – including the microdata underlying the compilation of consumer prices – different measures of core inflation are constructed. The preferred measure is constructed as the development in the overall consumer price index excluding energy and unprocessed food, which are characterised by more frequent and more pronounced price fluctuations than most other goods and services at both micro and macro levels.

Another element is to identify how much of the price pressure stems from abroad. Energy prices stand out by being determined mainly in global markets, just as most of the fluctuations in import prices are determined internationally. With a view to examining domestic price pressures, Danmarks Nationalbank has therefore been calculating a price index for domestic market-determined inflation, the IMI, since 1984. This enables better assessment of the part of inflation that is attributable to domestic price pressures. Since domestic price pressures are linked to current capacity utilisation in the economy, the IMI can be included in an assessment of whether inflation is moving so far away from equilibrium that economic-policy measures are required in order to prevent costly subsequent adaptation. Furthermore, the analysis shows that the IMI index can contribute to predicting future consumer prices.

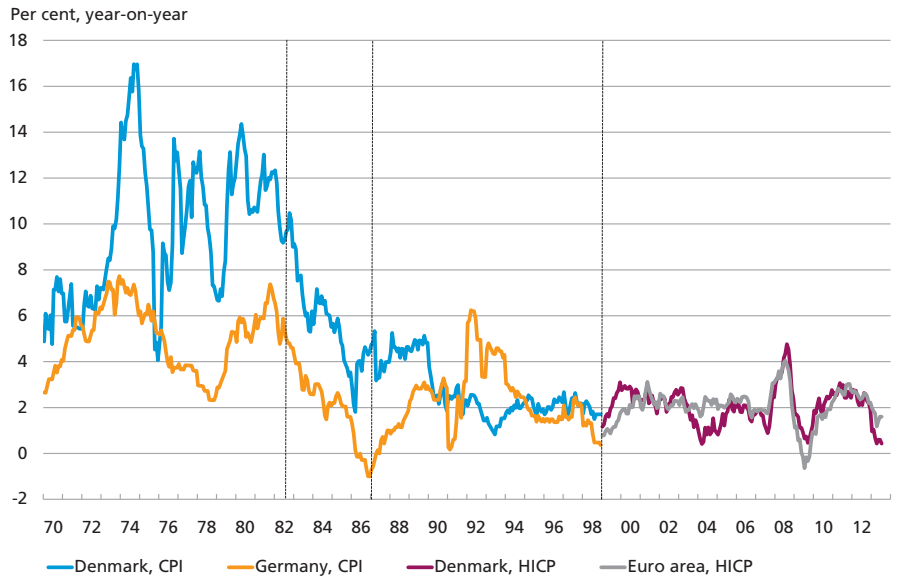
Denmark's fixed-exchange-rate policy – combined with a stability-oriented fiscal policy – has resulted in a prolonged period of low and stable inflation. This has created a credible framework for stable socio-economic development. Experience from previous periods and other countries shows that deviations from a stable inflation regime are associated with costly adaptation.

PRICE DEVELOPMENTS IN DENMARK AND THE EURO AREA

One of Danmarks Nationalbank's main objectives is to maintain stable prices, i.e. low inflation. This is done by pursuing a fixed-exchange-rate policy against the euro. As a result of the fixed-exchange-rate policy, price developments in the slightly longer term must be in line with those of the currency anchor, cf. Chart 1. This anchoring, underpinned by the stability-oriented fiscal policy, has resulted in a prolonged period of price stability, not least because well-anchored inflation expectations provide the basis for stable wage formation. A more stable wage development contributes to stabilising firms' costs and hence prices, so that inflation expectations are to a great extent self-fulfilling.

Due to Denmark's substantial trade with the euro area member states, among other factors, cyclical fluctuations in Denmark have been synchronised with fluctuations in the currency anchor since the introduction of the euro in 1999. As a result, prices and wages normally move in tandem with those of the euro area. If the price development deviates

PRICE DEVELOPMENTS IN DENMARK, GERMANY AND THE EURO AREA — Chart 1



Note: CPI is the national consumer price index, and HICP is the EU Harmonised Index of Consumer Prices. The broken lines mark various events related to the fixed-exchange-rate policy. In September 1982, the incoming government announced that it would refrain from devaluation as seen in previous years. As a consequence of exchange-rate adjustments in the Exchange Rate Mechanism, ERM, in the following years, the value of the krone was maintained relative to the average of the currency basket, entailing minor devaluations against the D-mark. The last devaluation took place in January 1987. In January 1999, the D-mark was replaced by the euro, and the fixed-exchange-rate policy was then conducted against the euro. The most recent observations are from July 2013.

Source: Statistics Denmark, Eurostat and Reuters EcoWin.

from that of the euro area for a certain period of time, a number of economic equilibrium mechanisms will kick in and bring them back together over time. For example, higher price increases in Denmark than in the euro area will cause Denmark's competitiveness to deteriorate. This will reduce exports and hence output and employment, which dampens the pressure on production factors and reduces the rate of inflation. However, this adjustment may involve considerable costs. So there may be good reason to prevent strong deviations in price developments.

The most frequently used measure of price developments in Denmark is the consumer price index compiled by Statistics Denmark. This index measures the prices of a basket of goods and services, reflecting the average consumption of a Danish household.

For nearly two decades, Danish consumer prices have mirrored price developments in Germany/the euro area, cf. Chart 1. This was not always the case. The 1970s saw considerably stronger fluctuations in inflation from year to year, and annual price increases of more than 10 per cent were not unusual. At that time, inflation in Germany was higher than today, but still considerably lower than in Denmark. Up through the 1980s, the rate of inflation fell substantially in both Denmark and Germany. Since 1990, fluctuations have been more moderate, and the rates of price increase in Denmark and Germany/the euro area have not shown any persistent divergence.

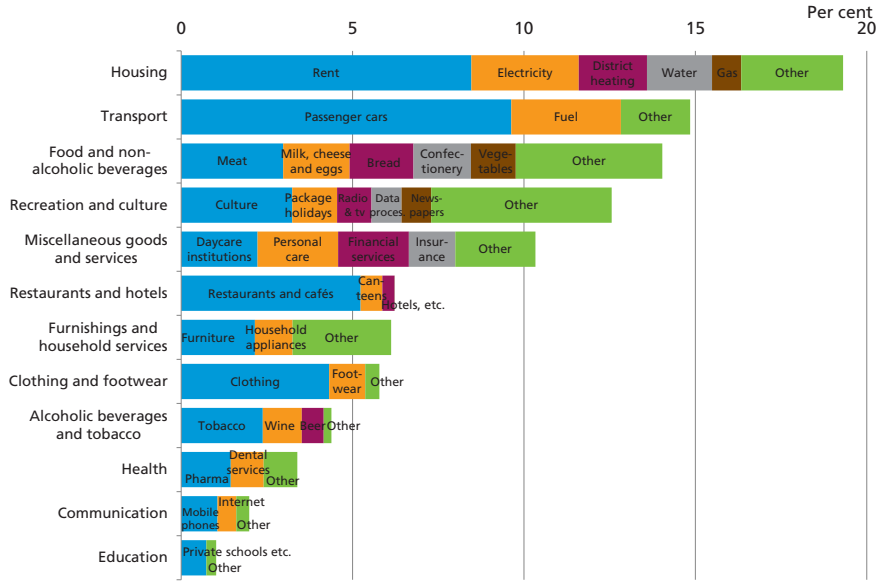
COMPOSITION OF THE CONSUMER PRICE INDEX

The Danish consumer price index covers a wide range of very diverse goods and services, which between them provide an indication of the general household's cost of purchasing a fixed basket of goods over time. Chart 2 gives an impression of the weight composition in the current consumer price index, detailing the key products in each COICOP category.[1]

In the event of considerable deviation from the average composition of consumption, the individual consumer may experience a development in prices that is different from that indicated by the consumer price index. In addition, consumers may also perceive price developments as different if, in practice, they are more aware of the prices of certain products. For example, the weights of rent and expenditure for acquisition and maintenance of passenger cars are higher than those of food

[1] *Classification of individual consumption by purpose*, COICOP, an international classification based on use.

WEIGHTS IN THE CONSUMER PRICE INDEX (HICP) Chart 2



Note: Weight basis for the HICP in December 2012.
Source: Statistics Denmark.

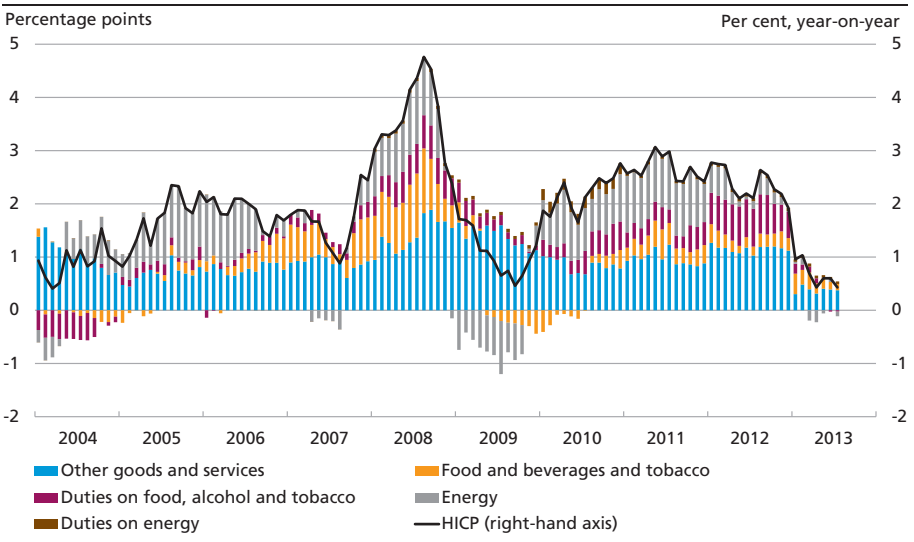
and beverages in total.[1] However, in everyday life consumers are confronted with the prices of food and beverages far more frequently than with the price of a new passenger car, so they may attach greater importance to groceries in their assessments of price developments.

In the period since 1990, otherwise characterised by price stability, some prices stand out. These are first and foremost energy and food prices, which have, during some periods, accounted for a large percentage of overall increases in the HICP, cf. Chart 3. For instance, in 2008, the annual rate of increase in the HICP was boosted by high prices of energy, food and beverages and tobacco. Subsequently, energy prices dived, thereby reducing the annual rate of increase in 2009.

Recent developments in 2013 show an unusually low contribution from prices of other goods and services, which have otherwise developed rather steadily over time. Two reasons for this are large price falls on motor insurance and lower rates of increase in bank charges compared with 2012.

[1] This applies even more so to the national consumer price index, in which the weight of rent is 21.2 per cent. The difference between the national consumer price index and the EU Harmonised Index of Consumer Prices is attributable to the treatment of owner-occupied housing.

CONTRIBUTION TO ANNUAL RATE OF INCREASE IN THE HICP — Chart 3



Note: Contributions to price inflation are calculated on the basis of the HICP and the HICP-CT. The most recent observations are from July 2013.
Source: Statistics Denmark.

CORE INFLATION

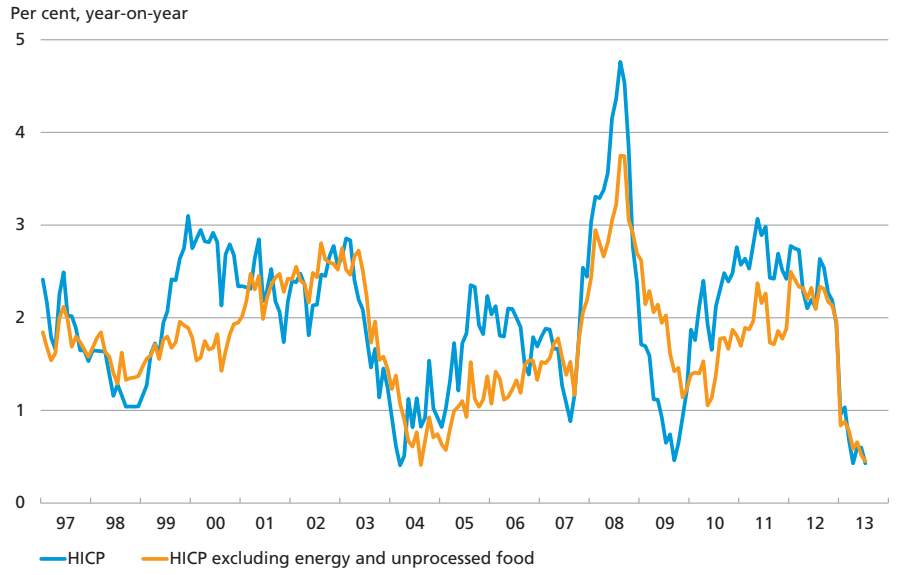
The ability to distinguish between temporary and permanent prices changes is important. For example, employees can be expected to be less inclined to demand wage compensation for temporary price increases as long as these increases have no significant effect on inflation expectations. Consequently, temporary fluctuations are less likely to increase the risk of a wage-price spiral.

Core inflation eliminates the most volatile prices and may be used as an indicator of the underlying price development. It is a balancing act to exclude products whose price developments contain too much noise to contribute useful information on the underlying price development, while at the same time making sure not to remove important price signals that may indicate an undesirable direction of the price development.

Part 2 of this Monetary Review analyses various measures of core inflation. The preferred measure is constructed as developments in overall consumer prices excluding price developments in energy and unprocessed food, which are characterised by more frequent and more pronounced price fluctuations than most other goods and services at both micro and macro levels.

Core inflation – representing just under 84 per cent of the goods in the consumer price index – is more stable than HICP inflation, cf. Chart 4.

HICP AND CORE INFLATION Chart 4



Note: The most recent observations are from July 2013.
Source: Statistics Denmark and own calculations.

It rose quite strongly in 2008, entailing that energy and food prices were not the only prices to show a higher-than-normal increase during this period. Rising input prices, combined with high wage inflation, caused firms' costs to go up, exerting upward pressure on other prices. HICP inflation subsequently declined to a low level in response to a dive in oil prices.

An analysis in Part 2 of this Monetary Review shows that HICP inflation typically adjusts towards core inflation in the long term – not the other way around. This supports the use of core inflation as an indicator of the underlying price trend.

DOMESTIC PRICE PRESSURES

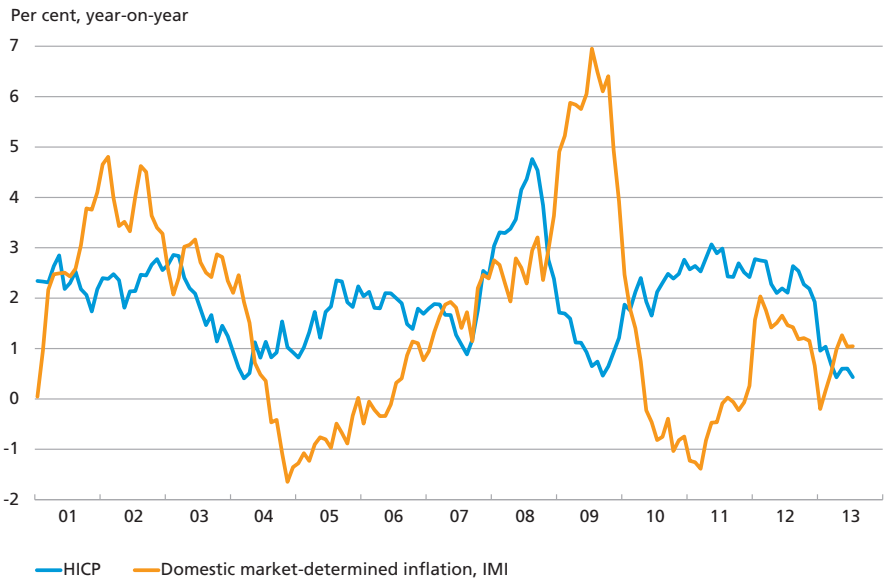
While core inflation is used to distinguish between temporary and permanent price changes, an index of domestic market-determined inflation, the IMI, is constructed to identify domestic price pressures. This index excludes external or non-market determined prices changes – e.g. changes in indirect taxes or publicly administered prices. The IMI index represents less than half of the prices in the consumer price index, highlighting that Denmark, being a small open economy, is strongly impacted by external price developments.

The IMI index contains only goods and services for which the prices are determined in the Danish market and which are used for private consumption. The index contains a relatively broad group of products, but the content of services is higher than in the consumer price index due to the exclusion of the import and energy content. For example, the price of a car is included in the IMI index, but both indirect taxes and import content are excluded, so in reality only the car dealer's profit margin is left.

Commodity inputs (i.e. energy and imports) are deducted in the compilation of the IMI index. The result is value added, which indicates what is available for remuneration of the production factors, i.e. labour and capital, including profits. Hence, the IMI corresponds to developments in wages and gross profits on the goods and services included in the index. Since both wages and profits are related to capacity utilisation in the economy, the IMI index is an indicator of current domestic price pressures.

The IMI shows somewhat stronger fluctuations than the HICP, cf. Chart 5. Since 2001, there has been a tendency for the IMI and the HICP to show a negative correlation. This is due to frequent and considerable changes in energy and import prices. These price changes lead to substantial fluctuations in the IMI when they are not passed on to con-

HICP AND DOMESTIC MARKET-DETERMINED INFLATION — Chart 5



Note: The Chart shows the monthly year-on-year increase in the HICP and domestic market-determined inflation, IMI. The most recent observations are from July 2013.
Source: Statistics Denmark and own calculations.

sumers directly. In the very short term, the adjustment is often seen in corporate gross profits because firms keep the sales price to consumers unchanged despite the change in input prices. If changes in import or energy prices are persistent, profit margins are adjusted towards the normal level. Consequently, changes in exogenous prices will initially influence the IMI index, which will then adjust to its original level.

A case in point is the strong increase in the IMI index throughout 2009, because firms did not reduce prices in step with falling oil prices. This was followed by a period throughout most of 2010-11 when a negative annual increase in the IMI indicated very weak domestic price pressures.

From January 2001 to July 2013, the average increase in the HICP was 2.0 per cent year-on-year. The year-on-year increases were 1.5 per cent for goods and 2.8 per cent for services. Since the IMI index contains a relatively larger share of services, the rate of increase over time can be expected to be higher for the IMI than for the HICP. However, this was not the case during the analysis period, as the annual rate of increase in the IMI was 1.6 per cent on average. The reason is that this period was dominated by strong growth in energy prices (an average of 3.6 per cent year-on-year), which are excluded from the IMI.

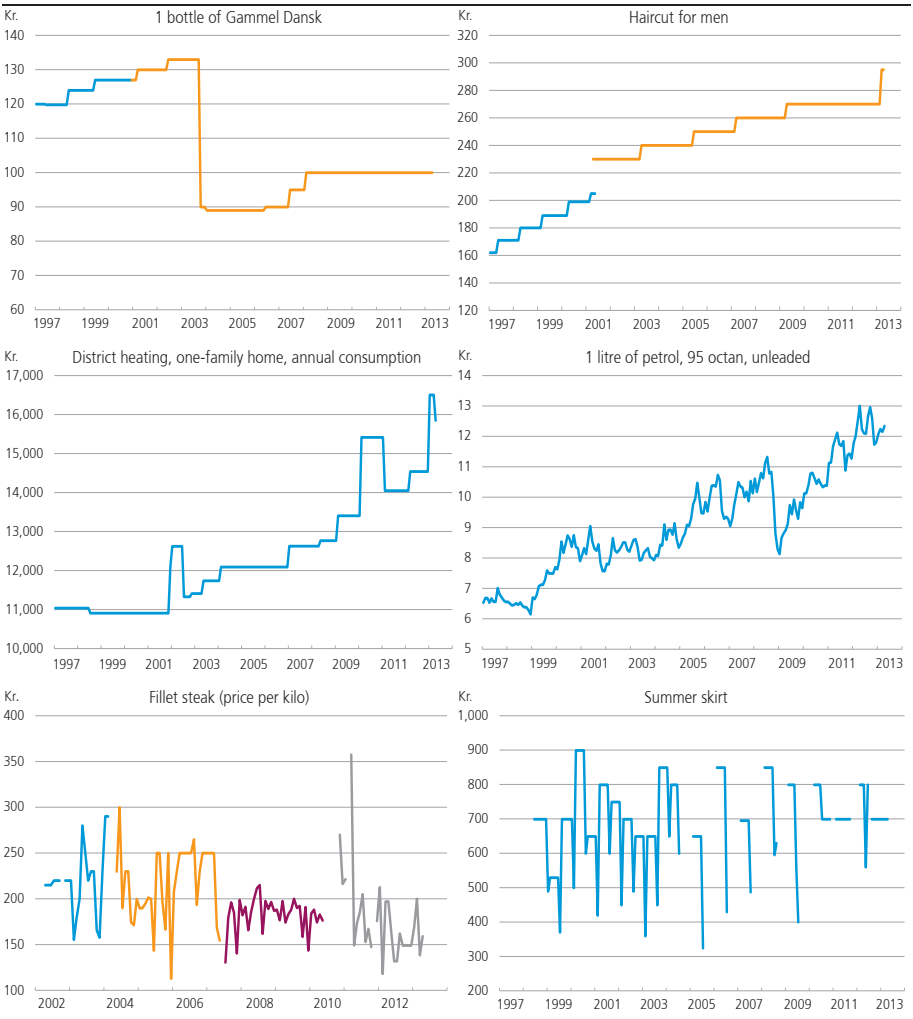
Hence, the annual rate of increase in the IMI index has been fluctuating around a lower level than HICP inflation over a relatively long period, and the same applies to core inflation (1.8 per cent year-on-year on average). This is important to keep in mind when interpreting these price indices relative to the HICP.

PRICE FORMATION AT THE MICRO LEVEL

The Danish consumer price index is based on compilation of close to 25,000 prices of various goods and services each month. Thus the index summarises prices developments for very diverse goods and services, cf. Chart 6. The price spells shown are for specific goods sold by given retailers.

Price formation in Denmark is generally flexible. Many product prices are adjusted regularly – up or down – to reflect changes in supply and demand. At the micro level, prices are particularly flexible for goods whose prices are often adjusted temporarily due to season and special offers. The extent to which flexibility at the micro level can be interpreted as flexibility at the macro level is not clear. At the macro level, price stickiness is an important building block for macroeconomic models, having decisive implications for, *inter alia*, the pace of recovery after a shock to the economy.

EXAMPLES OF PRICE SPELLS Chart 6



Note: The Chart shows examples of price spells for various products. Each colour indicates a price spell for a certain product from the same retailer.
Source: Own calculations based on microdata from Statistics Denmark.

For a number of goods and services, prices are typically fixed for longer periods of time. On average, prices are changed about once a year, but with very large variations across products. For instance, the two examples of energy prices shown in the chart follow the same long-term trend, but petrol prices are changed much more frequently than district heating prices.

In general, intervals between service price changes are longer. The two price spells for the price of a haircut for men show that the price is adjusted at 1- or 2-year intervals. For services, labour costs typically constitute a larger share of the production costs. Consequently, wage

developments (and productivity) will, over time, determine service price developments.

Chart 6 also illustrates that some goods and services naturally follow price developments over time, while the price development for other goods will necessarily be synthetic because these goods show considerable quality fluctuations over time. This applies to e.g. prices of seasonal or bargain goods with frequent fluctuations and replacement of goods, such as the price of a summer skirt or a fillet steak.

Finally, the substantial price fall of a bottle of Gammel Dansk (spirits) shows that indirect taxes may have a major impact on the price development of goods.

A detailed analysis of microdata for the period from January 1997 to April 2013 shows that fluctuations in inflation are first and foremost determined by the frequency of price changes, cf. Box 1. Excessive price increases are normally the result of more price increases rather than higher average price increases. This indicates that – besides the overall inflation rate – it may also be relevant to examine whether more price types are adjusted upwards.

THE IMPORTANCE OF THE FREQUENCY AND SIZE OF PRICE CHANGES Box 1

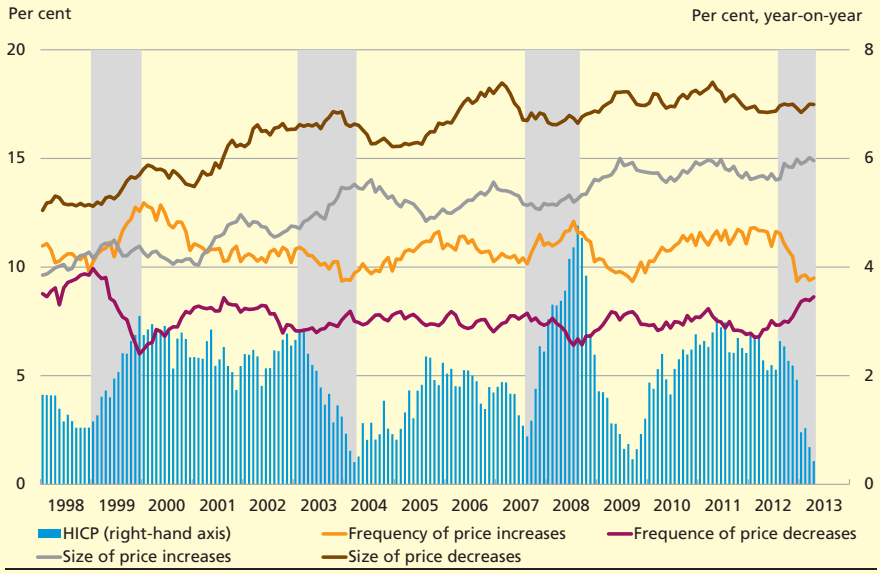
Basically, the rate of inflation can shift if more prices are adjusted or if price changes become larger or smaller. The analysis of microdata shows that the annual rate of increase in the HICP is first and foremost determined by the frequency of price changes.

Changes in the rate of inflation normally coincide with movements in frequencies, cf. Chart 7. For example, the marked increase in the HICP from August 2007 to August 2008 was first accompanied by a higher frequency of price increases. Until January 2008, the rate of inflation rose from 1 to 3 per cent without any significant changes in the frequency of price decreases or the size of average price changes. However, the subsequent increase from 3 to almost 5 per cent year-on-year in August 2008 was also driven by relatively larger price increases. One possible explanation could be that some firms chose to raise prices with a certain time lag or that they did not have the opportunity to do so earlier. In return, they increased prices considerably more than they would have done under normal circumstances. However, the first indication of a change in price developments was the occurrence of *more* price increases.

Most recently, the decline in the rate of inflation at the beginning of 2013 coincided with considerably fewer price increases and more price reductions. Similar movements are also observed in previous periods of change in the inflation rate. Frequencies vary closely with the rate of inflation. The correlation between the frequency of price increases and HICP inflation is 0.73, while the correlation with the frequency of price decreases is -0.51. However, the size of price increases and price decreases is not correlated with the annual increase in HICP inflation.

CONTINUED Box 1

HICP AND FREQUENCY AND SIZE OF PRICE CHANGES Chart 7



Note: The Chart shows HICP inflation together with 12-month moving averages of monthly frequencies and sizes of price changes split up into price increases and price decreases. The frequencies and sizes applying to individual goods and services have been weighted at product level using the weights of the HICP index. The grey areas denote periods of marked changes.

Source:Statistics Denmark and own calculations based on microdata from Statistics Denmark.

In the detailed analysis in Part 2 of this Monetary Review, the rate of inflation is decomposed more formally into contributions from frequencies and sizes of price changes. Frequency explains 68 per cent of the variation in the annual rate of increase in the HICP, while the remainder is attributable to average price changes.

Moreover, the findings point to price formation in Denmark being state-dependent. Both the timing and the extent of price changes are chosen by the firms. It is otherwise often assumed that, under a stable inflation regime, many firms can make the necessary price adjustments by changing prices at regular intervals, e.g. annually.

INFLATION EXPECTATIONS

Expectations of future inflation play an important role in current price formation. Firstly, the prices of many goods and services are set on the assumption that they are not to be changed within a given period – e.g. because price changes are costly. Firms therefore take the expected general development in prices into consideration when pricing their

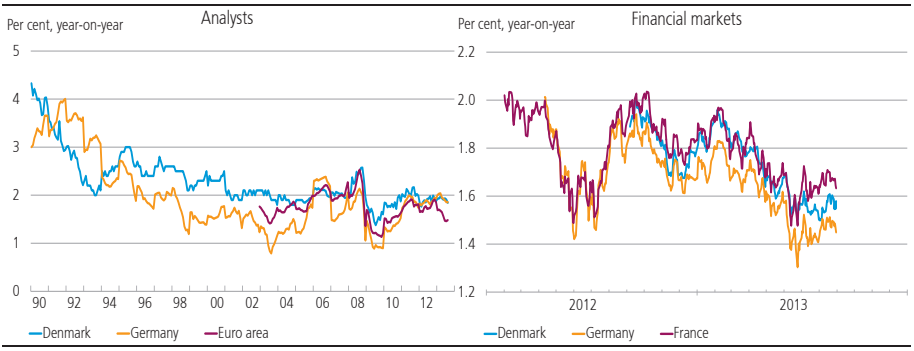
products. Moreover, well-anchored inflation expectations can reduce the risk of prolonged effects of temporary shocks to the development in prices. Formation of expectations thus plays a key role in ensuring price stability. Finally, inflation expectations affect the consumption, investment and saving decisions of households and firms.

There are two general approaches to measuring expected future inflation: questionnaire surveys and information derived from the financial markets. Questionnaire surveys are typically directed at consumers or professional analysts, while information from the financial markets can be derived from financial products that are either directly indexed to price inflation or whose price setting indirectly depends on expectations of future price developments.

When asked about expected inflation in the next calendar year, analysts extensively indicate that they expect almost the same inflation rates in Denmark and the euro area, cf. Chart 8 (left). This has been the case for as long as inflation expectations for the euro area have been published.

The European Central Bank, ECB, plans its monetary policy with a view to compliance with the objective of price stability in the euro area inscribed in the Treaty on European Union. The ECB has defined price stability as annual growth in consumer prices of below, but close to, 2 per cent in the medium term. For a number of years, Denmark has been pursuing a fixed-exchange-rate policy – initially against the D-mark and then against the euro – and the Danish fixed-exchange-rate policy enjoys strong credibility. Denmark has thus adopted the euro area's low inflation expectations.

INFLATION EXPECTATIONS Chart 8



Note: The left-hand chart shows expected inflation in the next calendar year as an average for the analysts participating in Consensus Economics' monthly questionnaire surveys. The most recent observations are from July 2013. The right-hand chart shows break-even inflation calculated as the difference between nominal and real yields on 10-year government bonds. The most recent observations are from 30 August 2013.

Source: Consensus Economics and Bloomberg.

According to the most recent statistics, analysts still expect an annual rate of inflation of very close to 2 per cent in 2014 despite a strong decline in Danish inflation in early 2013.

Inflation expectations from the financial markets can be derived to assess expected inflation at longer horizons. These expectations are based on actual transactions in which investors have a direct financial incentive to predict inflation as accurately as possible. Moreover, information from the financial markets may continuously reflect the most recent events, providing a more updated picture than the questionnaire surveys.

The markets for inflation-linked bonds can be used to calculate break-even inflation by comparing the yields to maturity on nominal and inflation-linked bonds. Break-even inflation is explained in more detail in Part 2 of this Monetary Review and may, subject to some caveats, be interpreted as expected inflation. Again, the close relationship with corresponding calculations for the euro area member states Germany and France shows that financial market expectations of inflation in Denmark are close to expectations for the euro area, cf. Chart 8 (right).

A strong decrease of almost half a percentage point was seen during the 1st half of 2013. Most of the decrease is probably attributable to changed inflation expectations, although a changed inflation risk premium may also have played a role. Expectations rose a little during July and August, reflecting a more positive economic outlook. Assessed in terms of break-even inflation, the market expects average inflation in Denmark to be just under 2 per cent until 2023.

For the euro area, more detailed calculations of inflation expectations are available, including information on the uncertainty associated with expected future developments. These calculations show increased uncertainty in the period after the outbreak of the financial crisis.

The various calculations of inflation expectations complement each other, since they measure the expectations of different economic agents. The conclusion across the calculations is that inflation expectations in both Denmark and the euro area have been firmly anchored and very stable for more than a decade. Recent years' economic environment has generally led to more focus on tail risk, and the heightened uncertainty about inflation expectations should be viewed in this context.

The weak economic development has contributed to reducing inflation. This has been countered by accommodative monetary policies. Several central banks have implemented unconventional monetary-policy measures as the possibilities of lowering interest rates to support the economy have been exhausted. Compared with a more normal

cyclical situation with neutral monetary policy, the present situation may be associated with greater uncertainty about the development in inflation, as several factors have rather strong opposite effects. Another element is the uncertainty associated with the phasing-out of unconventional monetary-policy measures. In that light, it is not surprising that the range for expected future inflation has widened.

INTERACTION WITH WAGE FORMATION

Payroll costs constitute a substantial part of firms' total costs. Consequently, wage developments will, over time, be reflected in the prices charged by firms for their goods and services. At the same time, the expected development in prices impacts wage formation via wage bargaining between employees and employers. The bargaining parties are looking ahead, since wages are normally fixed for several years at a time. Higher prices may thus lead to higher wage increases, just as higher wages may result in rising prices. This interdependence entails a risk that shocks to wages or prices may start a self-reinforcing process if inflation expectations are no longer anchored. This could steer the economy away from a stable equilibrium course and lead to costly adjustment.

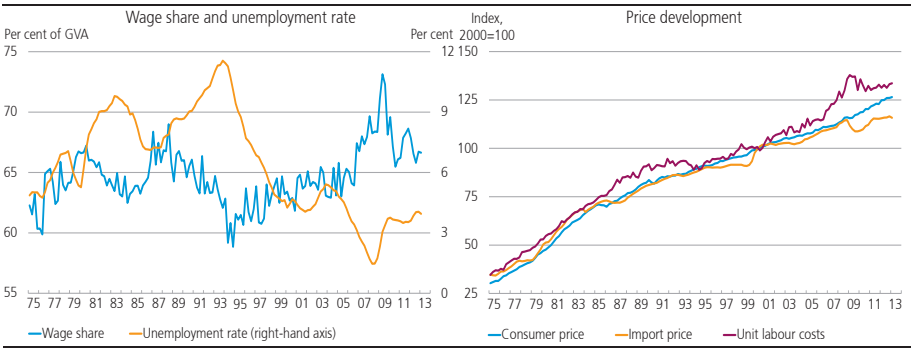
With a view to analysing the interaction between prices and wage formation, in Part 2 of this Monetary Review a model is constructed which accounts for the interdependence between wages and prices. The model is estimated for the period from the 1st quarter of 1975 to 1st quarter of 2013 and shows a long-term relationship between wage and price formation.[1]

The long-run relation for wage formation represents a real-wage curve in which the share of value added accruing to wage earners, the wage share, depends on the unemployment rate in the long term. The equilibrium level of the wage share is high when unemployment is low and vice versa, cf. Chart 9 (left).

According to the relation, price increases are fully passed through to wages in the long run. In the theoretical model, this is because price increases give rise to higher nominal wage demands, as they would otherwise erode real wages. Similarly, productivity improvements are fully reflected in wages, since higher labour productivity makes firms more in-

[1] The model applies wage increases in the industrial sector, which represents the benchmark for private-sector employees and, with a certain lag, also for public-sector employees due to the regulation scheme. Prices are the implicit consumption deflator for private consumption in the national accounts. These and other variables in the model are derived from the MONA data bank.

WAGE SHARE AND PRICE DEVELOPMENT Chart 9



Note: Left-hand chart: The wage share is payroll costs relative to gross value added in the private non-agricultural sectors. Right-hand chart: The consumer price is the implied consumption deflator for private consumption in the quarterly national accounts. Import prices are from the price index for domestic supply. Unit labour costs are labour costs per unit in the private non-agricultural sector.
Source: The MONA data bank.

clined to accept higher wage demands as profitability grows. The wage share of the output value thus remains unchanged in the long term.

In the model, long-term prices are determined by unit labour costs and import prices – import prices having the highest weight, cf. Chart 9 (right). The higher weight of import prices is consistent with the calculation of domestic market-determined inflation, which represents less than half of the goods in the consumer price index.

Wages and prices appear in both relations, and this interdependence may give rise to wage-price-spiral effects. Shocks to either wages or prices will have a negative impact on the equilibrium of both relations. Besides wages and prices, the subsequent adjustment will also involve productivity. This adjustment may be rather costly if shocks have pushed the economy far away from equilibrium or if the speed of adjustment is too sluggish so that the economy is some distance from equilibrium for a prolonged period.

Mortgage Arrears

Asger Lau Andersen, Economics, and Charlotte Duus, Financial Markets

INTRODUCTION AND SUMMARY

The vast majority of Danish families with mortgage debt service their debt on time. The number of families falling behind on their mortgage payments has remained at a low level since the mid-1990s. Even the strong downturn in the Danish economy during the financial crisis resulted in only a minor rise in the level of mortgage arrears for Danish families.

However, the question is whether the arrears rate can be expected to remain at the current low level in future. Danish families have far more debt relative to income than families in other countries. This has caused some concern among observers as to whether the families will be able to service their debt, especially if the Danish economy is affected by another serious downturn. If a sufficient number of families turn out to be unable to meet their obligations to the mortgage banks, this could undermine confidence in the mortgage banks' credit standing.

In Part 2 of this Monetary Review we discuss how families in mortgage arrears differ from other families with mortgage debt, cf. Andersen and Duus (2013). Furthermore, we estimate how the probability that a family will fall into mortgage arrears depends on a number of key financial variables for the family concerned. This overview article provides a non-technical summary of the most important findings and conclusions of the analyses.

Our results show that, as expected, there is a clear relationship between a family's finances and the probability that the family will fall into mortgage arrears. The smaller the family's disposable amount, the greater its income loss in recent years, the larger a share of income after tax it uses to service the debt, the smaller its holdings of liquid assets and home equity, and the smaller its pension wealth – the higher the probability of the family falling into arrears will be. The effects are limited in size, however, and for most families, even considerable financial hardship would lead to only a small increase in the arrears probability. This reflects that mortgage arrears are very rare, even among families whose finances are under pressure.

At the aggregate level, these results indicate that even severe setbacks in the Danish economy cannot be expected to a lead to a surge in the number of families in mortgage arrears. The vast majority of Danish families service their mortgage debt on time – even when their finances become tighter. Nor are there any indications that the high level of arrears seen in the early 1990s will return, even in the event of a very severe recession in the Danish economy. Consequently, in our assessment, this poses no serious threat to the credibility of the mortgage credit system.

There is no doubt, however, that an economic downturn of the magnitude considered in our stress scenarios would give rise to substantial loan impairment charges in the overall financial sector. The results merely indicate that the loan impairment charges will not be seen primarily in the mortgage credit sector. This is because the mortgage loan is often the last item of debt that a family with a tight budget defaults on. Before that, the family may have defaulted on other loans, including from banks. One of the reasons may be that for borrowers the consequences of default are greater for mortgage loans than for bank loans. Banks are less inclined to require a property to be sold through enforced sale, since only the last-ranking part of the property value is pledged to the bank, cf. the Danish Financial Supervisory Authority (2011). So there is no doubt that the banks will have to post considerable loan impairment charges in the stress scenarios analysed. That underlines the importance of Danish banks being sufficiently well-capitalised.

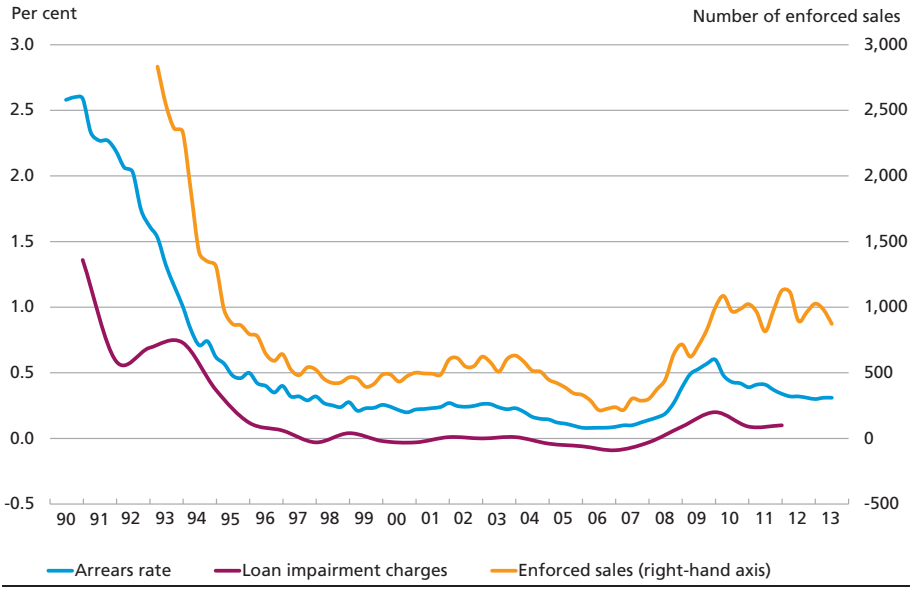
CONSEQUENCES OF MORTGAGE ARREARS

Mortgage arrears may have considerable consequences for the borrower and the mortgage bank alike. When a family gets behind on its mortgage payments, this may lead to the home being sold through enforced sale. If the proceeds from the sale are insufficient to cover the mortgage bank's claim, the mortgage bank will incur a loss. In principle, the mortgage banks should therefore write down the value of the loan once the borrower falls into arrears.

The correlation between arrears on the one hand and enforced sales and loan impairment charges in the mortgage credit sector on the other has been close in the last 20 years, cf. Chart 1. In the early 1990s, when the number of families in arrears was significantly higher than today, the number of enforced sales and mortgage banks' loan impairment charges were also at a much higher level than today. Likewise, the increase in arrears in the wake of the financial crisis in 2008-09 was followed by in-

ARREARS, ENFORCED SALES AND MORTGAGE BANKS' TOTAL LOAN IMPAIRMENT CHARGES

Chart 1



Note: The arrears rate indicates the percentage of the total payments that had not been made three and a half months after the due date. The calculation includes lending by all mortgage banks for owner-occupied dwellings and summer cottages. The calculation of the number of enforced sales only includes single-family houses, owner-occupied flats and summer cottages. Total loan impairment charges comprise lending to retail and corporate customers and are stated as a percentage of total lending and guarantees.

Source: Association of Danish Mortgage Banks, Danish Mortgage Banks' Federation and Statistics Denmark.

creases in both enforced sales and loan impairment charges. But neither variable returned to the high level of the early 1990s. The close correlation between arrears and loan impairment charges implies that the level of arrears is a relevant indicator of the soundness of the mortgage credit sector.

Presumably, there are many reasons why mortgage arrears are much less common today than in the early 1990s. Undoubtedly, macroeconomic developments with reduced unemployment and falling real interest rates have played a major role. In addition, certain structural conditions also contributed to the arrears rate being unusually high in the early 1990s. First and foremost, the tax reform in the mid-1980s reduced the taxation value of interest costs. At the same time, credit facilities for owner-occupied homes were restricted to 20-year mixed loans. Subsequent liberalisation of mortgage credit legislation in 1992 and 1993 and the introduction of adjustable-rate and deferred-amortisation loans in 1996 and 2003, respectively, probably contributed to the substantial drop in the arrears rate. In addition, mortgage banks tightened the procedures for customers in financial difficulties in the

early 1990s. This may have contributed to a change in behaviour among some mortgage customers, since the consequences of defaulting on loans were now greater and set in more quickly.

Presumably, the swift and significant consequences of mortgage default are among the main reasons why mortgage arrears are less common in Denmark than in most other countries. Denmark differs from most other countries by having a fast and cost-effective legal procedure for the handling of defaulted mortgage loans, cf. Duygan-Bump and Grant (2009). Moreover, Danish mortgage banks maintain a claim against the borrower if the proceeds from the sale of the home are insufficient to cover the remaining debt. This is a significant difference compared with e.g. large parts of the US housing market, where borrowers are not personally liable for their loans. So if the property value is lower than the remaining debt, some US borrowers may have an incentive to default on their loans and let the lender take over the home, since this means they are no longer liable for the remaining debt. In contrast, Danish borrowers have strong incentives to service their mortgage debt and avoid enforced sale. This contributes to the robustness of the Danish mortgage credit system.

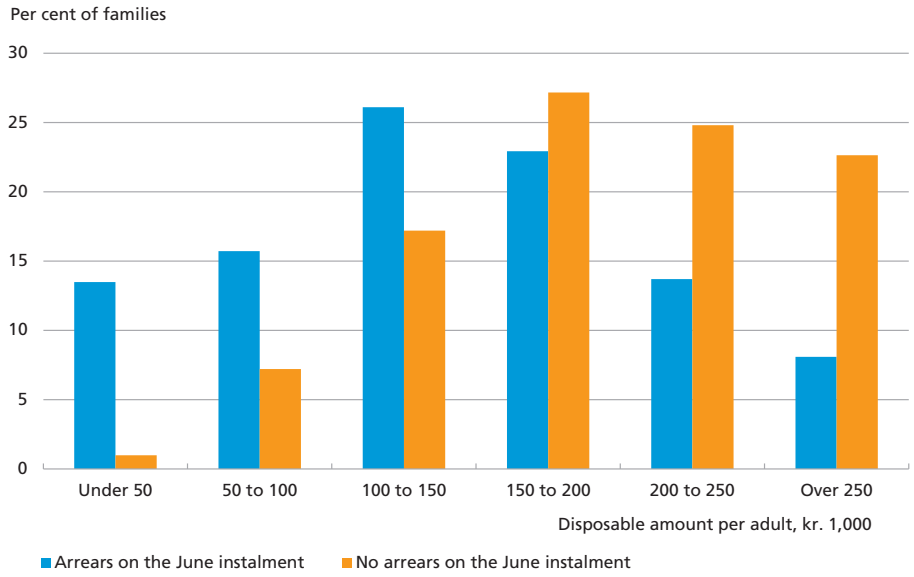
THE RELATIONSHIP BETWEEN ARREARS AND FAMILY FINANCES

The analyses in Andersen and Duus (2013) are based on detailed data from mortgage banks coupled with register data from Statistics Denmark. The data material from mortgage banks contains information about all outstanding mortgage loans to private individuals, calculated at the end of 2009, 2010 and 2011. For each loan, it is stated e.g. whether the borrower had arrears of more than kr. 1,000 on the June instalment.

Of the just over 1 million families with mortgage debt at end-2011, approximately 3,350 were at least three and a half months behind on their mortgage payments for June 2011. These families had a lower average disposable amount per adult than the other families with mortgage debt, cf. Chart 2. The disposable amount is calculated as the family's total income after tax, less all interest costs, administration margins and any principal payments on mortgage debt.[1] For 13 per cent of families in arrears on the June instalment, the disposable amount per adult was less than kr. 50,000 in 2011. Among the families paying their mortgages for the June instalment on time, the corresponding figure

[1] Any maintenance payments and repayment of social benefits are also deducted when calculating the disposable amount. Principal payments on debt other than mortgage debt are not deducted due to lack of data.

DISTRIBUTION OF DISPOSABLE AMOUNT PER ADULT AMONG FAMILIES WITH MORTGAGE DEBT, 2011 Chart 2



Note: The disposable amount per adult is calculated as the family's total annual income less tax, interest payments, maintenance payments, repayment of social benefits, administration margins payable to mortgage banks and any principal payments on mortgage debt – divided by the number of adults in the family. Families with members who are self-employed are not included in the chart. The same applies to families with members who are not fully liable to Danish income tax, and families with an annual income after tax of less than kr. 25,000.

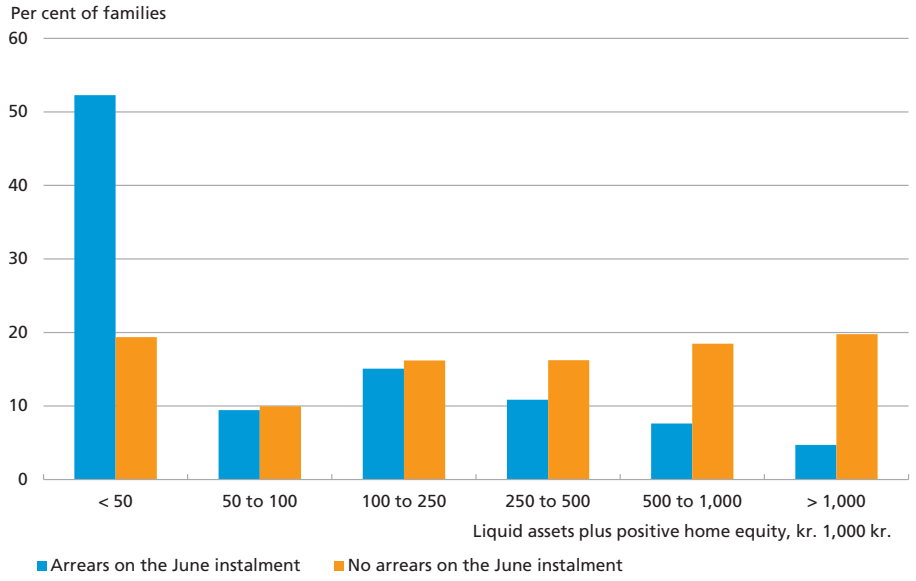
Source: Own calculations based on data from mortgage banks and from Statistics Denmark.

was 2 per cent. Similar differences between the two groups applied in 2009 and 2010.

In terms of wealth, there is also a big difference between the two groups of mortgage customers, cf. Chart 3. Among the families who were behind on their mortgage payments for the June instalment of 2011, more than half had liquid assets of less than kr. 50,000 at the end of the year. This includes any positive home equity in the family's mortgaged property/properties. Among the other families with mortgage debt, this applied to just under 20 per cent.

For the families who were in arrears by 105 days on the June instalment of 2011, the average remaining debt on their mortgage loans more or less equalled that of the other families with mortgage debt. But the size of the remaining debt varied slightly more among the families in arrears. As regards the distribution of the remaining debt on various loan types within the two groups, deferred-amortisation loans prove to be somewhat more widespread among the families in arrears, cf. Chart 4, whereas the share of adjustable-rate loans is more or less the same in the two groups of mortgage customers. A possible explanation of the more widespread use of adjustable-rate loans among families in arrears

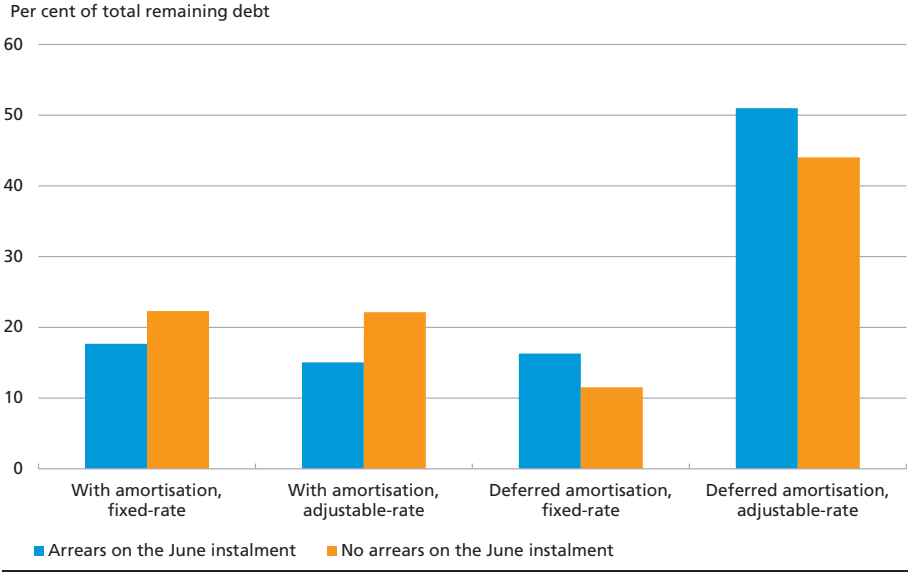
DISTRIBUTION OF LIQUID ASSETS PLUS POSITIVE HOME EQUITY IN MORTGAGED PROPERTIES AMONG FAMILIES WITH MORTGAGE DEBT, 2011 Chart 3



Note: Liquid assets consist of the family's deposits in banks and the market value of bonds, mortgage deeds, stocks and investment certificates in the custody of a bank. Home equity is calculated as the difference between 80 per cent of the property valuation (60 per cent for summer cottages) and the amount of mortgage debt on the property. Families with members who are self-employed are not included in the chart. The same applies to families with members who are not fully liable to Danish income tax, and families with an annual income after tax of less than kr. 25,000.

Source: Own calculations based on data from mortgage banks and from Statistics Denmark.

MORTGAGE CUSTOMERS' REMAINING DEBT BROKEN DOWN BY LOAN TYPE, 2011 Chart 4



Source: Own calculations based on data from mortgage banks and from Statistics Denmark.

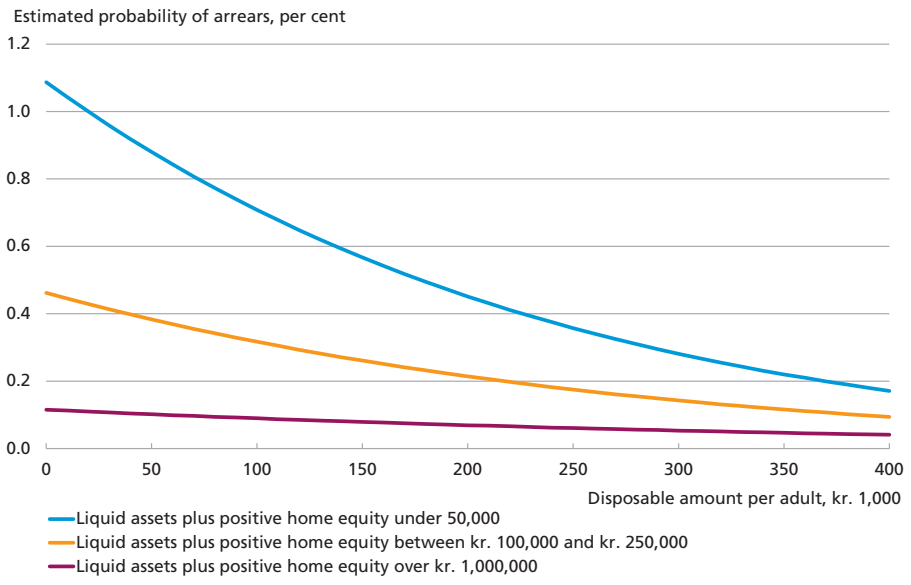
that some of these families use deferred-amortisation loans as a means to counter temporary financial difficulties. Obviously, this is only possible if they did not already fully exploit the deferred-amortisation option before the problems occurred.

In Andersen and Duus (2013) we estimate an econometric model describing how the probability of a family falling into mortgage arrears depends on its financial situation. At the same time, a number of other conditions are taken into account, including the size of the family, the age of its eldest member, the geographical region of residence, and whether the family was affected by social events such as illness or divorce.

As expected, the estimations show a clear statistical relationship between the level of mortgage arrears and the family's finances. The greater the family's income loss in recent years, the larger a share of income after tax it uses to service its debt, and the smaller its pension wealth – the higher the probability of the family falling into arrears will be. Moreover, the smaller the family's disposable amount per adult and the smaller its holdings of liquid assets plus positive home equity – the higher the arrears probability will be, cf. Chart 5. The two latter vari-

RELATIONSHIP BETWEEN ANNUAL DISPOSABLE AMOUNT, LIQUID ASSETS PLUS POSITIVE HOME EQUITY AND PROBABILITY OF ARREARS IN THE FOLLOWING YEAR

Chart 5



Note: The chart shows the average estimated probability of arrears for various combinations of disposable amounts and holdings of liquid assets plus positive home equity in mortgaged homes. For each combination of disposable amounts and assets, an estimated probability of arrears is calculated for each individual family, given the family's other characteristics. The probability is calculated under the assumption that the family has had the disposable amount in question (or less) for minimum three years. After the probability of arrears has been calculated, the average for all families is calculated.

Source: Own calculations based on data from mortgage banks and from Statistics Denmark.

ables also interact: The size of the disposable amount has a greater impact on the probability of arrears if the family's liquid assets are small than if they are large. This is because liquid assets and positive home equity can often serve as a financial buffer. Families holding large liquid assets are consequently better able to handle having a modest disposable amount.

The example above illustrates that the impact on the probability of arrears of changes in the key financial variables varies considerably among the families in the analysis. But for the *average* family, the probability of arrears does not change very much when the financial situation changes. For example, reducing the annual disposable amount by kr. 10,000 per adult in the family will increase the probability of arrears by only 0.01 percentage point for an average family. This means that only one out of 10,000 families would fall into mortgage arrears if their disposable amount per adult was kr. 10,000 lower. Similar results are found for the other key financial variables. The modest effects reflect that the share of families in arrears on their mortgage debt is very small, even among those groups of families whose finances can be said to be tight.

EXPECTED DEVELOPMENT OF ARREARS IN STRESS SCENARIOS FOR THE DANISH ECONOMY

The estimated model can be used to assess how the number of families in arrears can be expected to develop in different scenarios for the Danish economy. In the article in Part 2, we use historical cases as a source of inspiration to set up two scenarios in which the Danish economy is assumed to be affected by a very serious downturn. We then calculate the expected consequences for the number of families in arrears. The assumptions and calculated consequences in each scenario are summarised in Table 1. Both scenarios assume a sudden rise in unemployment, while real house and stock prices plummet. In addition, scenario 1 assumes a strong increase in the level of interest rates, while interest rates remain unchanged in scenario 2.

The marked macroeconomic changes have only a modest impact on the average probability of arrears among families with mortgage debt. Translated into the number of families in arrears on their mortgage debt, the result is an expected increase of approximately 2,800 families in scenario 1 and approximately 1,200 in scenario 2. Compared with the actual number of families in mortgage arrears, the increases are of a considerable magnitude. But it should be noted that, as previously mentioned, the actual number of families in mortgage arrears is very low. In

EXPECTED EFFECTS IN SCENARIOS Table 1

	Scenario 1	Scenario 2
Macroeconomic assumptions		
Change in interest rates, percentage points	5.7	0.0
Change in gross unemployment, percentage points	4.0	4.5
Change in house prices, per cent	-14.0	-16.5
Change in stock prices, per cent	-46.0	-46.0
Estimated consequences		
Average change in probability of arrears for all families with mortgage debt, percentage points	0.29	0.13
Expected increase in the number of families in arrears by 105 days on the June instalment	2,816	1,236
Expected increase in total mortgage debt for families in arrears by 105 days on the June instalment, kr. billion	5.28	1.83

Note: A more detailed description of the estimation methods can be found in Andersen and Duus (2013).
Source: Own calculations based on data from mortgage banks and from Statistics Denmark.

absolute terms, the effects are very modest. Thus, a sharp increase in the incidence of mortgage arrears is not likely, even if the Danish economy is affected by a very serious downturn.

However, it is important to make it clear that the analyses solely review the consequences for mortgage arrears. Our results do not say anything about the expected consequences for families' defaulting on their loans from e.g. banks. It is likely that an economic downturn of the magnitude considered in our stress scenarios will lead to a great many families finding it difficult to service their debt, which will give rise to substantial loan impairment charges in the overall financial sector. The analyses in Andersen and Duus (2013) indicate that the financial difficulties and the resulting loan impairment charges would be very limited in the mortgage credit sector. On the other hand, this seems to indicate that the banks' loan impairment charges will be considerable. By combining the macroeconomic assumptions in our scenario 1 with estimation results from Abildgren and Damgaard (2012), it is possible to calculate an expected immediate increase in banks' loan impairment charges on lending to private households of approximately 1 per cent of total lending. The corresponding figure for scenario 2 is 1.2 per cent. These estimates support the view that the consequences of a serious macroeconomic downturn will be considerably greater for banks than for mortgage banks.

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Prices of Flats in Northern European Capitals

Karoline Garm Nissen, Maria Hove Pedersen, Morten Hedegaard Rasmussen and Casper Ristorp Thomsen, Economics

INTRODUCTION AND SUMMARY

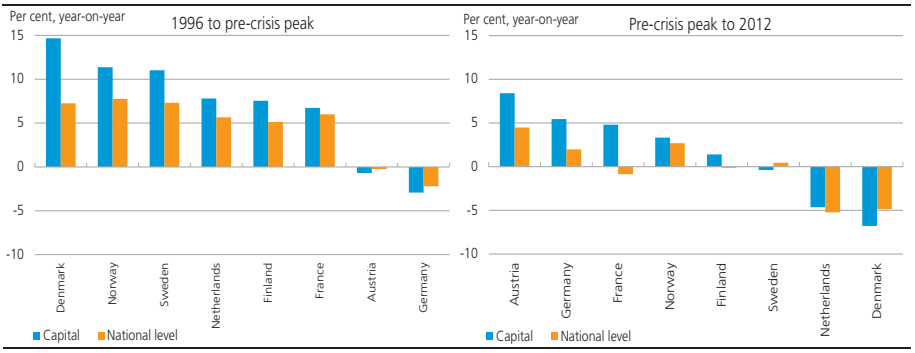
Overall, European house prices have increased since the mid-1990s, particularly in the years up to the financial crisis. Prices of both houses and owner-occupied flats rose, and particularly prices of owner-occupied flats in the major cities soared. This trend has significantly widened the gap between prices of owner-occupied flats in the capitals. With an average price per square metre of kr. 62,000, prices in Paris were more than three times as high as those in Berlin in 2012, and Scandinavia was also characterised by huge differences. In 2012, the price per square metre in Copenhagen was kr. 23,000 compared to kr. 38,000 in Stockholm and kr. 51,000 in Oslo. This article compares the development in and the level of flat prices in selected Northern European capitals.

In the near term, prices of flats are determined by demand, as supply adjusts only slowly. This article emphasises that especially the level of income as well as housing costs, such as interest expenses and taxes, have an effect on the price level, and these factors also apply to homes outside the major cities. However, there are major variations between house prices in the capital and the rest of the country, reflecting that the value of a home is determined both by the location and the physical value of the building, which will, in the longer term, be given as the cost of building a new one. In the Northern European capitals, there is to a varying degree a lack of available construction sites due to physical or regulatory constraints. In consequence, urban land prices have been pushed up and are significantly higher than rural land prices.

It will appear from the article that flat prices in Paris, Oslo and Stockholm are high relative to those in the other Northern European capitals and also seem to be high given the fundamental economic and structural conditions of those cities. In Copenhagen, prices of owner-occupied flats are low compared to the other Northern European capitals, and the recent rise in prices should be viewed against the price dive during 2006-09 and the price fall in 2011. Judging from the fundamental factors, price increases of the magnitude observed since the onset of 2012 will hardly continue for a prolonged period.

AVERAGE ANNUAL REAL GROWTH IN FLAT PRICES IN CAPITALS AND NATIONAL HOUSE PRICES

Chart 1



Note: The pre-crisis peak was 2006 in Copenhagen, 2007 in Helsinki, Oslo and Stockholm and 2008 in the other cities. In Vienna and Berlin, 2008 has been selected as the peak year despite not being a real peak since price developments were relatively smooth in the years before and after the economic crisis. All prices have been deflated by consumer prices (HICP). In the case of Austria, house price data are not available at the national level until after 2000.

Source: OECD (national), and see Appendix.

DEVELOPMENT IN AND LEVEL OF FLAT PRICES

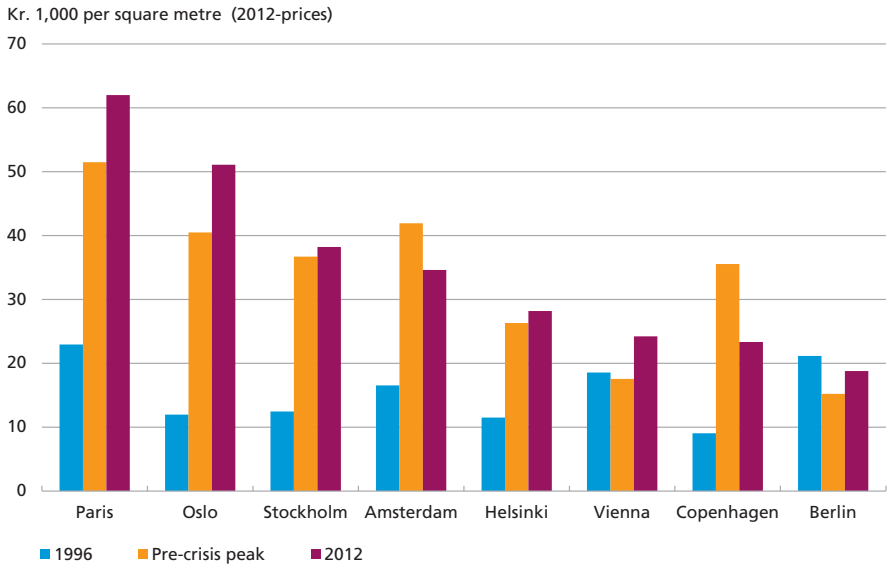
Since the mid-1990s, house prices have increased considerably in large parts of Europe, and in some countries they soared particularly in the years up to the economic and financial crisis. Prices rose across the board, with flats in the major cities showing the strongest increases, cf. Chart 1 (left). Particularly in Scandinavia and the Netherlands, prices tended to rise more in the capitals than at the national level. In the period under review, 1996-2012, real prices of flats soared by approximately 150 per cent overall, while prices at the national level rose by just under 80 per cent on average.[1]

From the pre-crisis peak to 2012 flat prices have declined in Copenhagen and Amsterdam, while remaining fairly stable in Stockholm, cf. Chart 1 (right). In the other capitals flat prices dropped briefly in connection with the economic crisis but have subsequently rebounded despite the generally weak economic development. However, on average, annual price increases have been considerably more subdued in the past few years than in the years up to the economic crisis.

The development in recent years has led to more pronounced differences in flat prices per square metre across the cities. Today, the price per square metre in Paris is more than three times as high as that in Berlin, cf. Chart 2. Moreover, price levels in the Nordic capitals vary markedly after having been almost uniform in the mid-1990s.

[1] Simple average excl. Austria where national house prices are only available after 2000.

REAL FLAT PRICES IN NORTHERN EUROPEAN CAPITALS Chart 2



Note: The pre-crisis peak was 2006 in Copenhagen, 2007 in Helsinki, Oslo and Stockholm and 2008 in the other cities. In Vienna and Berlin, 2008 has been selected as the peak year despite not being a real peak since price developments were relatively smooth in the years before and after the economic crisis. Nominal prices have been deflated by the consumer prices (HICP) of the individual countries.
Source: Eurostat (HICP), and see Appendix.

SUPPLY OF AND DEMAND FOR FLATS

Basically, the development in flat prices in the capitals is determined by the supply and demand for flats. However, homes differ from other products by a slow adjustment of supply. Since location, which can only be copied to a limited extent, is one of the factors determining house prices, a rise in demand will be reflected in higher land prices. These factors may vary significantly across countries and contribute to differences in price levels.

The demand for owner-occupied flats is usually assumed to be determined by the disposable income of households and the cost of owning a home, cf. Box 1. Housing costs include real interest after tax, property-related taxes, insurance and maintenance costs and, in the case of owner-occupied flats, common expenses. In addition, housing costs also depend on the expected real capital gains or losses on the home.

Institutional factors such as the permitted loan-to-value ratio and the redemption profile of the mortgage may also influence demand. This is important in connection with e.g. credit restrictions on households or if households attach importance to their liquidity position, cf. the discussion in Dam et al. (2011).

DEMAND RELATION FOR OWNER-OCCUPIED FLATS Box 1

The demand for owner-occupied flats is expressed as the following demand function for homes:

$$D^{ejer} = F(Y^{disp}, c, p^{ejer}, z, y).$$

D^{ejer} is the demand for owner-occupied flats, and Y^{disp} is the disposable real income which covariates positively with demand. Housing costs, or the user cost, of owning a flat is expressed as *c*, which is defined below. p^{ejer} is the real price of a flat and *y* is the minimum first-year payment and will have no significance in a situation where households are completely rational and not exposed to liquidity constraints, cf. Dam et al. (2011). All these variables will also be included in an overall demand function for homes. This is not necessarily the case for *z,* which represents a vector with other variables that influence the demand for flats, such as location, cultural and social preferences of living in a flat, demographics, rental market regulation, etc.

Higher housing costs, *c*, will reduce demand and are defined as:

$$c = \left((1-t)i - \pi + s + d - \pi^{ejer}\right)p^{ejer}.$$

(1-t)i is the nominal interest after tax, π is inflation, *s* is house-related taxes (in Denmark: property tax (land value tax), property value tax and registration fee), and *d* expresses depreciation, expenses for maintenance and common expenses. π^{ejer} is the expected real capital gains and losses which, *ex ante*, are subject to huge uncertainty.

In Denmark, real house prices are estimated to rise by 1.7 per cent in a situation with unchanged housing supply when real disposable incomes grow by 1 per cent, cf. Dam et al. (2011). This is in line with other countries where studies typically find that the income elasticity of house prices is 1-2, cf. literature reviews in OECD (2005) and IMF (2008).

Interest expenses make up the greater share of housing costs and are significant to house prices in Denmark. An overall drop in interest rates of 1 percentage point is estimated to trigger a rise in real house prices of 15 per cent in the absence of a supply reaction, cf. Dam et al. (2011). This is higher than typically seen in other countries, cf. literature review in Kuttner (2012).

Demand for owner-occupied flats is also influenced by population trends in the cities, including demographics. Population growth will fuel demand, and the age composition will affect the type of homes in demand. For example, very young households with low incomes and few members are often tenants. This implies that the migration of young people to the cities has only a limited impact on flat prices unless it results in more so-called parent purchases. However, an inflow of more young tenants could put pressure on the rental housing market.

Prices of flats can be significantly higher in major cities than in small towns even if prices are adjusted for variations in the physical quality of the buildings. The reason is that the price of an owner-occupied flat is

composed of both physical value and location. The number of homes in demand can be built with some delay and the physical value is therefore expected to be given as the construction costs. However, homes with a uniform location cannot be built in unlimited numbers. If demand rises in a certain area, the supply will, at some point, no longer be able to respond. The price of location will then transfer to the price of the land, which subsequently rises until demand equals supply. These restrictions do not apply to the same extent out in the country, where land prices instead depend on the value of the alternative use of the land, e.g. agriculture or forestry.

If the demand for owner-occupied flats and hence price increases, it will become more attractive to build new owner-occupied flats.[1] This will take some time, but in the long term supply generally follows demand.

In major cities, the supply is often restricted by the amount of available land and geographical conditions. However, there are typically alternative ways of increasing the building stock, varying from city to city. Some options are to build vertically, on mountain slopes, into the sea or into recreational areas. However, this will often involve increased construction costs. A study of US conditions shows that over time and in several major US cities there has been a clear tendency to underestimate the possibility of increasing supply, cf. Glaeser (2013).

Supply may also be restricted by regulatory factors such as building permits, planning acts, environmental zones etc. If these restrictions are eased, the supply of owner-occupied flats may increase considerably as they require relatively limited land. This would probably reduce prices and dampen expectations for future price increases.

Market demand for owner-occupied flats should be viewed in conjunction with demand in the rental housing market. In a free rental housing market, substitution will take place towards the cheaper of the two types of housing. If the rental housing market is regulated and the supply of owner-occupied and rental flats cannot completely adjust to demand – neither in the short nor the long term – this will impact the price of owner-occupied flats, cf. Häckner and Nyberg (2000). Therefore, price differences for owner-occupied flats across cities should also be coupled with the considerable variation in rental market regulation.

Häckner and Nyberg (2000) argue that if rents are artificially low due to rent control, the demand for rental flats will exceed the supply. The price of an owner-occupied flat will then be influenced by whoever has a low rent. It is the more affluent part of the population who can afford

[1] Alternatively, existing rental flats can be converted into owner-occupied flats.

an owner-occupied flat. If they typically live in cheap rental flats because private landlords consider them to be better payers, this will reduce the demand for owner-occupied flats – compared with a situation without rent control – and, hence, put a damper on prices. Alternatively, rent control may have the effect that the less affluent live in cheap rental flats, e.g. if the rental market consists of subsidised housing where the allocation of flats depends on income. In that case, the more affluent part of the population will not have access to the rental market and their demand will solely be aimed at owner-occupied flats. This would result in higher prices than if the rental market was free. Rent control may also contribute to intensifying the cyclical fluctuations in owner-occupied flats, cf. the Ministry of Economic and Business Affairs et al. (2003)

ANALYSIS OF TRENDS IN FLAT PRICES

Capitals share a number of common characteristics such as high population density, central administration, cultural institutions, universities etc. These factors make house price levels more comparable between cities across different countries than e.g. between rural and urban areas in the same country. However, since only few people would probably choose to move from one capital to the other due to house price differences, flats in the various cities are not substitutable. The differences in prices levels in the cities may therefore be of a permanent nature and will not affect one another over time as would otherwise be the case between rural and urban areas. It should be noted that in the analysis house prices are not always calculated based on the same principles in the individual countries, cf. Box 2.

Household disposable income

Household disposable income is a key driver of the demand for owner-occupied flats, cf. Box 1. The higher the income, the more expensive a flat a family can afford. In the Northern European capitals there is a clearly positive relationship between the level of disposable income and flat prices, cf. Chart 3 (left). In general, prices are highest in the cities with the highest incomes.[1] Further, flat prices have risen most in cities where household disposable income growth has been highest, cf. Chart 3 (right).

[1] In the regional national accounts the level of income is impacted by output being calculated on the basis of the address of the workplace and not the address of the employee. Commuters to the city thereby contribute to increasing incomes there. Moreover, some firms calculate their production using the address of the headquarters, typically located in major cities. A number of economic factors such as a higher educational level also contribute to a generally higher level of income in major cities.

DATA DESCRIPTION Box 2

For the purpose of analysing flat prices in the Northern European capitals, data from various national and international sources are used, which may influence the comparability of the countries, cf. Appendix. For example, the delimitation of cities is of major importance to the level of house prices. The aim has been to make a narrow delimitation of the urban area, cf. Table 1. In Denmark, Statistics Denmark has delimited Copenhagen to the municipalities of Copenhagen, Frederiksberg, Tårnby and Dragør. The focus on flats rather than all types of homes involves a certain geographical delimitation as there are typically fewer flats in the outer suburbs of the cities. This is the case in Copenhagen where Dragør and Tårnby have small weights in the total price for Copenhagen city.

POPULATION, 2012 Table 1

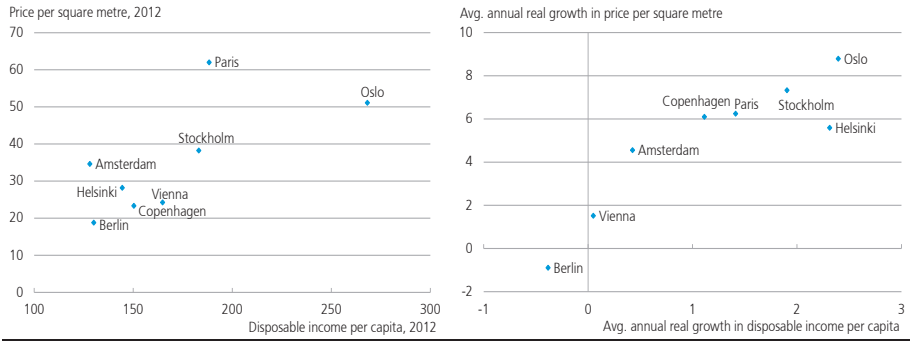
	Inhabitants, million
Copenhagen	0.7
Stockholm	0.9
Oslo	0.6
Berlin	0.9
Paris	2.3
Vienna	1.7
Amsterdam	0.8
Helsinki	0.6

Note: In Amsterdam, Vienna and Paris the delimitation of the population does not quite match that of flat prices.
Source: Eurostat, Statistics Norway, Statistics Sweden, Statistics Finland, Statistical Office for Berlin-Brandenburg, Statistics Holland and Statistics Denmark.

Other significant differences include the method for compiling data and the estimation of flat size. In Denmark, the price per square metre is based on the gross area of the flat, i.e. including walls, share of staircase etc., while in Finland it is based on the inside of the surrounding walls. Moreover, disposable income is not stated at the same detailed level as flat prices. For Denmark, the disposable income in the Capital Region of Copenhagen is used. The wider delimitation of urban area may affect the level of disposable income per capita. It is likely, however, that the inhabitants in the remaining part of the Capital Region of Denmark will potentially be demanding homes in Copenhagen and that their level of income has an impact on house prices in Copenhagen.

However, in most of the capitals under review, price increases have exceeded income growth considerably. Overall, the price per square metre relative to disposable income has increased since 1996, particularly in the period up to the outbreak of the financial crisis, cf. Chart 4. In 2006, Copenhagen was among the capitals with the highest price level relative to disposable income. The level has declined since then and in 2012 Copenhagen was among the capitals with the lowest price level relative to household disposable income. The price relative to disposable

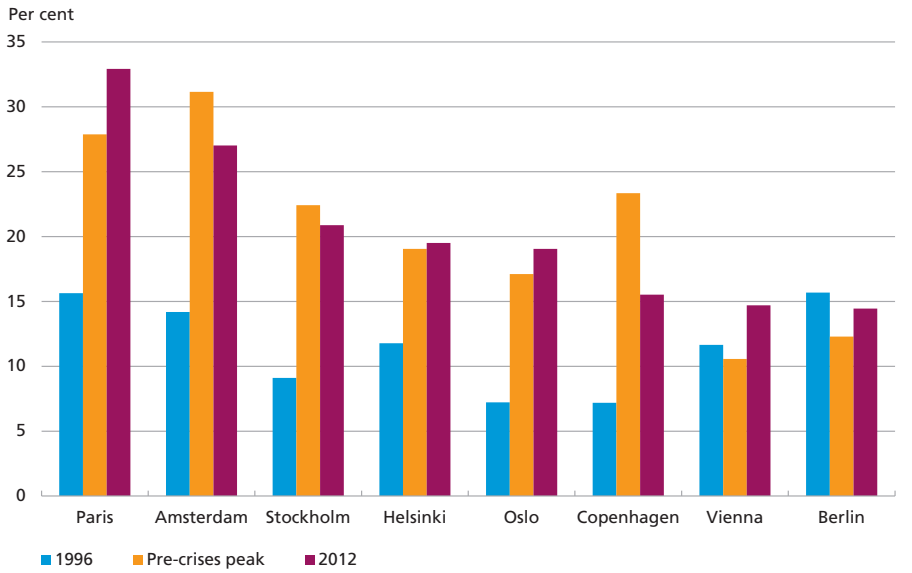
REAL DISPOSABLE INCOME AND REAL FLAT PRICES, 1996-2012 Chart 3



Note: Disposable income and flat prices have been deflated by the consumer prices (HICP) of the individual countries.
Source: Eurostat, Statistics Norway, Statistics Sweden, Statistics Denmark, and see Appendix.

income is particularly high in Paris and Amsterdam at the moment, almost twice as high as in Copenhagen, Vienna and Berlin. Together with Paris, Oslo and Stockholm are also among the cities that have seen the strongest growth in prices relative to disposable incomes since the mid-1990s, and the level is now substantially higher than the average of the period under review.

PRICE PER SQUARE METRE RELATIVE TO ANNUAL DISPOSABLE INCOME Chart 4



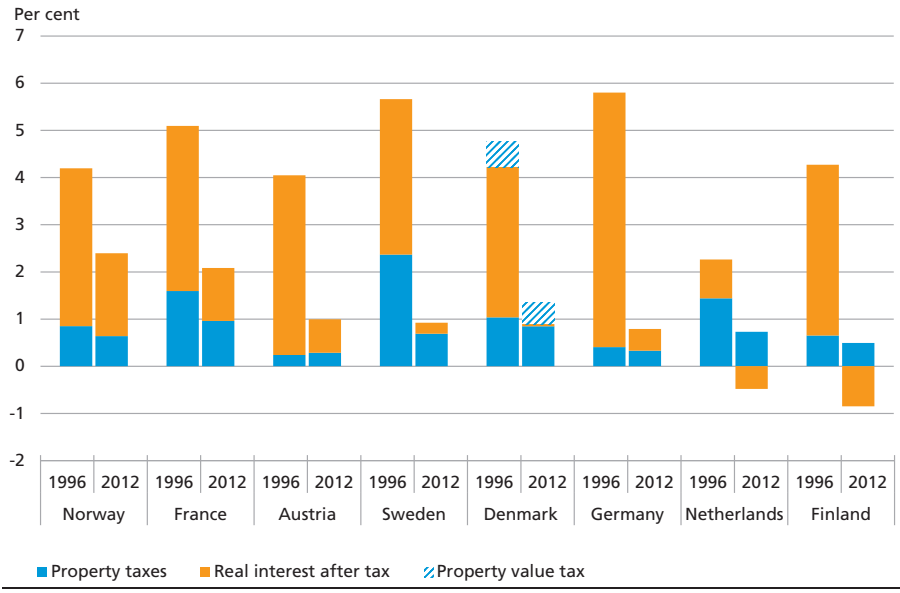
Note: The pre-crisis peak was 2006 in Copenhagen, 2007 in Helsinki, Oslo and Stockholm and 2008 in the other cities. In Vienna and Berlin, 2008 has been selected as the peak year despite not being a real peak since price developments were relatively smooth in the years before and after the economic crisis. Disposable income and flat prices have been deflated by the consumer prices (HICP) of the individual countries.
Source: Eurostat, Statistics Norway, Statistics Sweden, Statistics Denmark, and see Appendix.

Housing costs

Another key driver of the demand for owner-occupied flats is housing costs such as interest expenses and taxes, cf. Box 1, which tend to have a negative impact on demand – the higher the costs, the lower the demand. Real interest rates after tax dropped noticeably in the Northern European countries during the period under review, entailing that over time it has become cheaper to finance the purchase of a home, cf. Chart 5. This has contributed to boosting demand for e.g. owner-occupied flats in the Northern European capitals, entailing upward pressure on flat prices. The trend in real interest rates mirrors an overall drop in interest rates since the 1990s. In Denmark, the yield to maturity on a 30-year bond loan has dropped from more than 8 per cent in the mid-1990s to 3.3 per cent at end-2012. In the other Northern European countries, interest rates on mortgage loans have shown a similar trend.

Moreover, the liberalisation of the financial markets and the creation of new loan types have made it cheaper to borrow money over the past decades, cf. ECB (2009). In Denmark, the growing use of adjustable-rate loans and interest-only loans had a strong impact on housing prices up to 2007, cf. Dam et al. (2011). Since mortgage loan structures vary

SELECTED HOUSING COSTS — Chart 5



Note: Interest on mortgage loans to households. In the case of France, Sweden, Germany, the Netherlands and Finland forecasting and discounting have been made using the change in the 10-year government bond yield prior to 2000 and after 2011. In the case of Norway, an average rate on loans to private individuals has been used. The Danish interest rate is a weighted average of the 30-year and 1-year bond yields. Property taxes etc. are calculated relative to the value of the housing stock. Property taxes are calculated exclusive of any property taxes collected via personal taxes. In the case of Denmark, the property value tax has been included separately.

Source: European Mortgage Federation, Oesterreichische Nationalbank, Reuters EcoWin and Danmarks Nationalbank.

strongly across the Northern European countries, this could also have a bearing on the different levels of house prices, cf. Box 3.

The share of housing costs accounted for by taxes includes e.g. property taxes and duties in connection with the purchase and sale of homes. The approach to housing taxation differs across countries in respect of both objects taxed and timing. In some countries property taxes are levied on an ongoing basis while in other countries they are levied in connection with the trade of a home and any capital gain obtained. Also, in several countries interest expenses are deductible.

In 2012, property taxes as a ratio of GDP were largely at the 1996 level in the Northern European countries, but as a ratio of the housing stock value they had declined, cf. Chart 5. Viewed in isolation, this has contributed to the increase in flat prices by reducing the costs of owning a home. The largest drop in the share of taxes of housing costs is seen in Sweden, reflecting ongoing reduction of property taxes since 1997 and that Swedish property taxes were lowered in 2008 from 1.2 to 0.75 per cent of the taxable property value. In connection with the restructuring in 2008 a nominal ceiling was introduced for property taxes, implying that the tax relief was particularly high for high-value homes, e.g. in the major cities[1], which may have contributed to underpinning flat prices in Stockholm, cf. the European Commission (2012).

Rules on the maximum year-on-year increase in property taxes (land value taxes) were introduced in Denmark with effect from 2003. In the subsequent years of soaring land prices a tax backlog was accumulated, which was partly made up for in the years when prices dropped or rose less than the allowed increase in property taxes. As a result, in 2012 property taxes made up largely the same share of property values as in 1996, cf. Chart 5. In connection with the introduction of fiscal-policy tightening known as the Whitsun Package, the rental value of an owner-occupied dwelling was abolished with effect from 2000 and replaced by the property value tax. A nominal freeze on property value tax was introduced from 2002; however, if the property value fell below the 2002 level, the property value tax would be reduced correspondingly, thus decoupling the property value tax from the trend in house prices. Since prices of owner-occupied flats in Copenhagen have risen since 2002, the ratio of property value tax to flat values has dropped during that period.[2]

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1 At the same time, new construction of homes is wholly or partially exempt from property value tax for a period of up to 15 years.

2 Property value tax accounts for less than 1 per cent of the value of a home even though the tax, basically, makes up 1 per cent of the property value up to just over kr. 3 million and 3 per cent of the rest, reflecting both the freeze since 2002 and the fact that property value tax is only payable for the period in which you live in the home. Moreover, old-age pensioners and landlords are granted reductions.

TYPES OF FINANCING IN THE NORTHERN EUROPEAN COUNTRIES Box 3

Most home purchases are loan-financed. Loan types, maturities, etc. hence have an impact on the cost of owning a home and thereby on house prices. Mortgage loans vary significantly across countries due to different financing types, preferences and legislation. Table 2 shows a comparison of loan types and maturities in Northern Europe.

LOAN TYPES AND MATURITIES Table 2

Country	Predominant type of interest rate	Typical maturity
Denmark	Mixed	30
Sweden	Variable	25-45
Norway	Variable	17
Germany	Fixed	20-30
France	Fixed	15-20
Austria	Fixed	25-30
Netherlands	Fixed	30
Finland	Variable	17-25

Source: IMF (2011), Andrews et al. (2011) and ECB (2009).

The annual cost is typically lower for variable-rate loans. Moreover, the loan-to-value ratio has an impact on the cost of buying a house and, particularly, on the number of potential buyers. The possibility of obtaining a higher loan-to-value ratio boosts the number of potential buyers which, at first glance, should have a positive effect on house prices. This is exactly what the IMF (2011) has found, but they also mention that it is difficult to determine whether the effect is a move from higher loan-to-value ratios to higher house prices or vice versa. Higher house prices may increase the loan-to-value ratio because the buyers have to borrow larger amounts.

Most countries have rules for the loan-to-value ratio; in several countries these rules have been tightened in recent years, cf. IMF (2011). In Denmark it is possible to obtain mortgage finance for 80 per cent of the purchase price and bank loans for the remainder. The recommended maximum loan-to-value ratio varies from 60-110 per cent in the other Northern European countries. The loan-to-value ratio is typically high for first-time buyers.

In the Nordic countries and the Netherlands, interest expenses are tax deductible, cf. Table 3. The Dutch rules are generous, offering full interest deductibility at the highest marginal tax rate; thus, real interest after tax is low in the Netherlands during the period under review, cf. Chart 5. The interest deduction rules have been changed in several countries in recent years. In France and Austria interest deductibility has been abolished, while in Denmark, Finland and the Netherlands it will be reduced in the years to come. However, in Denmark only interest expenses in excess of kr. 50,000 p.a. per person will be affected by the reduction.

PROPERTY TAXES AND INTEREST DEDUCTIBILITY Table 3

	Property taxes, per cent of GDP, 2011	Interest deduction, per cent
Denmark	1.3 (2.0)	33.6[2]
Sweden	1.0	30.0[5]
Norway	1.1	28.0
Germany	0.7	0
France	3.3	0
Austria	0.5	0
Netherlands	1.2[1]	52.0[3]
Finland	0.9	25.5[4]
OECD, average	1.4[1]	

Note: Property taxes are total property taxes from OECD Revenue Statistics excl. inheritance and gift taxes as well as wealth taxes paid by firms. Danish property value tax forms part of personal tax and cannot be separated in international data sources. The total property tax revenue in Denmark incl. property value tax is stated in brackets. The stated rate of interest deduction is the general rate. In some countries a maximum deductible amount or reduced rates for large loans apply. In France, first-time buyers and other specially selected groups can obtain government-backed loans. In principle, these loans act as interest deduction as they reduce borrowing costs.

Source: OECD, IMF (2013), Hilbers et al. (2008) and the Dutch national reform programme 2013.

[1] Data for 2010

[2] However, for annual interest expenses in excess of kr. 50,000 per person the interest deduction is reduced by 1 percentage point annually from 2012 to 25.7 per cent in 2019.

[3] Will be reduced by 0.5 percentage point annually to 38 per cent in 2042.

[4] In 2013, 85 per cent of the interest expenses can be deducted at a rate of 30 per cent, implying an interest deduction of 25.5 per cent. The share of deductible interest expenses will be reduced to 75 per cent in 2014.

[5] 21 per cent for interest expenses in excess of 100,000 Swedish kronor.

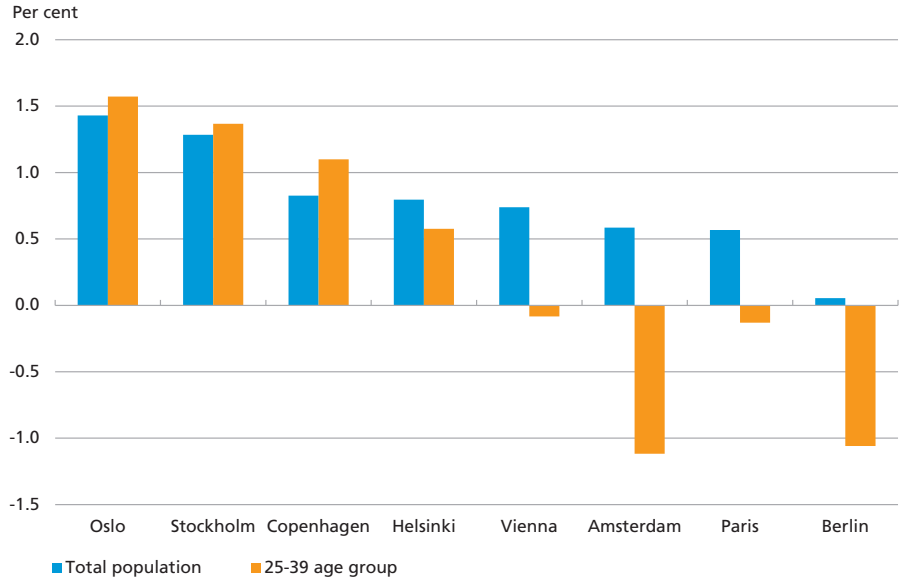
Demographics

Demographics are one of the factors influencing the demand for owner-occupied flats, cf. Box 1. The population in the Northern European capitals has grown in the past two decades, cf. Chart 6. Viewed in isolation, this means that the demand for owner-occupied flats has increased and, in consequence, put upward pressure on flat prices. First-time buyers are typically those aged 25-39 years. In Copenhagen and to some extent Stockholm and Oslo growth in this part of the population has, on average, exceeded the total population growth, suggesting that the demand for flats is high in these cities compared with e.g. Berlin and Amsterdam. This entails that demographics are among the reasons for the high flat prices in Oslo and Stockholm.

The rental market

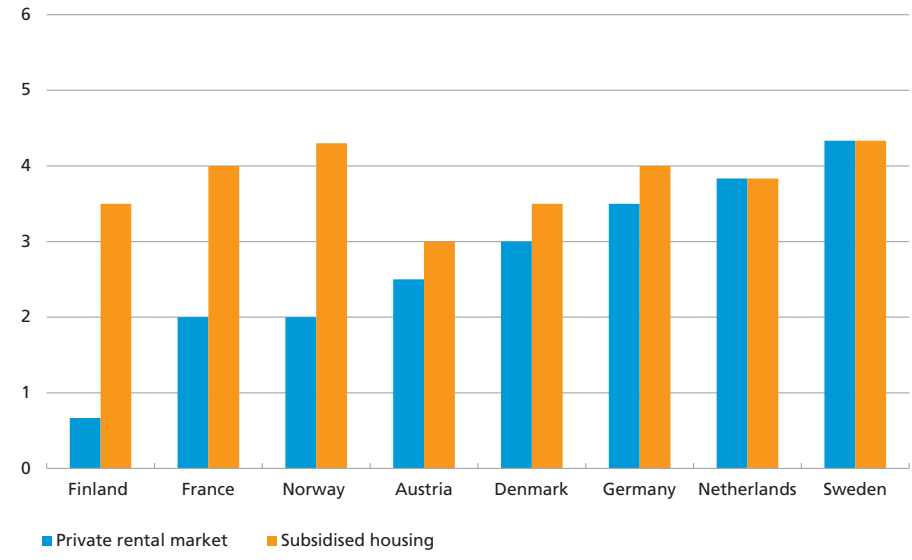
As mentioned above, regulation of the rental market in the capitals may also have a bearing on the demand for owner-occupied flats. In the Northern European countries both the private and the public rental markets are regulated, cf. Chart 7. Finland, France and Austria have a relatively large share of subsidised housing with flats being allocated based on income. This means that in these countries the access to cheap rental homes is to some extent limited to the more affluent part of the

AVERAGE ANNUAL POPULATION GROWTH IN CAPITALS, 1996-2012 Chart 6



Note: Berlin and Amsterdam follow a wider geographical delimitation than the flat prices and population size in Table 1.
Source: Eurostat, Statistics Norway, Statistics Sweden, Statistics Finland and Statistics Denmark.

REGULATION OF RENTAL MARKETS Chart 7



Note: Scale 0-6: rising degree of rent control.
Source: Andrews et al. (2011).

population. Consequently, their demand for owner-occupied flats, and thereby the price, would be higher than under a free rental market, cf. above. In Sweden, Denmark and the Netherlands the share of subsidised housing is fairly large but the allocation of flats is based on waiting lists. In those countries, it is possible for the more affluent part of the population to live in cheap rental flats which dampens the demand for owner-occupied flats and, in consequence, prices.

Supply of flats

In the longer term, flat prices are determined by the cost of new construction, cf. above. Construction costs are usually only calculated in terms of wages and materials and at national level. In consequence, it is difficult to get an accurate picture of total construction costs in the Northern European capitals. Given the lack of available construction sites, the land value probably makes up a relatively large share of total construction costs in the major cities compared with the national average.[1]

National indices of costs for materials and wages show that construction costs have increased the most in Norway, Sweden and France, cf. Chart 8. However, construction costs have increased less than flat prices in all countries except Germany. The difference is explained by the fact that the development in flat prices reflects a significant increase in land prices.

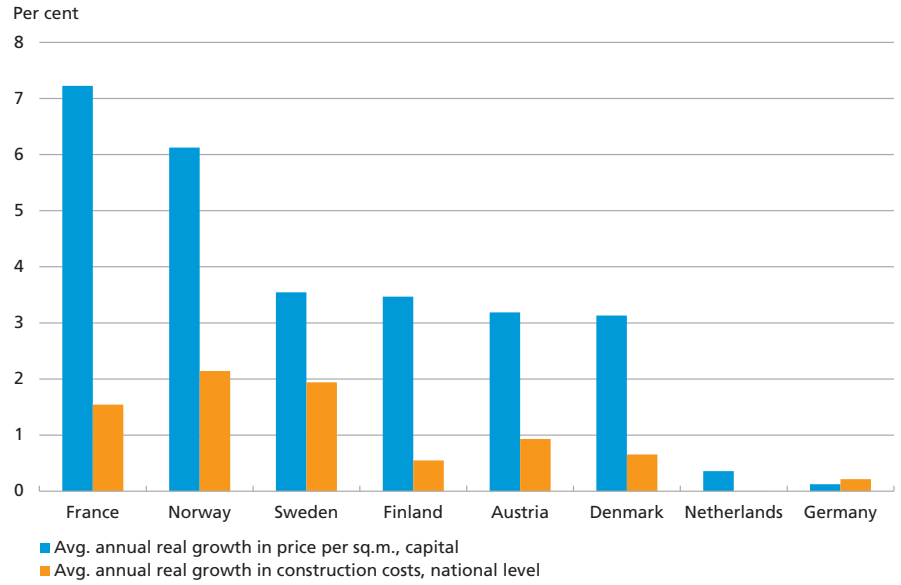
Compared with Stockholm, Oslo and Berlin construction activity was particularly high in Copenhagen in the years preceding the crisis, cf. Chart 9. This rise occurred amid soaring flat prices, indicating that construction activity in Copenhagen responded strongly to the upward trend in prices, cf. Andrews et al. (2011). This put a damper on the house price development in a period of generally increasing house prices.. New construction in Copenhagen was fuelled by e.g. the conversion of former harbour and industry areas into residential areas.

The population density in the capitals is one of several indicators of the potential for expanding the housing stock, cf. Andrews et al. (2011). The population density is much higher in Paris than in the other capitals, which may indicate that it is more difficult to increase the supply in Paris than in the other cities, cf. Table 4.

In some of the cities, an expansion of the housing stock is restricted by geographical conditions. Oslo, for example, is surrounded by mountains, which makes it difficult to expand and results in higher construction costs. Also, in several capitals an expansion of the housing stock is sub-

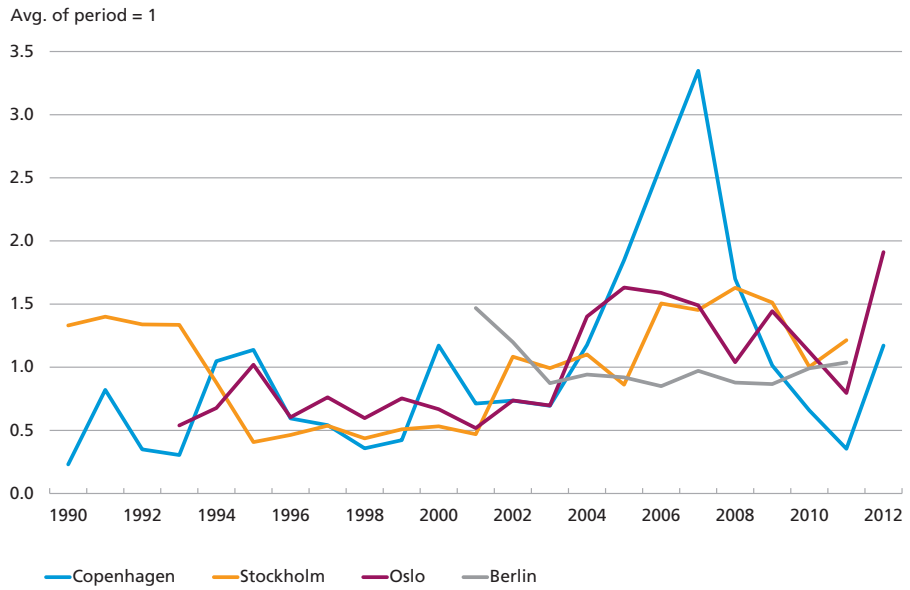
[1] Any regional differences in wage costs are likely to be offset by the mobility of the labour force.

AVERAGE ANNUAL REAL GROWTH IN CONSTRUCTION COSTS AT NATIONAL LEVEL AND FLAT PRICES IN CAPITALS, 2000-12 Chart 8



Note: Both flat prices and construction costs have been deflated by the consumer prices (HICP) in each country.
Source: Eurostat (construction costs), and see Appendix.

NEW CONSTRUCTION Chart 9



Note: Construction of new flats in Copenhagen (square metre), Berlin (square metre) and Stockholm (number). Construction of new houses and flats in Oslo (square metre).
Source: Statistics Denmark, Statistics Norway, Statistics Sweden, Statistical Office for Berlin-Brandenburg.

INDICATORS OF SUPPLY CONTRAINTS Table 4

	Population density, persons per sq.km	No. of days to obtain building permit
Copenhagen	4,183	21
Stockholm	4,708	60
Oslo	1,420	105
Berlin	3,922	25
Paris	21,464	90
Vienna	4,356	80
Amsterdam	1,776[1]	98
Helsinki	2,826	38

Note: Building permit for a department store at national level. Excl. various costs of connecting to utilities and post-construction approval.
Source: Eurostat, Statistics Finland, Statistics Sweden, Statistics Norway and World Bank Doing Business 2013.
[1] Greater Amsterdam.

ject to regulatory constraints. In certain areas of Copenhagen and Paris, among others, the height of buildings is subject to regulatory constraints. In addition, the time it takes to obtain a building permit varies, cf. Table 4, which may also have an impact on the supply.

Comparison with the rental market

The ratio between the cost of renting and the cost of owning one square metre may be used as an indicator of whether owner-occupied flats are over- or undervalued. This assumes the existence of a rental market that offers a real alternative to the owner-occupied market, i.e. that there is free access to the market and that the quality and location of owner-occupied flats and rental flats are comparable. If so, the demand will shift towards the cheaper of the markets, and the cost of renting and owning will match each other:

Annual rental cost per square metre = housing cost in per cent x purchase price per square metre.

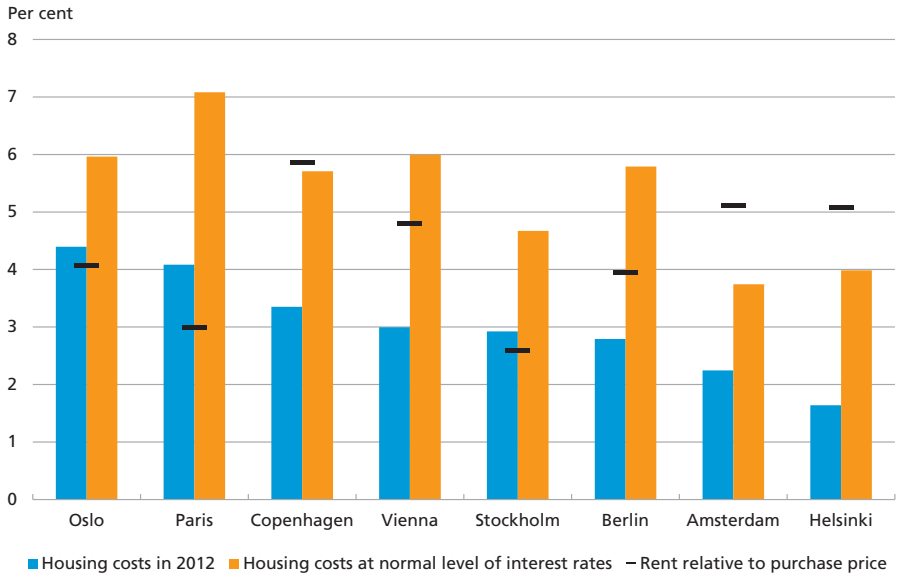
In that way, housing costs will match annual rental costs relative to the purchase price. If e.g. rents are high for a period compared with the cost of owning, it will be more attractive to own a flat, which boosts the demand for owner-occupied flats and thereby prices, creating equilibrium. If rents are higher than housing costs, this could form the basis for higher prices of owner-occupied flats and vice versa.

In Oslo, Stockholm and Paris, the current costs of owning a flat largely equal rents, cf. Chart 10,[1] indicating that at the moment it is nearly as attractive to own a flat as to rent a flat in these cities. In the other cap-

[1] It is not evident from the individual data sources whether the rents were formed in a free market.

COST OF OWNING A HOME IN PER CENT AND RENT RELATIVE TO PURCHASE PRICE

Chart 10



Note: The cost of owning a flat is shown for countries and as a share of the total value of the housing stock. Technically, a short-term money-market rate of 3.5 per cent has been assumed for housing costs at normal level of interest rates, with a corresponding shift in the level of housing interest rates for each country. In the calculation of real interest an expected inflation rate of 2 per cent annually is assumed. Common expenses and expenses for maintenance are assumed to total 2 per cent annually. Capital gains are excluded from the calculations. Rent relative to purchase price is the annual rent relative to the purchase price. Housing costs for Copenhagen includes property value tax.

Source: Own calculations, and see Appendix.

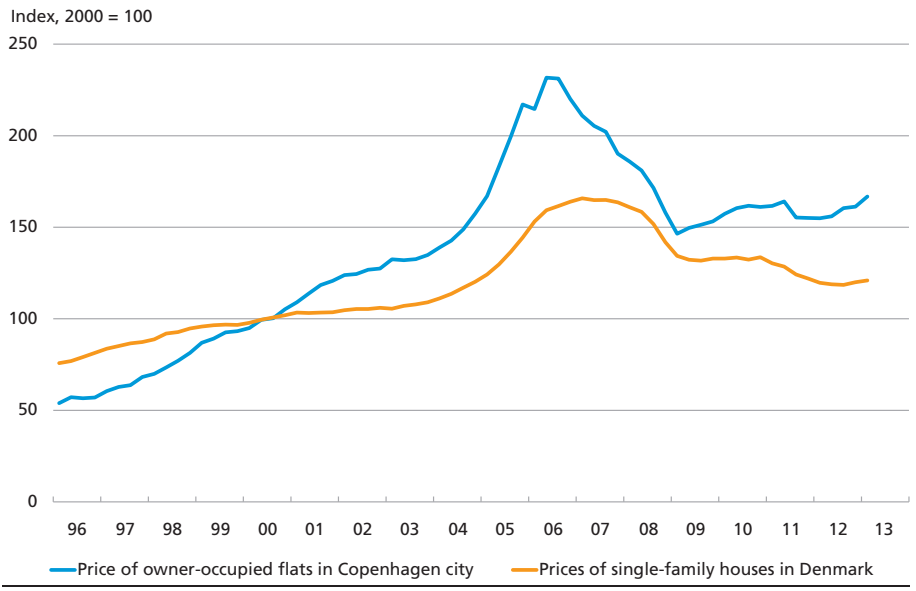
itals, including Copenhagen, rents are significantly higher than the cost of owner-occupied flats, making it more advantageous to be an owner. However, the costs of owning a flat are very low at the moment due to the extraordinarily low interest rates. If the level of interest rates is normalised,[1] real interest rates after tax – and thereby housing costs – will climb 1.5-3 percentage points. A comparison of rents with housing costs in a situation with normalised interest rates shows that the cost of owner-occupied flats is particularly high in Paris and Stockholm, but also in Oslo and Berlin.

Prices of flats in Copenhagen

In 2012, prices of owner-occupied flats in Copenhagen were low compared to the other capitals in Northern Europe. Prices have soared since early 2012, partly due to the price dive in 2006-09, when real prices of Copenhagen owner-occupied flats were eroded by close to 40 per cent, but also due to the recent price fall in 2011, cf. Chart 11.

[1] Technically, a short-term money-market rate of 3.5 per cent has been assumed with a corresponding shift in the level of mortgage rates for each country.

REAL PRICES OF OWNER-OCCUPIED FLATS IN COPENHAGEN Chart 11



Note: Seasonally adjusted data. The most recent observations are from the 1st quarter of 2013.
Source: Statistics Denmark (own seasonal adjustment) and the Association of Danish Mortgage Banks.

The recent rebound in prices should be viewed against the currently very low level of interest rates, which makes it cheaper to finance home purchases. The supply of owner-occupied flats in Copenhagen has nearly been halved since the summer of 2011 due in part to the increase in trading activity during the same period.

Looking forward, the supply is likely to expand due to the recent price rises in the Copenhagen market for owner-occupied flats, which makes it more attractive for people to sell their home or build a new one. If so, this will dampen price rises in the future. Given that construction activity in Copenhagen rose sharply during the years of price rises and remained high when prices plummeted in 2006-09, a considerable hidden supply may exist. In consequence, the strong influx of homes continued during these years amid a sharp drop in the number of transactions.

In recent years, the population in Copenhagen has increased by approximately 1,000 persons every month. Moreover, measured by employment and output, the Capital Region of Denmark is the region with the best performance in recent years, which supports continued growth in the demand for flats.

The high prices in Copenhagen will prompt more people to shift demand towards the surrounding areas with lower prices. Copenhagen still offers many areas for construction albeit to a limited degree in the

city centre. The supply of homes in Copenhagen may therefore to some extent adjust to growing demand.

The major fluctuations in prices of owner-occupied flats over the last decade reflect the freeze on property value tax at the 2002 level. The surge in prices of Copenhagen flats up to 2006 meant a considerable tax saving, making the cost of owning significantly lower than would otherwise have been the case. Likewise, the strong price declines during 2006-09 resulted in an increase in the property value tax relative to the value of the flats. Therefore, the property value tax did not contribute to dampening the price fluctuations as was the case earlier when taxes automatically reflected the value of the flat albeit with property valuations lagging somewhat behind.

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APPENDIX

Data sources and delimitation of cities

Copenhagen: Association of Danish Mortgage Banks, Statistics Denmark, Eurostat and boligportal.dk. Copenhagen city (the municipalities of Copenhagen, Frederiksberg, Tårnby and Dragør). Disposable incomes are for the Capital Region of Denmark.

Stockholm: Svensk Mäklarstatistik, Statistics Sweden and Eurostat. "Bostadsrettigheder" (correspond to cooperative housing shares). The municipality of Stockholm. Disposable incomes are for the county of Stockholm.

Oslo: Statistics Norway. In the calculation of rents relative to purchase prices, Oslo includes Bærum.

Berlin: Bulwiengesa AG and Eurostat. The districts of Wilmersdorf, Schöneberg, Charlottenburg, Tiergarten, Wedding, Mitte, Prenzlauer Berg, Friedrichshain and Kreuzberg. Data is based on interviews with professional market agents. Disposable incomes are for all of Berlin.

Paris: Chambre des Notaires de Paris and Eurostat. The district of Paris. The calculation of rent relative to purchase price is based on data from globalpropertyguide.com, which is delimited to the 4th, 6th, 7th, 8th, 16th and 17th districts. Disposable incomes are for Île de France.

Vienna: Oesterreichische Nationalbank, Vienna University of Technology and Eurostat. Flat prices are exclusive of new construction.

Amsterdam: Globalpropertyguide.com, Statistics Netherlands and Eurostat. The level of flat prices stems from globalpropertyguide.com, which collects data from estate agents' sales particulars etc. The city is delimited to central Amsterdam, Oud Zuid incl. De Pijp and Vondelpark. The level has been discounted on the basis of a price index (all homes exclusive of new construction). Disposable incomes are for Noord-Holland.

Helsinki: Statistics Finland and Eurostat. Disposable incomes are for Mainland Finland.

Disposable incomes are projected based on the development in regional or national GDP per capita after 2010 and 2011, respectively, depending on the data available and prior to 2000 in the case of Copenhagen. In the case of Oslo, data prior to 2008 has been discounted by the change in national disposable income per capita and after 2010 projected by the change in GDP per capital for mainland Norway.

Danmarks Nationalbank's Collateral Basis – New Asset Types in a Legal Perspective

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INTRODUCTION

Danmarks Nationalbank extends credit as monetary-policy loans, credit for cash depots, and intraday credit to banks and mortgage banks.

Lending is collateralised. At end-2012, collateral with a total collateral value of kr. 371.8 billion had been pledged to Danmarks Nationalbank, cf. Danmarks Nationalbank's Accounts 2012.

Until 2008, Danmarks Nationalbank's collateral basis mainly comprised government and mortgage bonds registered with VP Securities A/S and listed on Nasdaq OMX Copenhagen. These traditional asset types are relatively stable in value, easy to value and realise and fairly easy to manage.

The financial crisis and the ensuing liquidity crunch in the interbank market, along with growing collateral requirements even for loans between major financial market participants, increased the need for conversion of non-liquid assets into liquidity[1] – and thus inclusion of new types of collateral in Danmarks Nationalbank's collateral basis.

This requirement has been met – in part through the expansion of the permanent collateral basis to include banks' credit claims of good quality[2], in part through the temporary expansion of the collateral basis to include new types of collateral. Danmarks Nationalbank has previously described the considerations underlying the determination of Danmarks Nationalbank's collateral basis, cf. Poffet (2010) and Pedersen (2009). Important considerations include minimising Danmarks Nationalbank's risks and costs of managing collateral.

1 Either by pledging these assets as collateral or by including the assets in the calculation of the bank's liquidity in accordance with the Danish Financial Business Act.

2 Danmarks Nationalbank has also introduced other measures to support bank liquidity by expanding its credit facilities to include 6-month loans and 3-year loans.

When determining Danmarks Nationalbank's collateral basis, it is also important to comply with all legal requirements necessary to ensure the security of Danmarks Nationalbank[1].

This article outlines the types of collateral currently included in Danmarks Nationalbank's permanent and temporary collateral basis. The article also reviews the special legal issues associated with the acceptance of credit claims and sector company shares as collateral for credit facilities in Danish kroner[2] and the related operational issues. Finally, key aspects of the collateral bases of other central banks are presented, including credit claims eligible as collateral in the Eurosystem.

DANMARKS NATIONALBANK'S PERMANENT COLLATERAL BASIS

Danmarks Nationalbank's permanent collateral basis for credit facilities in Danish kroner currently comprises:

- VP-registered assets in Danish kroner and euro traded at Nasdaq OMX Copenhagen:
- Securities issued by the Kingdom of Denmark, the Fisheries Bank or the Mortgage Bank of the Kingdom of Denmark,
- Bonds guaranteed by the Kingdom of Denmark,
- Bonds issued by KommuneKredit,
- Bonds issued by the Faroese government,
- Mortgage bonds, covered bonds (SDOs) and covered mortgage bonds (SDROs) issued by institutions subject to the Danish Financial Business Act.
- Bonds issued by Danish Ship Finance,
- Junior covered bonds issued in connection with SDOs or SDROs and complying with Section 15 of the Danish Mortgage-Credit Loans and Mortgage-Credit Bonds, etc. Act or Section 152b of the Danish Financial Business Act and with a number of credit rating requirements laid down by Danmarks Nationalbank, and
- Deposits in yield accounts in Danish kroner at Danmarks Nationalbank.

In general, these assets must not have been issued or guaranteed by the borrower or by an entity with which the borrower has close links[3].

1 Credit claims and assets included in the temporary collateral basis are pledged to Danmarks Nationalbank in the traditional manner and are not eligible as collateral under the automatic collateralisation arrangement. The various methods of collateralisation are described in Andersen and Gürtler (2003).

2 Danmarks Nationalbank also extends intraday credit in euro against collateral meeting the requirements of the European Central Bank, ECB. Credit claims and assets included in the temporary collateral basis are eligible as collateral for credit facilities in Danish kroner only.

3 As defined in Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions.

Securities eligible at any time as collateral for credit facilities in Danish kroner at Danmarks Nationalbank are listed on Danmarks Nationalbank's website (www.nationalbanken.dk).

Since 2011, banks domiciled in Denmark have also had access to pledge credit claims as collateral at Danmarks Nationalbank. Danmarks Nationalbank's management of credit claims pledged as collateral for credit facilities in Danish kroner is described below.

CREDIT CLAIMS IN THE COLLATERAL BASIS

The credit claim portfolios of most banks account for the largest asset group by far on their balance sheets. Earlier, credit claims were not regarded as potential collateral at Danmarks Nationalbank, in part because the act of perfection for obtaining protection from the pledgor's creditors was notification of the individual debtor, cf. Section 31(2) of the Danish Debt Instrument Act, which would be very costly, in part because valuation and realisation are difficult to handle in practice. This also applied in other EU member states.

In connection with the European Commission's considerations on possible improvements of the Directive on Financial Collateral Arrangements (the Collateral Directive), the European Central Bank, ECB, therefore presented a request for the introduction of a special operationally manageable procedure for the act of perfection for pledging of the credit claims of banks, making it simpler for banks to pledge their credit claims and thus increasing the volume of assets eligible as collateral. The Collateral Directive was amended[1] accordingly and implemented in the Danish Securities Trading Act in 2010[2]. Part 18a of the Securities Trading Act now provides the opportunity for agreements on financial collateral concluded between e.g. a central bank and a bank to contain a provision on pledging of banks' credit claims as collateral. The act of perfection is the pledgee's receipt of a list identifying the individual credit claims pledged and thus not notification of the individual debtor as is otherwise the rule for pledging of unsecured claims.

This facilitated the expansion of the permanent collateral basis to include banks' credit claims of good quality. This expansion was implemented in October 2011 to improve banks' access to liquidity ahead of the expiry of bank debt issuance with an individual government guarantee. At the introduction of the option to pledge credit claims as collat-

1 Directive 2009/44/EC of the European Parliament and of the Council of 6 May 2009 amending Directive 98/26/EC on settlement finality in payment and securities settlement systems and Directive 2002/47/EC on financial collateral arrangements as regards linked systems and credit claims.

2 Act no. 1556 of 21 December 2010.

eral at Danmarks Nationalbank, the additional collateral basis was estimated at a collateral value of up to kr. 400 billion.

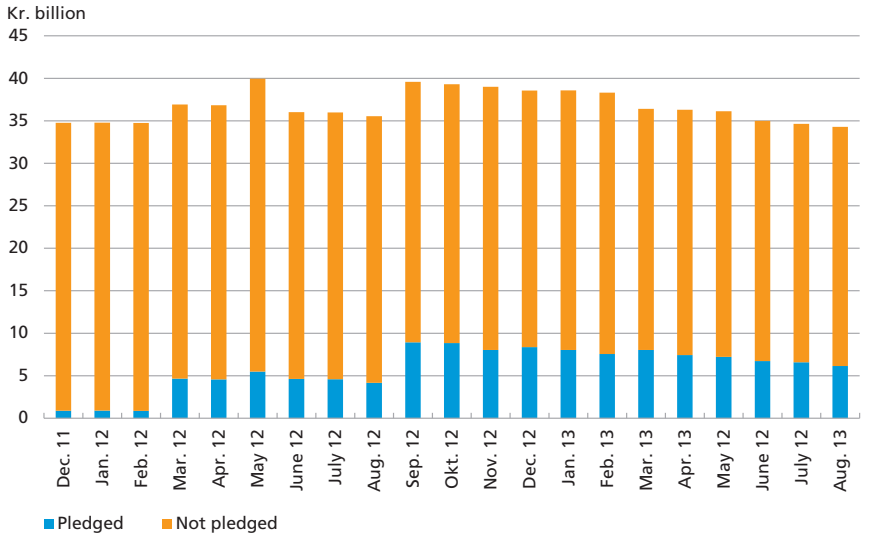
A bank may also improve its liquidity by applying the calculation of liquidity under section 152 of the Danish Financial Business Act, cf. Risbjerg and Sangill (2012), without de facto pledging of credit claims. This is effected by approval of the bank's credit claims as collateral based on a statement by the auditors to the effect that the bank's credit claims included in its list of credit claims eligible as collateral comply with Danmarks Nationalbank's requirements. Subject to approval by Danmarks Nationalbank, the bank is authorised to pledge credit claims included in this list as collateral. The Danish Financial Supervisory Authority accepts this as a loan commitment from Danmarks Nationalbank and subsequently the bank in question may include credit claims in the calculation of its statutory liquidity pursuant to detailed rules issued by the Danish Financial Supervisory Authority, even if these credit claims have not been pledged.

Box 1 provides an overview of Danmarks Nationalbank's approval requirements for credit claims eligible as collateral.

Chart 1 illustrates the use of credit claims as collateral at Danmarks Nationalbank. A large proportion of the credit claims have not been pledged as collateral at Danmarks Nationalbank, but have been ap-

COLLATERAL VALUE OF CREDIT CLAIMS PLEDGED AS COLLATERAL AT DANMARKS NATIONALBANK

Chart 1



Note: "Not pledged" denotes credit claims that have not been pledged to Danmarks Nationalbank as collateral, but have been approved for pledging. Values are stated after haircuts, margins and deductions.
Source: Danmarks Nationalbank.

KEY ASPECTS OF DANMARKS NATIONALBANK'S APPROVAL REQUIREMENTS FOR CREDIT CLAIMS ELIGIBLE AS COLLATERAL Box 1

In order for credit claims to be included in the collateral basis, the bank must submit the following documentation to Danmarks Nationalbank:

- Request to pledge credit claims as collateral, signed by the bank's board of directors and executive board. In this request, the bank's management states that the necessary procedures, routines and internal controls have been established. The bank's management must submit an updated statement annually.
- Statement by the external auditors to the effect that the bank has the necessary procedures and internal controls to meet Danmarks Nationalbank's requirements for credit claims, top-up collateral, etc., and that the credit claims eligible for pledging during the coming quarter, included in a list, comply with Danmarks Nationalbank's requirements. In addition, the bank must submit an updated unqualified statement by the auditors quarterly.
- Deed of pledge.

The quality of credit claims will be controlled by an independent accounting firm at suitable intervals to be determined by the Danish Financial Supervisory based on a risk assessment.

Requirements for credit claims:

- Unsecured claims of good quality[1].
- Granted to retail customers, government institutions and/or non-financial corporations resident or domiciled in the Kingdom of Denmark and without close links to the bank.
- A debtor can be debtor or co-debtor of no more than 10 per cent of the credit claims pledged.
- May not fall due for payment until at least one month after the credit claim has been pledged as collateral.

Valuation of credit claims:

- The value of credit claims is stated as the remaining debt; however, for overdrafts it is stated as 90 per cent of the balance. For foreign-currency credit claims, 3-10 per cent will be deducted from the remaining debt/balance, depending on the currency in question. Subsequently, claims on the bank which may be offset by the debtor of the credit claim will be deducted.
- The collateral value is the value of the credit claim less 35 per cent.

In connection with pledging of credit claims, the bank must also submit the following material:

- A list of credit claims to be pledged from the list approved by the auditors.
- A monthly-updated list of credit claims pledged as collateral.

The collateral value of credit claims is included in the calculation of the total collateral value of collateral pledged by the bank. If, during the month, the value falls to below 95 per cent of the value of the credit claims at the time of pledging, the bank must pledge top-up collateral.

[1] The Danish Financial Supervisory Authority's definitions of credit claims of quality categories 3 or 2 a, cf. the definition (in Danish) on the website of the Danish Financial Supervisory Authority.

proved for pledging. March and September 2012 saw an increase in pledging of credit claims as it became possible to raise 3-year loans with Danmarks Nationalbank. The collateral value of credit claims pledged as well as credit claims that have not been pledged but have been approved for pledging, has been declining slightly since then. At the end of July 2013, credit claims accounted for about 6 per cent of the assets pledged as collateral for credit facilities in Danish kroner at Danmarks Nationalbank compared with 21 per cent at the ECB.

Special aspects of collateralisation of credit claims

When pledging credit claims, banks pledge a portfolio of credit claims. In principle, this portfolio may comprise all of the bank's credit claims complying with Danmarks Nationalbank's requirements or a subset of these claims.

When unsecured claims are pledged in the traditional manner under the provisions of the Danish Debt Instrument Act, the pledgor's continued access to payments on the claim is limited. If the pledgor continues to receive repayments and redemptions, these must be settled with the pledgee, and the latter must check the settlement. If this is not the case, there is a risk that pledging is not considered to be real (no "effective dispossession" has occurred) and may be overruled, e.g. in case of default, cf. Iversen et al. (2012) and Rohde (2012). It is a different matter when credit claims are pledged under the rules of the Danish Securities Trading Act. As stated in the explanatory notes to the Act, in practice the bank continues to receive current payments on credit claims and, on the whole, retains full customer contact.

Pledging of credit claims to Danmarks Nationalbank also includes entitlement to interest, repayments and redemptions, but it is agreed that, until further notice, the bank will preserve the right to receive these payments[1]. This influences Danmarks Nationalbank's operational management of pledging of credit claims, described below.

Valuation and control

In general, Danmarks Nationalbank has no knowledge of any potential impairment of the portfolio of credit claims pledged – either at individual loan or portfolio level. Besides repayments and redemptions, the impairment could be that some credit claims no longer meet the requirements for collateralisation, in particular the quality requirement, cf. Box 1. Since debtors of the credit claims pledged retain any right to set off

[1] Danmarks Nationalbank is entitled to demand that future payments be made to an account pledged to Danmarks Nationalbank.

e.g. deposits in the event of the bank's default, fluctuations in debtor counterclaims could also result in ongoing changes in the value of the portfolio of credit claims.

To ensure that Danmarks Nationalbank's requirements in terms of collateral value are always met and to counter the risk of pledging being overruled in the event of the bank's default due to lack of control by Danmarks Nationalbank, Danmarks Nationalbank requires that banks are able to regularly follow the value of credit claims on the list. Moreover, a statement by the bank's management is required to the effect that it has established the necessary procedures, routines and internal controls to meet this requirement (self-certification). Furthermore, the bank must submit a new list of credit claims pledged once a month. Each quarter, the bank's external auditors must state that procedures and controls are adequate and that the credit claims included in the list of eligible credit claims for the coming quarter comply with Danmarks Nationalbank's requirements. Finally, through the Danish Financial Supervisory Authority, additional independent control has been established to ensure that the credit claims comply with collateral requirements. This control is conducted by an independent accounting firm, which may not be the bank's own external auditors, at suitable intervals.

It has been agreed between Danmarks Nationalbank and the individual bank that Danmarks Nationalbank's right of collateral in the credit claims also comprises any collateral that the debtor of the credit claim may have pledged to the pledging institution. In order for such rehypothecation of collateral to Danmarks Nationalbank to be protected from the bank's contracting parties and creditors, the type of act of perfection applying to the individual asset type must be observed. However, such act of perfection is not undertaken, as it would be operationally unmanageable for Danmarks Nationalbank. The agreement on pledging with the underlying collateral is binding in the relationship between the bank and Danmarks Nationalbank, but Danmarks Nationalbank's pledge in this collateral is not applicable with certainty to third parties in all events. Therefore, underlying collateral is not included in the assessment of the quality of a credit claim or in the determination of its collateral value.

Top-up collateral for pledging of credit claims

As far as the traditional collateral basis is concerned, the collateral value is calculated on a daily basis. On the other hand, the collateral value of credit claims is typically difficult to calculate on a daily basis, and cannot be calculated by Danmarks Nationalbank. Therefore, the bank submits a list of credit claims pledged once a month. The following month, the

collateral value of these credit claims is included in the daily calculation of the bank's total collateral.

This method is based on the assumption that the value of credit claims pledged remains unchanged over a month. To safeguard against decreases in value during the month, Danmarks Nationalbank therefore requires the bank to ensure, on an ongoing basis and at suitable intervals, that the value of the credit claims pledged does not fall below 95 per cent of the value at the time of pledging. If the value falls below 95 per cent, the bank must immediately submit a supplementary list of credit claims to be pledged. These credit claims must be included in the list of credit claims to which the prior statement by the auditors relates. It appears from the statements by the management and auditors that the routines, systems, etc., implemented by the bank also ensure that the agreement on top-up collateral can be observed.

Realisation of credit claims

Essentially, there is no market for credit claims. In the event of the bank's default on its obligations towards Danmarks Nationalbank, realisation of credit claims will therefore present operational challenges. Under the deed of pledge, Danmarks Nationalbank may opt to sell the credit claims pledged, together or in small portfolios, take over ownership of the credit claims and collect them, or a combination of sale and collection. If Danmarks Nationalbank opts to take over ownership of the credit claims, under the deed of pledge and in accordance with the Danish Securities Trading Act such take-over of ownership must be effected on the basis of a commercially reasonable price determined by a third party.

DANMARKS NATIONALBANK'S TEMPORARY COLLATERAL BASIS

As a result of the financial crisis, in addition to including credit claims in the permanent collateral basis, Danmarks Nationalbank has introduced a number of temporary measures to facilitate bank access to liquidity. The first temporary measure was introduced in May 2008 when Danmarks Nationalbank expanded its collateral basis to include loan bills, cf. Pedersen (2009). These bills could be issued when a bank obtained a loan from another bank. The latter could subsequently pledge the loan bill as collateral for credit facilities from Danmarks Nationalbank. Later that same year, subject to application and approval by the Board of Governors of Danmarks Nationalbank, Danmarks Nationalbank gave banks and mortgage banks access to credit on the basis of the individual bank's excess capital adequacy, calculated as the difference between

DANMARKS NATIONALBANK'S TEMPORARY COLLATERAL BASIS SINCE 2008 Box 2

Discontinued measures:

- May 2008: Loan bills (discontinued February 2011).
- September 2008: Option to obtain credit on the basis of excess capital adequacy (discontinued February 2011).
- September 2008: *Quoted* and VP-registered shares, investment fund shares and junior covered bonds issued in connection with SDOs or SDROs, issued by funds or corporations in the Kingdom of Denmark and denominated in Danish kroner or euro (discontinued February 2011).
- September 2008: Upon request and subject to approval by Danmarks Nationalbank, *unquoted* shares issued by corporations in the Kingdom of Denmark and denominated in Danish kroner or euro (discontinued February 2011).
- June 2009: *Quoted* and VP-registered unsecured debt with a general government guarantee (discontinued September 2010).
- July 2009: *Unquoted* and VP-registered unsecured debt with a general government guarantee (discontinued September 2010).

Existing measures:

- June 2009: *Quoted*, VP-registered and government-guaranteed (cf. section 16a of the Danish Financial Stability Act) non-subordinated unsecured debt and *quoted*, VP-registered and government-guaranteed junior covered bonds issued in connection with SDOs or SDROs. These securities must be issued by banks or mortgage banks in the Kingdom of Denmark and be denominated in Danish kroner or euro (to be discontinued December 2013).
- July 2009: *Unquoted*, VP-registered and government-guaranteed (cf. section 16a of the Danish Financial Stability Act) non-subordinated unsecured debt and *unquoted*, VP-registered and government-guaranteed junior covered bonds issued in connection with SDOs or SDROs. These securities must be issued by banks or mortgage banks in the Kingdom of Denmark and be denominated in Danish kroner or euro (to be discontinued December 2013).
- February 2010: VP-registered SPV bonds (to be discontinued December 2013).
- August 2011: Sector company shares (to be terminated at 30 days' notice).
- May 2012: *Quoted* and *unquoted* VP-registered own government-guaranteed non-subordinated unsecured debt issued by banks and denominated in Danish kroner or euro (to be discontinued December 2016).
- May 2012: Upon request and subject to approval by Danmarks Nationalbank, sector company bonds (to be terminated at 30 days' notice).

their base capital and their individual capital need. Thus, the option to obtain credit on the basis of excess capital adequacy was based on a credit rating rather than being an expression of collateralisation towards Danmarks Nationalbank in the traditional sense of the word.

Danmarks Nationalbank later expanded its temporary collateral basis to include a number of other assets, some of which were subsequently phased out. The assets currently included in the temporary collateral basis are described below.

Box 2 provides an overview of the development in Danmarks Nationalbank's temporary collateral basis from 2008 until today.

SECTOR COMPANY SHARES IN THE COLLATERAL BASIS

In September 2008, the temporary collateral basis was expanded to include, *inter alia*, quoted and unquoted shares issued by corporations in the Kingdom of Denmark, denominated in Danish kroner or euro, cf. Box 2. This facility expired in February 2011, but was partly re-introduced in August 2011 when the temporary collateral basis was expanded to include shares issued by corporations that are primarily jointly owned by a number of financial corporations (sector company shares). Virtually all banks hold shares in one or more of these corporations, and, accordingly, the shares are of significance to a wide range of Danmarks Nationalbank's account holders. This is a contributory reason why these shares can be pledged as collateral to Danmarks Nationalbank. At the end of July 2013, banks and mortgage banks had pledged sector company shares at a collateral value of kr. 559 million. Sector company shares that are eligible as collateral at Danmarks Nationalbank are listed on Danmarks Nationalbank's website[1]. Borrowers may not pledge as collateral shares issued by themselves or by a company with close links to the borrower[2].

Due to certain practical and legal aspects of sector company shares, they are more complex to manage as collateral than e.g. government and mortgage bonds.

In May 2012, the temporary collateral basis was expanded to include bonds issued by these sector companies. Currently, no sector company bonds are eligible as collateral, and therefore they will not be discussed further in this article.

Pledging of sector company shares

For VP-registered shares (securities)[3], the act of perfection is registration in a central securities depository, cf. Section 66 of the Danish Securities Trading Act. Upon pledging, VP-registered sector company shares are transferred to a blocked VP account. Any other collateral pledged by the bank or mortgage bank to Danmarks Nationalbank under the temporary collateral basis are also registered in this account.

1 Sector companies, the issuances of which are eligible as collateral at Danmarks Nationalbank as at 31 August 2013 are: DLR Kredit A/S, BI Holding A/S, PRAS A/S, Sparinvest Holding A/S, Garanti Invest A/S, Letpension AS, Multidata Holding A/S, Nets Holding A/S, Skandinavisk Data Center A/S and VP Securities A/S.

2 As defined in Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions.

3 The following sector company shares that are eligible as collateral at Danmarks Nationalbank are VP-registered: DLR Kredit A/S, Sparinvest Holding A/S and VP Securities A/S.

The act of perfection for dematerialised shares that are not registered at VP is notification of the company or a possible registrar of shareholders, cf. Section 65 of the Danish Companies Act. These shares are not eligible as collateral until Danmarks Nationalbank has received confirmation from the company or registrar, respectively, that Danmarks Nationalbank's pledge has been registered and that no other rights holders have been registered. None of the sector companies currently included in Danmarks Nationalbank's list of eligible shares have issued physical share certificates.

Collateral in sector company shares includes yield, including dividend. Voting rights are still exercised by the pledgor.

Under certain conditions, laid down by the Danish Financial Supervisory Authority and posted on Danmarks Nationalbank's website, sector company shares that are eligible as collateral at Danmarks Nationalbank may be included in banks' liquidity under section 152 of the Danish Financial Business Act.

Special aspects of pledging sector company shares

As mentioned earlier, sector companies are founded and owned by financial corporations with a shared interest in running the company, as the company provides a number of services to the owners on which it is beneficial for them to collaborate. Therefore, provisions in the articles of association or shareholders' agreements often govern, *inter alia*, the access to pledging of shares and/or pre-emption rights.

Access to pledging

Prior to approval of sector company shares as collateral, Danmarks Nationalbank obtains statements from the sector companies to the effect that no restrictions in their articles of association or shareholders' agreements prevent the shares from being validly pledged to Danmarks Nationalbank. If, in the articles of association or shareholders' agreements, there is any prohibition against pledging the shares without the consent of the board of directors, Danmarks Nationalbank will obtain the consent of the company's board of directors that the shares may be pledged as collateral to Danmarks Nationalbank.

Pledging entails that the pledgor cannot dispose of the shares by sale or similar transactions without the consent of Danmarks Nationalbank.

Valuation and realisation

Management of the facility at Danmarks Nationalbank is manual and, in general, the collateral value of sector company shares pledged as collateral is updated once a week. Sector company shares that are currently

eligible as collateral at Danmarks Nationalbank are not quoted. Therefore, a procedure has been established under which the Association of Local Banks, Savings Banks and Co-operative Banks in Denmark, of which banks pledging sector company shares are usually members, provides the information relevant to Danmarks Nationalbank's valuation of these shares. The collateral value is determined by Danmarks Nationalbank, taking into account, *inter alia*, any price agreements related to pre-emption rights, less a haircut of 20 per cent.

Most articles of association contain provisions on pre-emption rights of other shareholders. Danmarks Nationalbank must comply with these provisions in the event of realisation of the shares due to the pledgor's default on its obligations. If a pre-emption right is not exercised, sale may be effected to a third party often subject to approval by the company's board of directors. In some cases, articles of association and/or shareholders' agreements have restrictions on potential buyers of the shares. For instance, the shareholders of some companies must be banks.

OTHER ASSETS IN THE TEMPORARY COLLATERAL BASIS

In addition to sector company shares, Danmarks Nationalbank's temporary collateral basis also includes a number of other assets, which are not, however, subject to any special legal constraints. These assets are briefly described below.

Unsecured debt and junior covered bonds with a government guarantee

Until 30 December 2016, collateral for credit facilities in Danish kroner may be pledged by way of debt issuance, including holdings of own bonds issued[1], with the status of non-subordinated unsecured debt with a government guarantee. At the end of July 2013, the collateral value of this type of bond, pledged to Danmarks Nationalbank as collateral, totalled kr. 5.1 billion.

Until 30 December 2013, government-guaranteed junior covered bonds, issued in connection with SDOs or SDROs, that do not meet Danmarks Nationalbank's credit rating requirements are also eligible as collateral. Currently, no such assets have been pledged. Junior covered bonds that meet Danmarks Nationalbank's credit rating requirements are included in the permanent collateral basis.

[1] The opportunity to pledge own bonds issued as collateral was introduced with legal document 51 of 14 February 2012 in which it is assumed that new government-guaranteed issuance is not to be traded, but to be pledged directly as collateral at Danmarks Nationalbank.

To be eligible as collateral, the issuance must be included in the list of guaranteed issuance published at any time on the website of the financial Stability Company and comply with other Danmarks Nationalbank requirements, including that the issuance is registered at VP and denominated in Danish kroner or euro.

SPV bonds

Until 30 December 2013, SPV bonds may also be pledged as collateral. The objective of the SPV model is to enable small banks to cooperate in offering bond issues of larger volumes than their individual issues and hence more attractive to investors. SPV bonds are issued by a Special Purpose Vehicle (SPV), the sole purpose of which is to extend government-guaranteed loans to Danish banks, Danish subsidiaries of foreign banks, and mortgage banks. SPV bonds must meet a number of standard terms and conditions laid down by Danmarks Nationalbank. The bonds must be denominated in Danish kroner or euro and issued in Denmark or another country in the European Economic Area, EEA. Moreover, the issuer must be resident in Denmark or another EEA country and the bonds must be governed by the laws of Denmark or another EEA country. A requirement for governing law to be Danish law could diminish the interest of foreign investors. SPV bonds must be registered at VP. Like sector company shares, SPV bonds are eligible as collateral upon request and subject to approval by Danmarks Nationalbank. So far, no specific requests have been made for pledging SPV bonds as collateral.

COLLATERAL BASES OF THE EUROSYSTEM AND CERTAIN OTHER COUNTRIES

Today, untraditional types of collateral are also eligible at other central banks, cf. Table 1, outlining the collateral bases of a number of countries and the ECB. Shares are not eligible as collateral in any of these countries[1].

Credit claims eligible as collateral in the Eurosystem

Appropriate collateral is required for the provision of credit by the Eurosystem. Credit claims are among the eligible assets, provided that the credit claims and the operational management of the collateral meet a

[1] Shares were previously eligible as collateral at the ECB, but this option was discontinued in 2005.

PERMANENT COLLATERAL BASES Table 1

	ECB	Fed (OMO)[1]	Fed (SF)[1]	BoE Standard[2]	BoE Wider[2]	SNB[3]	Sveriges Riksbank[4]	Norges Bank	Danmarks Nationalbank
Government securities, etc.[5]	X	X	X	X	X	X	X	X	X
Covered bonds[6]	X	-	X	-	X	X	X	X	X
Bank bonds[7]	X	-	X	-		X	-	-	-
Corporate bonds[8]	X	-	X	-	X	X	X	X	-
Asset-backed securities	X	X	X	-	X	-	-	X	-
Bank credit claims	X	-	X	-	X	-	-	-	X
Foreign bonds	X	-	X	X	X	X	X	X	-
Multilateral institution bonds	X		X	X	X	X	X	X	-
Other currencies (number)	0	0	8	3	7	6	6	9	1

Source: Central bank websites.

[1] The Federal Reserve, FED, accepts only treasury securities and mortgage-backed securities issued by Freddie Mac, Fannie Mae, Ginnie Mae and Federal Home Loan Banks as collateral for their open market operations, OMO, but a far wider range of asset types denominated in a wider range of currencies as collateral for loans granted via the Discount Window (standing facility) and for intraday credit.

[2] The standard collateral basis of the Bank of England, BoE, may be used for regular open market operations and intraday credit. The wider collateral basis applies to the Discount Window Facility and extended regular long-term open market operations.

[3] Schweizerische Nationalbank.

[4] For regular open market operations, the collateral basis comprises securities denominated in Swedish kronor only. Sveriges Riksbank has decided that as of 1 January 2014, ABSs will no longer be eligible as collateral.

[5] Also includes government-guaranteed securities and securities issued by regional and local authorities.

[6] For covered bonds, the investor has priority claim in respect of an underlying cover pool of financial assets.

[7] At the BoE and Sveriges Riksbank, only government-guaranteed bank bonds are eligible as collateral.

[8] At the BoE, individual corporate bonds are *not* eligible as collateral; to be eligible, they must be part of a diversified portfolio of bonds issued by different firms.

number of terms and conditions determined by the ECB[1], cf. Box 3 outlining the Eurosystem collateral framework for credit claims.

As a temporary measure, the ECB's Governing Council decided in December 2011 to admit additional credit claims, subject to specific eligibility criteria approved by the ECB's Governing Council – criteria that may vary from one country to the next. In February 2012, the Governing Council approved the eligibility criteria of seven national central banks[2].

The ECB guidelines also apply to collateral for euro-denominated credit from Danmarks Nationalbank. It is up to Danmarks Nationalbank to determine the types of assets it will accept as collateral for euro-denominated credit, provided these assets comply with the ECB credit standards and the ECB's risk management framework. Danmarks Nationalbank does not accept credit claims as collateral for euro-denominated credit from Danmarks Nationalbank.

[1] Cf. Guideline of the ECB of 20 September 2011 on monetary policy instruments and procedures of the Eurosystem (ECB/2011/14), Annex I, Chapter 6 "Eligible assets", as amended by ECB/2012/25 of 26 November 2012.

[2] Central Bank of Ireland, Banco de España, Banque de France, Banca d'Italia, Central Bank of Cyprus, Oesterreichische Nationalbank and Banco de Portugal.

KEY ASPECTS OF CREDIT CLAIMS ELIGIBLE AS COLLATERAL IN THE EUROSYSTEM Box 3

The ECB has developed a single framework for credit claims eligible as collateral in the Eurosystem within which national central banks in the euro area may apply conditions for eligible credit claims. The overall rules are:

- The minimum size (threshold) of credit claims for cross-border use is 500,000 euro. National central banks may apply a minimum size of its own choice for domestic credit claims.
- Eligible debtors are public sector entities and non-financial corporations established in the euro area and international and supranational institutions.
- Credit claims must be denominated in euro.
- The credit claim and the agreement between the counterparty and the central bank mobilising the credit claim as collateral must be governed by the law of a member state.
- Credit claims must meet high credit standards.
- Four credit assessment methods may be applied: ratings from credit assessment institutions, in-house credit assessment systems in the national central banks, counterparties' internal ratings-based credit assessment systems, IRB, or third-party providers' rating tools, RTs. Performance monitoring of credit assessment systems must be conducted on an annual basis in accordance with ECB rules.
- Individual credit claims are subject to valuation haircuts. Haircuts differ according to residual maturity, type of interest payment (fixed/variable), credit quality category and valuation methodology applied. Haircuts may amount to up to 64.5 per cent for certain credit claims with a low credit rating.
- The counterparty must verify the existence of credit claims to the central bank providing the loan subject to specified rules. The national central bank, national supervisors or external auditors must verify the procedures used by the counterparty for verification of existence.
- Credit claims must not be subject to any restrictions on pledging and realisation, and all aspects necessary to ensure the right of collateral towards a third party in accordance with national rules must be observed.
- Eligible credit claims may be used in a cross-border context, and the debtor and creditor of the credit claim may be resident in different countries. For pledging of credit claims in the Eurosystem, the total number of different governing laws may not exceed two.

The administration of credit claims as collateral in the individual central banks in the euro area, including legal matters, varies and depends on the law of the member state in question. Accordingly, it may be very different from Danish law. The rules of individual central banks are listed on their websites.

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Liquidity Management in Connection with Settlement of Retail Payments

Majbrit Nygaard Christensen, Tommy Meng Gladov and Lars Egeberg Jensen, Payment Systems

INTRODUCTION

Every day, citizens and firms make numerous payments using the Dankort, Betalingsservice (direct debit) and online banking transfers. These types of payment are known as retail payments. To execute a retail payment, an amount must be transferred between the payer's and the payee's banks via the underlying payments infrastructure.

The Danish banks are in the process of modernising the payments infrastructure, cf. Box 1, with the purpose of reducing the time from a payment is executed until it is received by the payee. This requires extensive changes to the payments infrastructure. A new system, the Intradagclearing, enabling intraday payment settlement, will be introduced in the autumn. This requires the banks to manage their intraday

MODERNISATION OF THE PAYMENTS INFRASTRUCTURE — Box 1

The modernisation consists of four elements:

- Since May 2012, Dankort transactions made during the weekend have been settled during the night between Sunday and Monday – previously they were settled between Monday and Tuesday. In consequence, payments made during the weekend are credited to the retailers' accounts on Monday morning.
- In November 2012, improved opportunities for the banks to offer their customers and firms fast settlement of large payments via Danmarks Nationalbank's payment system, Kronos, were introduced. The banks have introduced a lower limit of kr. 1 million for transfers.
- As of November 2013, customers will be able to execute intraday credit transfers. The system designed to handle this, the Intradagclearing, was put into operation on 6 September in order to gain experience with the system.
- In the autumn of 2014, a new system, the Straksclearing, will be introduced for fast settlement of payments up to kr. 500,000 for 24 hours, seven days a week all year round. Such immediate transfers will be credited to the recipient's account a moment after they have been submitted.

[1] The modernisation is described in detail in *Danmarks Nationalbank* (2012).

liquidity more actively. The banks' liquidity management will be facilitated by the introduction of a number of new automated tools. It is essential that the banks carefully consider which liquidity management tools are the most appropriate. Used properly, liquidity management becomes safe and efficient and retail payments are settled on time. This article describes the new tools and how they can improve the liquidity management.

From the autumn of 2014 it will be possible to make immediate transfers around the clock with credit transfers of up to kr. 500,000 being received immediately by the payee. This will place additional requirements on the banks' liquidity management as their liquidity will no longer only be affected at predetermined settlement times but around the clock.

SETTLEMENT OF RETAIL PAYMENTS

In connection with the settlement of retail payments, payments are compiled on an ongoing basis, and the net position of each bank is calculated at predetermined settlement times. Based on this, the individual bank receives or pays an amount equal to the sum of payments to and from the bank's customers. Prior to the settlement the banks must reserve liquidity for this purpose. This is done by transferring liquidity to a settlement account at Danmarks Nationalbank on the basis of which net positions are exchanged. Once a settlement has been executed, the balance of the settlement account will automatically be released and be at the disposal of the bank.

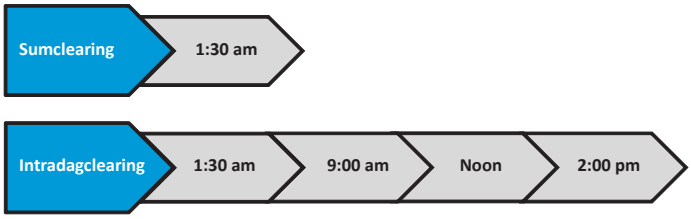
The reserved liquidity must cover the value of the net position. If a bank fails to reserve sufficient liquidity for the settlement, its payments will not be executed until a later settlement cycle. The payments in question are postponed and new net positions are calculated for the other banks. This means that the net positions of the other banks will be affected. There is a risk that the liquidity reserved by the banks does not cover the new net positions, entailing that their payments are not executed in due time.

Sumclearing and Intradagclearing

The system that previously handled all retail payments is called the Sumclearing. The banks' net positions are exchanged during the night in the Sumclearing.

Since 6 September 2013, retail payments have been settled using two systems: the Sumclearing and a new system, the Intradagclearing. Under the new system, payments are settled in three daytime settlement cycles and one night-time cycle simultaneously with the Sumclearing, cf. Chart

SETTLEMENT CYCLES Chart 1



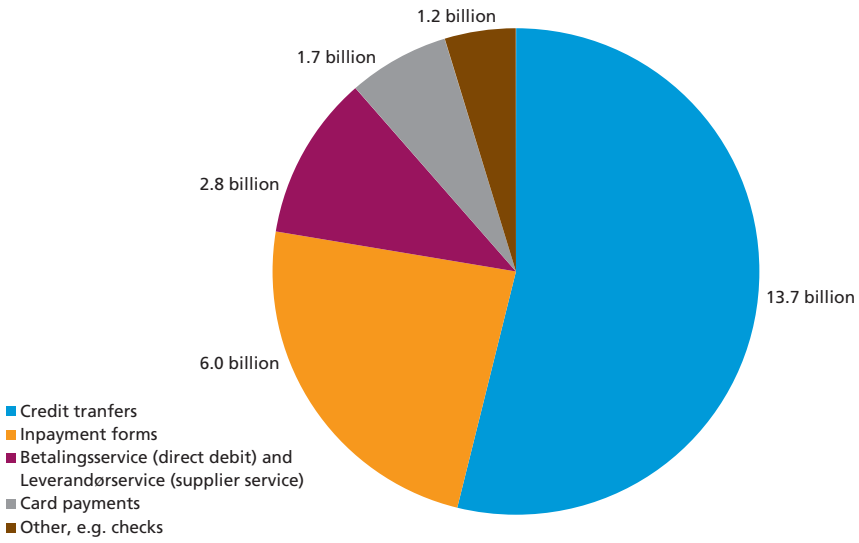
Note: Dankort payments made during the weekend are settled separately on Monday morning at 6:00 a.m.

1. The Intradagclearing is based on international standards of payment messages, which contribute to preparing the infrastructure for the future.

The Intradagclearing makes it possible to make credit transfers that are received by the payee on the same banking day. Until now, the amount has typically been deposited to the payee's account the next banking day.

Only credit transfers have been transferred from the Sumclearing to the Intradagclearing, cf. Danmarks Nationalbank (2012). The daily value of these transfers totals approximately kr. 13.7 billion, cf. Chart 2, entailing that more than half the total value of retail payments has been transferred.

PAYMENTS IN THE SUMCLEARING BROKEN DOWN BY TYPE, AVERAGE DAILY VALUE, 1ST QUARTER 2013 Chart 2



Source: Nets and Danish Bankers Association.

In principle, the infrastructure makes it possible to transfer all types of retail payments from the Sumclearing to the Intradagclearing.

LIQUIDITY MANAGEMENT

The banks hold liquidity in their primary accounts, also called current accounts, at Danmarks Nationalbank. The current account balance is impacted by e.g. deposit and lending transactions, foreign-exchange and securities transactions as well as retail payments. The banks must ensure that they always have sufficient liquidity to execute their payments and consider how to allocate their liquidity during the day. To facilitate the settlement of payments Danmarks Nationalbank grants credits to the banks within the monetary-policy day, which runs from 4:00 p.m. to 3:30 p.m. on the next banking day. Credit is granted in the form of an overdraft on the bank's current account against securities or certificates of deposit as collateral. The current account balance plus the bank's maximum overdraft facility equals the liquidity available to the bank. At the end of the monetary-policy day, i.e. at 3.30 p.m., the banks may not have current account overdrafts. If they have insufficient liquidity, they have to borrow in the money market.

Previous liquidity management tools

As a general rule, the banks only reserved liquidity once a day prior to the night-time settlement of retail payments in the Sumclearing. At the time of reservation they did not know the size of their net positions and, consequently, reserved considerably more liquidity than needed. Until 6 September 2013, it was possible to reserve liquidity for the settlement in three ways: *standing order*, *manual transfer* and *reservation under the automatic collateralisation arrangement*. The reserved liquidity is transferred to the banks' settlement accounts at Danmarks Nationalbank.

- *Standing order.* A fixed amount is automatically transferred from the current account to the settlement account, enabling the bank to transfer liquidity without using manual procedures. The size of the *standing order* can be adjusted and is typically sufficiently large to cover the liquidity needed for the settlement. The order must not exceed the bank's available liquidity. In the case of insufficient available liquidity, the *standing order* is not executed.
- *Manual transfer.* Amounts are transferred manually from the current account to the settlement account. *Manual transfer* is typically used in connection with the transfer of additional liquidity during peak periods when the banks expect large negative net positions. In principle, *manual*

AUTOMATIC COLLATERALISATION ARRANGEMENT Box 2

The automatic collateralisation arrangement is used to pledge collateral for loans from Danmarks Nationalbank. The loans can be used to settle payments in connection with securities transactions and periodic payments in the VP settlement, foreign-exchange transactions in the CLS settlement and retail payments in the Sumclearing and the Intradagclearing. A bank wishing to use the automatic collateralisation arrangement must have an automatic collateralisation agreement with Danmarks Nationalbank and open an automatic collateralisation account in Danish kroner.

The bank pledges securities in one or several designated securities accounts with VP Securities, typically trading accounts, as collateral. Unlike traditional pledging of collateral to Danmarks Nationalbank, the automatic collateralisation arrangement does not bind specific assets in a collateral custody account. Under the automatic collateralisation arrangement a share of the value of the bank's securities corresponding to the credit amount is pledged as collateral to Danmarks Nationalbank. Basically, Danmarks Nationalbank accepts the same securities as in the case of traditional collateral. The securities in the collateral custody account are at the disposal of the bank as long as the value of the account exceeds the total credit under the automatic collateralisation arrangement.

Credit under the automatic collateralisation arrangement must be covered by 3:00 p.m. at the latest. Where possible, any outstanding credit at 3:00 p.m. will automatically be covered via the current account balance. In the event of insufficient cover in the bank's current account, securities with a total collateral value matching the value of the outstanding credit with Danmarks National will be transferred.

A bill to expand the possible use of the automatic collateralisation arrangement has been prepared. The legislative change will enable the banks to use the automatic collateralisation arrangement to pledge collateral for all types of credit within the monetary-policy day. This will enable the banks to use the automatic collateralisation arrangement for all their daily payments.

transfer may be used for the daily reservation, but the manual procedure increases the risk of errors.

- *Reservation under the automatic collateralisation arrangement*. A fixed amount is transferred to the settlement account under the automatic collateralisation arrangement, which is described in detail in Box 2. Typically, the automatic collateralisation arrangement makes it possible to reserve large amounts of liquidity, reducing the risk of insufficient liquidity for the settlement. The reservation is made automatically, which minimises the risk of manual errors.

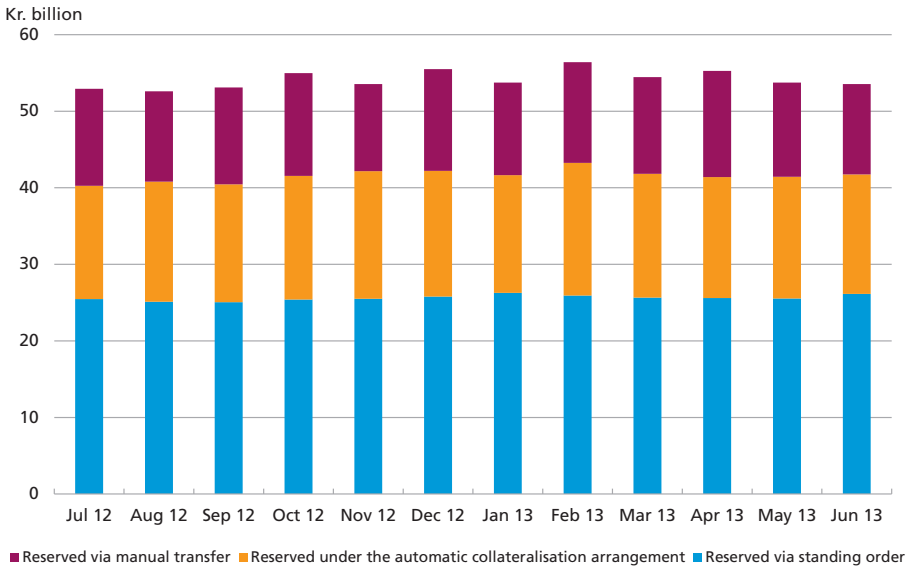
Use of previous liquidity management tools

In August 2013, 55 banks were direct participants in the Sumclearing. Moreover, a number of banks were indirect participants via other banks.

Until 6 September 2013, the majority of the banks reserved liquidity via *standing order*. Some either used the *reservation under the automatic*

THE BANKS' RESERVATIONS FOR THE SUMCLEARING, AVERAGE DAILY VALUE

Chart 3



Source: Danmarks Nationalbank.

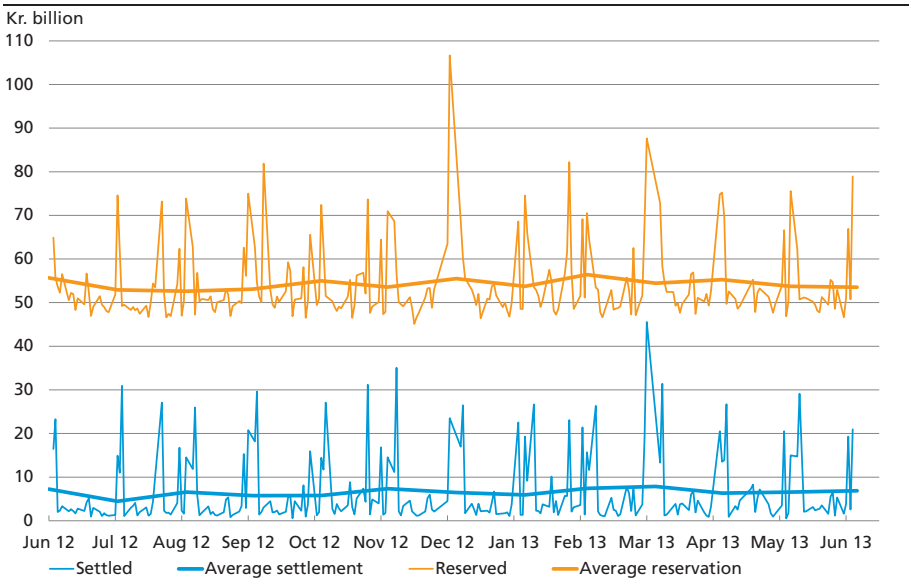
collateralisation arrangement or the manual transfer options, while only few used a combination of the three options. On an average day, 48 banks used standing order, 10 used reservation under the automatic collateralisation arrangement and 5 used manual transfer.

Measured by value, *standing order* accounted for the majority of reservations, cf. Chart 3. The value of reservations via *standing order* was stable at kr. 25.6 billion on a daily basis, corresponding to slightly less than 50 per cent of total reservations. On average, the value of *reservation under the automatic collateralisation arrangement* totalled kr. 15.9 billion on a daily basis, corresponding to approximately 30 per cent of total reservations. Accounting for an average of kr. 12.6 billion of daily reservations, the value of *manual transfer* made up the smallest share. The value of *manual transfer* varies on a daily basis due to day-to-day fluctuations in the liquidity need.

Typically, the banks reserved ample liquidity for the settlements, cf. Chart 4. The amounts settled vary strongly. On days with major government payments, such as municipal block grants, or corporate tax and VAT payments, large amounts are settled in the Sumclearing. Reservations for settlements vary accordingly because the banks take known payments into account. Daily settlements have averaged kr. 6.5 billion in the past year, while daily reservations have averaged kr. 54.1 billion.

RESERVATION AND SETTLEMENT IN THE SUMCLEARING, DAILY OBSERVATIONS AND AVERAGE DAILY VALUE

Chart 4



Source: Danmarks Nationalbank.

Although the banks in total have reserved sufficient liquidity for the settlements, payments were delayed on nine days in 2012 due to insufficient reservations by some banks.

New liquidity management tools

A number of new liquidity management tools have been introduced in the modernised payments infrastructure. If applied appropriately, they will mitigate the risk of delayed execution of retail payments.

Under the new setup, the banks receive a forecast of their expected net positions in the next settlement cycle. The forecast is calculated by the operator of the system, Nets, and makes it easier to predict the liquidity requirement. Moreover, the banks can include a buffer in the liquidity reservation, also called *coverage,* which can be used to meet unexpected liquidity requirements.

In addition, several new liquidity reservation options for the settlement cycles have been introduced. These are automated methods aimed to ease the banks' work procedures and are called *direct debit automatic collateralisation*, *direct debit current account* and *mest muligt (maximum liquidity)*. The banks may still use *standing order* and *manual transfer*. *Reservation under the automatic collateralisation arrangement* is replaced by *direct debit automatic collateralisation*.

The new tools and their possible applications and advantages are described below.

- *Direct debit automatic collateralisation.* The banks can raise liquidity automatically by obtaining credit under the automatic collateralisation arrangement. The borrowed amount matches the received forecast plus the selected coverage. In consequence, the automatic collateralisation arrangement has become more efficient than previously when the banks themselves determined the size of the reservation.
- *Direct debit current account.* Danmarks Nationalbank can automatically transfer an amount matching the received forecast plus the selected coverage from a bank's current account to its settlement account. The banks' total available liquidity may be used. This is mandatory for all banks and is solely used for daytime settlements during the opening hours of Danmarks Nationalbank's payment system, Kronos.
- *Mest muligt (maximum liquidity).* The banks can make their available liquidity disposable for night-time settlement. The liquidity is transferred from a bank's current account to its settlement account. As the banks cannot use any excess liquidity for other purposes during the night-time they will benefit from using *mest muligt (maximum liquidity)*.
- *Coverage.* The banks may fix a buffer beforehand, which is automatically added to the forecast in connection with reservation via *direct debit automatic collateralisation* or *direct debit current account*. The banks themselves choose the size of the buffer, which is the same for all settlements around the clock. Banks with a payment obligation according to the forecast reserve liquidity corresponding to the forecast plus the selected *coverage*. Banks set to receive liquidity according to the forecast reserve liquidity corresponding to the difference between the *coverage* and the forecast to ensure that the bank has the desired buffer for the settlement.

The liquidity management tools make it possible to cover various banks' needs, e.g. the automatic collateralisation arrangement is mainly relevant to banks with a certain holding of securities. Moreover, the tools are adjusted to the banks' need for liquidity management during the daytime and night-time. During the night-time, the banks can only use liquidity for settlements while during the daytime they need liquidity for other purposes.

Use of new liquidity management tools

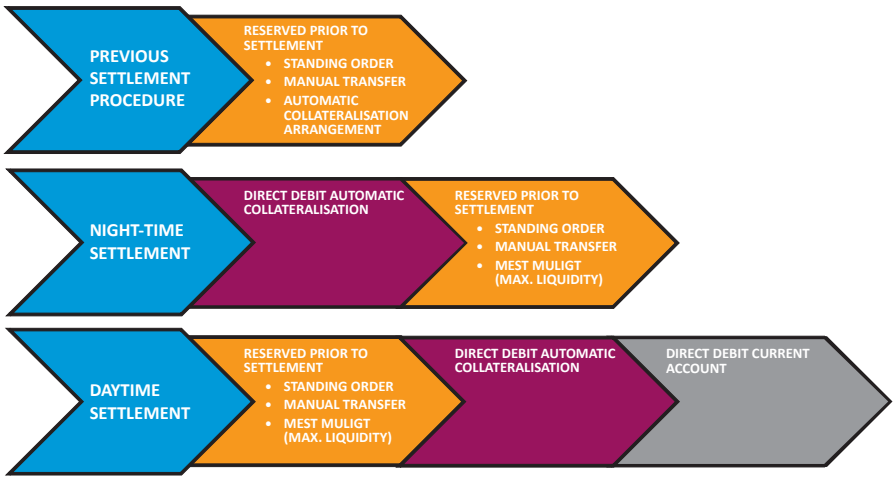
The liquidity management tools may be applied differently during the night-time and daytime. Chart 5 shows an overview of the liquidity reservation options and their sequence.

During the daytime, the banks can transfer liquidity to their settlement accounts using *standing order* and *manual transfer*. In the case of banks using the automatic collateralisation arrangement, liquidity is automatically transferred for the settlement via *direct debit automatic collateralisation* if the liquidity in the settlement account does not match the forecast plus the selected *coverage*. By using the automatic collateralisation arrangement the banks can avoid the manual procedures of *standing order* and *manual transfer*.

Direct debit current account is only used during the daytime when liquidity can be transferred from the banks' current accounts. This is mandatory for all banks and is used if the deposit in the settlement account and the drawings under the automatic collateralisation arrangement are lower than the forecast plus the selected *coverage*. If the missing liquidity is not obtained in this way, the bank does not have the sufficient liquidity.

For night-time settlements, the banks can transfer liquidity to their settlement accounts using *standing order, manual transfer* and *mest muligt (maximum liquidity)*. *Mest muligt (maximum liquidity)* is only an option for night-time settlement because it will bind the banks' total available liquidity to the settlement.

SEQUENCE OF RESERVATIONS — Chart 5



Note: The chart shows previous and present opportunities for liquidity reservation for retail payment settlements and their sequence in the various settlement cycles.
Source: Danmarks Nationalbank.

During night-time settlement, *direct debit automatic collateralisation* is used before the liquidity reserved in advance. The selected sequence ensures maximum liquidity for the night-time settlement.

NEW CHALLENGES

The changed payments infrastructure will entail new challenges for the banks in their liquidity management due mainly to a higher number of daily settlements and a settlement cycle close to the end of the monetary-policy day. In consequence, the banks will have to manage and monitor their liquidity more actively and tackle the challenges by making use of the new liquidity management tools.

More daily settlements

Daytime settlements require continuous liquidity management. Until November 2013, retail payments are settled during the night-time or, in rare cases, during extra daytime settlements. Until then, the liquidity required for retail payments will be limited during the daytime.

Under the modernised infrastructure, the banks must have sufficient liquidity during the daytime for the settlement of retail payments, foreign-exchange and securities transactions and other interbank transactions. Therefore, the banks have to decide actively which liquidity management tools are the most appropriate and ensure sufficient liquidity on an ongoing basis.

Banks using the automatic collateralisation arrangement should use *direct debit automatic collateralisation* for the settlement of retail payments because this option typically enables reservation of considerable liquidity for the settlement.

During the daytime, the mandatory *direct debit current account* contributes to minimising the risk of delayed retail payment settlements. The banks must be aware that if the current account liquidity is automatically used for the settlement of retail payments, it is not available for other purposes. For banks that do not wish to impact their current account liquidity, the automatic collateralisation arrangement presents an advantage, as *direct debit automatic collateralisation* is used before *direct debit current account*.

The end of the monetary-policy day

The last daytime settlement cycle in the Intradagclearing is at 2:00 p.m., which is fairly close to the end of the monetary-policy day at 3:30 p.m. This entails a substantially shorter interval between the last daytime settlement cycle and the end of the monetary-policy day. The banks

receive forecasts of the liquidity required for the settlement and can prepare for the ending of the day. However, they do not know their final liquidity requirement until after the settlement and consequently may experience time constraints when raising liquidity in the market to cover any credit obtained from Danmarks Nationalbank prior to the end of the monetary-policy day.

The banks can affect the liquidity requirement for the settlements by limiting the value of customer transactions. Moreover, the banks may encourage corporate customers to make transfers via Danmarks Nationalbank to ensure that the amounts are entered promptly and do not have to wait for the next settlement of retail payments.

Unexpected liquidity requirement

Forecasts of the expected liquidity requirement are only correct if all banks have reserved sufficient liquidity. If one or more banks fail to do so, their payments will be postponed to a later settlement cycle and new net positions will be calculated for the other banks. Since the new net positions will not match the forecast, there is a risk that more banks have reserved insufficient liquidity.

Several of the new liquidity management tools can be used to minimise the risk of payment delay resulting from an unexpected liquidity requirement. The tools enable the reservation of liquidity in excess of the forecast.

Coverage is used to cover any gaps between the forecast and the actual liquidity requirement. The size of the *coverage* determines how well protected the bank is, cf. Box 3. Omission to use *coverage* may entail that one bank's insufficient reservation delays the majority of the other banks' payments. The greater the banks' *coverage*, the lower the risk of the banks being impacted by the insufficient reservation of one bank. However, a large *coverage* does not guarantee that payments are executed in due time in a situation where the bank with the largest payment obligation has not reserved sufficient liquidity. This emphasises the importance of all banks monitoring their reservation of liquidity for the settlement of retail payments on an ongoing basis.

Using the *mest muligt (maximum liquidity)* option will typically enable the banks to ensure considerable liquidity for the night-time settlement in the Sumclearing and the Intradagclearing, where the major share of the settlement is expected to be executed. As in the case of *coverage*, the risk of payments being delayed due to unexpected liquidity requirements is minimised.

All banks should use *mest muligt (maximum liquidity)* combined with adequate *coverage,* which can be determined with due respect to the average and maximum payment obligation of the bank.

COVERAGE Box 3

The significance of coverage to the settlement of retail payments has been analysed based on 246 days' settlements in the Sumclearing in the period 1 July 2012 to 30 June 2013.

It is assumed that the banks reserve amounts matching their negative net positions plus coverage. If the net position is positive, kr. 0 is reserved. It is also assumed that one bank has not reserved sufficient liquidity.

The table shows the effects if the bank with the largest, median and smallest payment obligation does not reserve sufficient liquidity and the number of days by which execution of the other banks' payments is delayed due to the insufficient reservation. The table also shows how many of the 55 participating banks that, in the worst case, are impacted on the relevant days. The effects are calculated for various levels of coverage

No coverage

If coverage is not used, execution of the other banks' payments will be delayed on almost all days. Irrespective of whether the removed bank has the largest or the smallest payment obligation, the majority of the banks will, in the worst case, be affected by the insufficient reservation.

Coverage

If the bank with the smallest payment obligation fails to reserve sufficient liquidity, coverage of 5 per cent will, on most days, ensure that settlement is executed for the other banks. With coverage of 25 per cent, settlement will be executed as planned on most days, even in a situation where the bank with the median obligation is removed from the settlement.

It is also seen that the maximum number of banks affected by insufficient reservation declines as coverage increases. Coverage of 25 per cent has a positive impact on the settlement but it will still have major implications if the bank with the largest payment obligation fails to reserve sufficient liquidity.

EFFECT OF COVERAGE

	No. of days			Largest no. of banks		
	Largest payer	Median payer	Smallest payer	Largest payer	Median payer	Smallest payer
Coverage						
0 per cent	246	243	235	46	46	45
5 per cent	246	154	7	42	30	17
25 per cent	244	67	0	33	14	0

Source: Danmarks Nationalbank, own calculations.

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Current Trends in the Faroese Economy

Morten Hedegaard Rasmussen, Economics

The Faroese economy has been stagnant for the last couple of years, with growth in the nominal gross domestic product, GDP, more or less matching consumer price inflation in 2011 and 2012.[1]

The Faroese economy is heavily dependent on fisheries and aquaculture. Export values for mackerel and salmon continued to develop favourably in 2012. At the aggregate level, this more than made up for the further decline in the traditional demersal fishing sector, where many fishermen are financially squeezed.

Households have consolidated and seem to be influenced by great uncertainty. This has dampened private consumption and hence also certain derived investments. However, imports, excluding ships and aircraft, rose substantially in 2012, mainly driven by imports for the corporate sector. Exports also rose, but to a lesser extent. As a result, the trade surplus in 2011 turned into a deficit in 2012.

Unemployment has declined in recent years, without an equivalent increase in employment. This reflects net emigration as well as an increase in the number of people living in the Faroe Islands but working abroad.

Consumer prices were 0.3 per cent lower in the 2nd quarter of 2013 than one year earlier. The fall is mainly attributable to lower energy and transport prices and housing-related expenses.

National accounts

Nominal GDP rose by 1.9 per cent in 2012, following an increase of 2.4 per cent the year before. In both years, growth in nominal GDP was very close to the annual rate of consumer price inflation.

Thus, activity seems to have been stagnant over the last couple of years. However, this comes after a considerable increase in nominal GDP in 2010, cf. Table 1, primarily on account of favourable fish prices. Moreover, during the downturn in 2008-09, the Faroe Islands were less severely affected than most other western economies. Nominal GDP was

[1] A limited range of statistics makes it difficult to assess the cyclical position of the Faroese economy. For example, GDP is compiled on a nominal annual basis only and with a considerable lag. However, the Faroese statistical agency, Hagstova Føroya, is planning to publish real national accounts in a few years.

FACTS ABOUT THE FAROE ISLANDS

Population (beginning of 2013)	48,197
of which in Tórshavn	19,827
of which 18-66 years	29,161
Waged employment (full time, annual average, 2012)	23,684
Unemployment (full time, annual average, 2012)	1,490
Gross domestic product per capita, 2012 (kr. 1.000)[1]	280
Gross national disposable income per capita, 2011 (kr. 1.000)[1]	299

Source: Hagstova Føroya.
[1] By comparison, GDP per capita in Denmark was kr. 326,000 in 2012, and gross national disposable income per capita was kr. 323,000 in 2011.

just under 9 per cent higher in 2012 than in 2007. In the same period, consumer prices rose by just over 10 per cent.

Recent years' increase in nominal GDP has been driven by exports of fish. Domestic demand has been weak, with subdued growth in public consumption and gross investments, which remain below the level in 2006-07, albeit with large fluctuations from year to year. Private consumption fell in 2008-10, but picked up again in 2011.

Households

Households remain hesitant to spend, which dampens private demand. Consumption as a ratio of disposable income dropped from almost 98 per cent in 2007 to just under 85 per cent two years later. Since then the consumption ratio has risen only slightly, and in 2012 it was almost 5 percentage points below the average for the last 15 years. The easing of

NATIONAL ACCOUNTS, NOMINAL GROWTH RATES — Table 1

Per cent, year-on-year	(Share of GDP, 2011)	2007	2008	2009	2010	2011	2012
Private consumption	(55.4)	5.8	-0.2	-1.4	-1.6	8.2	n.a.
Public consumption	(31.5)	8.2	10.5	1.8	3.7	1.9	n.a.
Total gross investment	(18.4)	28.4	-34.6	-17.4	20.7	-4.1	n.a.
Exports of goods and services	(49.1)	6.5	7.8	-11.0	15.2	12.9	n.a.
Final consumption equal to total addition	(154.4)	10.3	-3.0	-5.7	6.8	6.6	n.a.
Imports of goods and services	(54.4)	18.7	-6.8	-13.2	6.6	15.4	n.a.
Gross domestic product	(100.0)	5.9	-0.8	-1.7	7.0	2.4	1.9
Gross national income	(104.9)	5.7	-2.9	-3.6	11.2	3.7	n.a.
Gross national disposable income	(113.2)	7.3	-5.1	-3.3	11.0	5.4	n.a.
Memo: Consumer prices		3.6	6.3	-1.0	0.4	2.3	2.2

Note: The gross national product is GDP plus wage and investment income, net. The gross national disposable income is the gross national income plus transfers from abroad, net.
Source: Hagstova Føroya.

central government tax on incomes, which took effect in January 2012, seems to have had little impact on consumption.

VAT payments indicate that private consumption grew somewhat in the 1st half of 2013.

While overall private consumption has shown a weak trend, sales of passenger cars, measured by import value, have risen notably since the spring of 2009, but from a very low level. The import value of passenger cars now exceeds the average since 2000.

Consumer confidence is measured biannually and was marginally positive in both January and June 2013, at the highest level since June 2007. The reasons for this improvement are that consumers assessed their situation to be better than it was 12 months earlier, and that they took a more optimistic view of the future. This applied to both their own finances and the Faroese economy.

House price statistics fluctuate from one quarter to the next, but generally prices have been constant in recent years, following a decline of some 20 per cent in the period 2007-09. Prices are now back at the level from 2006, when they had already started the strong increase that continued until mid-2007. House sales have risen substantially since mid-2009, and in 2012 they were more than one third above the average since 1985.

The labour market

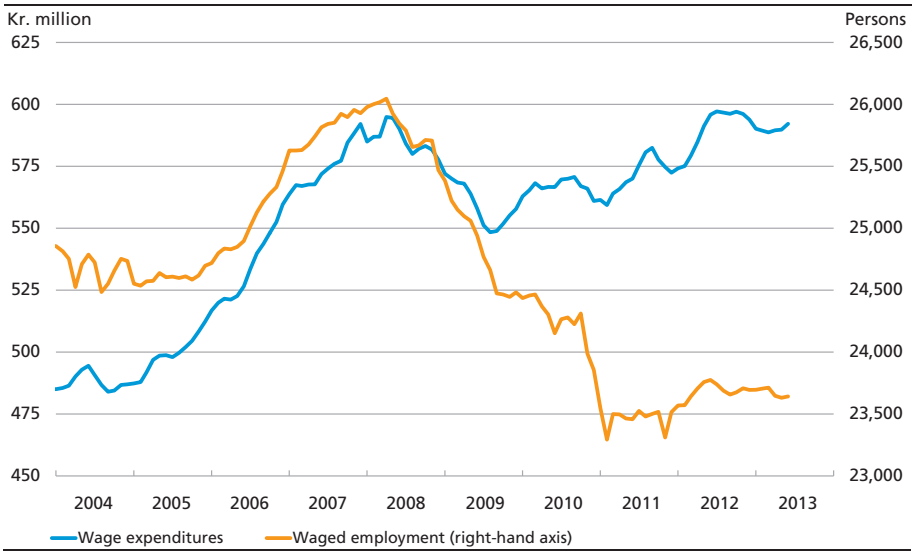
Employment, measured by the seasonally adjusted number of wage earners, rose in the 1st half of 2012 and has been virtually unchanged since then, cf. Chart 1. Only a very small part of the strong fall in 2008-10 has been made up for, and employment remains well below the level from before the surge in 2006-08.

Broken down by sector, the number of employees within fish processing increased in 2012, cf. Chart 2. This is partly because catches of mackerel and herring have increased, but it should also be noted that the largest company in the Faroe Islands, Faroe Seafood, went into liquidation in December 2010. 800 employees at the company's fish-processing plants and on its ships lost their jobs in that connection. Since then, parts of the company have been sold, but production has been resumed only to a minor extent.

Aquaculture has developed very favourably in recent years. This has boosted employment, but since this sector is not very labour-intensive, it has had only a limited effect on overall employment.

The number of employees in the private service sectors stabilised in the latter part of 2012, having declined in the preceding years. In the first months of 2013, year-on-year employment rose. The decline in 2012

WAGE EXPENDITURES AND WAGED EMPLOYMENT — Chart 1



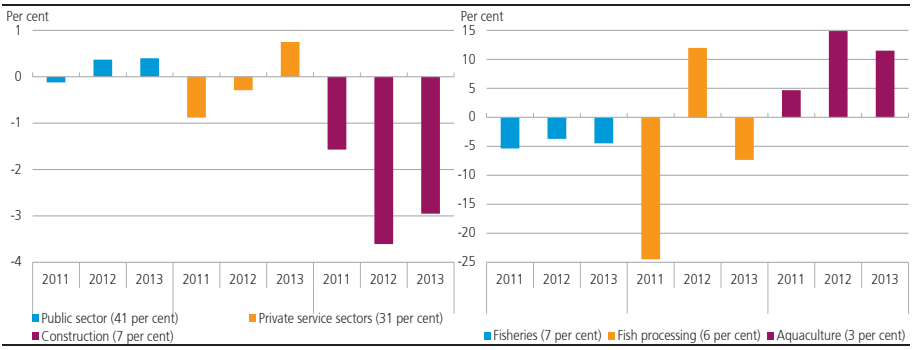
Note: Seasonally adjusted monthly data. 3-month moving averages for wage expenditures. The most recent observation is from June 2013 for waged employment and July 2013 for wage expenditures.
Source: Hagstova Føroya.

was mainly seen in the communications and finance sectors, while hotels and other transport than sea freight showed a positive trend.

Public-sector employment has been more or less constant since early 2009, accounting for over 40 per cent of total waged employment in the Faroe Islands in 2012.

Waged employment in the building and construction sector continued to decrease in 2012. However, after a strong fall from mid-2008 until early 2010, the decline has been moderate. Data for the first months of 2013 do not indicate that the curve has bottomed out yet. Employment

CHANGES IN WAGED EMPLOYMENT IN SELECTED SECTORS — Chart 2



Note: Data for 2013 shows the change in the period January-June 2013 in relation to the same period of 2012. Figures in brackets in the legend indicate the sectors' shares of total waged employment in 2012.
Source: Hagstova Føroya.

is now at the same level as in 2002, i.e. before the boom with soaring house prices began in the Faroe Islands.

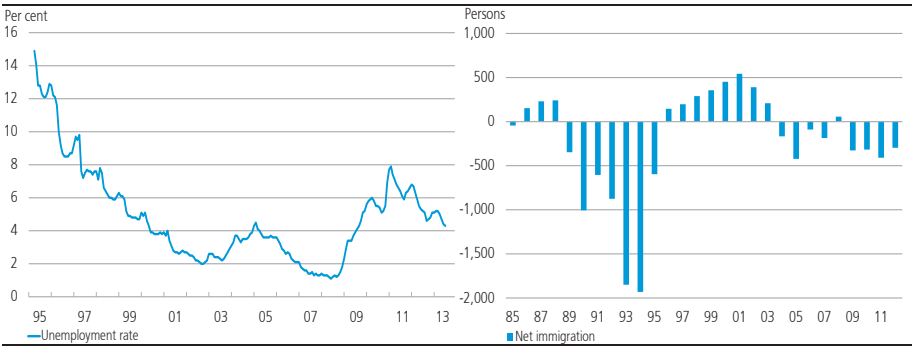
In step with the slowdown in construction activity in the Faroe Islands, a considerable number of Faroese craftsmen have found employment abroad, especially in Norway. As such, it is positive that the qualifications of Faroese craftsmen are in demand abroad and that labour is highly mobile. But the large number of Faroese people working abroad should also be seen in the light of the very favourable Faroese tax allowances for this group.

However, in the Faroe Islands there is a shortage of certain types of labour, e.g. electricians, and there are indications of bottlenecks. This entails a risk that neither small nor large construction and maintenance projects can be commenced as the necessary labour for parts of the project is not available or would be very expensive. This may result in the cancellation of otherwise profitable construction investments or in excessive wage increases. With a continued shortage of labour within certain areas, large projects – including in the public sector – could put the economy under unnecessary pressure. If the shortage of labour continues for some years, this could also eventually lead to a structural problem as there will be very few skilled craftsmen left in the Faroe Islands to train new generations.

Unemployment in the Faroe Islands has decreased since early 2011, standing at 4.3 per cent of the labour force in July 2013, cf. Chart 3 (left). The fall in unemployment exceeds the rise in the number of wage earners. This should be viewed in the context of recent years' rise in the number of people living in the Faroe Islands but working abroad.

There is a clear tendency for rising unemployment in the Faroe Islands to lead to higher net emigration. This has also been the case in recent years, although the trend is far less pronounced than in the first half of

UNEMPLOYMENT AND NET IMMIGRATION Chart 3



Note: Seasonally adjusted monthly data for the unemployment rate; the most recent observation is from July 2013.
Source: Hagstova Føroya.

the 1990s, cf. Chart 3 (right). Recent years' net emigration has been of a sufficient magnitude to mask a demographic change whereby the number of people of working age has increased a little. Over the last decade, the number of people aged 18-66 has been more or less constant at around 29,000.

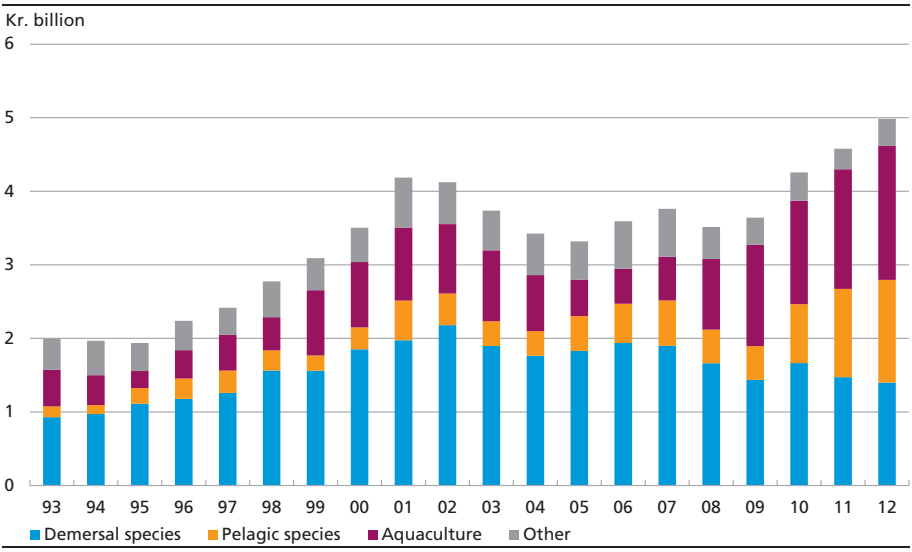
The Faroese labour force could potentially increase if those who have emigrated return, or if Faroese people working abroad seek employment at home. This could ease pressures on the labour market if the economy starts booming.

Fisheries and aquaculture

In 2012, fish accounted for around one seventh of total gross value added in the Faroe Islands and just below 95 per cent of exports of goods. This means that the Faroese economy is highly dependent on developments in the fisheries and aquaculture sectors.

Both fish prices and catch volumes may fluctuate considerably over time, which makes the overall economy vulnerable. However, the risk has been reduced by increasingly spreading earnings on different species, cf. Chart 4. Furthermore, the Faroe Islands have swapped fishing rights with a number of countries, thereby making the economy more resilient to temporary declines in stocks in Faroese waters.

VALUE OF FISH EXPORTS — Chart 4



Note: Pelagic species live in open waters, not near the seabed or in coastal waters. These species are mackerel, herring, whiting, capelin and sprat, among others. Demersal species include cod, saithe and haddock. Aquaculture comprises salmon and trout. Other is shellfish, etc.

Source: Hagstova Føroya.

Traditional local demersal fishing is financially weak. Catches of cod and haddock in Faroese waters are very low, and according to the Faroe Marine Research Institute the outlook for the coming years is not good. The low catches are presumably attributable to overfishing. Moreover, prices in the European market have fallen as catches in the Barents Sea have risen. At the same time, oil prices have been high, which has pushed up costs in a sector that was already financially squeezed.

Aquaculture has been a success in recent years. Earnings have been extraordinarily high since 2009, and in 2012 salmon accounted for 37 per cent of the total export value of fish. Prices have been favourable and are somewhat higher than production costs. Moreover, the volume of slaughtered fish has increased substantially, to almost 63,000 tonnes in 2012, which was about 25 per cent higher than in 2011. This year's volume is expected to be more or less in line with last year's. This is assessed to be close to the capacity limit if disease epidemics and resultant high costs are to be avoided. However, pilot projects are being conducted to move aquaculture further out into the fjords and also into the open sea. If this proves to be profitable, production could be increased substantially in the long run.

Pelagic fishing around the Faroe Islands, i.e. mainly for herring and mackerel, has risen strongly since 2010. This is mainly attributable to mackerel, for which the Faroe Islands have fixed their own quota since 2010 following fruitless negotiations with Norway, Iceland and the EU on a new distribution of the aggregate quota. In 2012, the Faroese government autonomously fixed the Faroese quota at just under 150,000 tonnes. Part of it was swapped with Russia and Iceland in return for fishing rights in their waters. 134,000 tonnes were allocated to Faroese vessels, which only caught just over 100,000 tonnes, however. In 2013, Faroese vessels have been allowed to catch 144,000 tonnes, compared with approximately 30,000 tonnes under the old international agreements.

In 2013, the Faroe Islands have also fixed their own quota for Atlanto-Scandian herring at 105,000 tonnes. This is more than three times the volume allocated under the previous years' agreements with Norway, Iceland, the EU and Russia.

In the assessment of the International Council for the Exploration of the Sea, ICES, the mackerel quotas fixed individually by the Faroe Islands, Norway, Iceland and the EU will result in overfishing, as will the individually fixed Faroese herring quota.

The Faroese argument for autonomously fixing considerably higher mackerel and herring quotas than those previously agreed is that

migration patterns have changed so that herring and mackerel stocks in Faroese waters are now substantially larger than when the old quotas were fixed. If the quotas are fully exploited, the contribution to the Faroese economy will be considerable, although the price level is also a key factor.

However, the disagreement on the herring and mackerel quotas means that no new agreements for other species have been concluded with Norway and the EU. Consequently, Faroese vessels are banned from fishing in the Norwegian part of the Barents Sea and from catching herring in Norwegian and EU waters. This has a negative impact on earnings in the Faroese fisheries sector.

In late August, the EU introduced trade sanctions against the Faroe Islands in response to the unilaterally fixed Faroese herring quota. The sanctions imply an EU-wide ban on imports and transit of herring and mackerel from the Faroe Islands. Furthermore, Faroese vessels catching herring and mackerel, as well as vessels catching Faroese herring and mackerel under Faroese fishing licences, may not call at EU ports.

These sanctions may have negative consequences as the European market is important. In 2012, exports of herring and mackerel to the EU accounted for some 10 per cent of total Faroese exports. However, the industry believes that markets outside the EU are sizeable too. In that case, the economic implications will depend on whether the Faroe Islands succeed in exploiting the quotas, accessing non-EU markets and obtaining reasonable prices.

The financial sector

Lending by Faroese banks to households in the Faroe Islands has been more or less constant over the last couple of years, while corporate lending has declined. At end-July 2013, lending to households and the corporate sector accounted for approximately 50 and almost 40 per cent of GDP, respectively.

The development in bank lending should be viewed in the context of the far too easy credit conditions in the period leading up the crisis, one result of which was the winding-up of Eik Bank. According to the banks, demand for credit is also low among both households and firms, reflecting how demand for loans typically fluctuates with the business cycle.

At end-2012, the balance sheet of Faroese banks totalled approximately 210 per cent of GDP, some of which relates to lending activity in Denmark and Greenland. In the event of problems in the banking sector, the losses could be so large that the Faroese government would be unable to handle them.

TRADE BALANCE AND BALANCE OF PAYMENTS — Table 2

Kr. million	2010	2011	2012
Exports	4,697	5,407	5,493
Exports, excluding ships and aircraft	4,480	4,778	5,187
Imports	4,370	5,279	6,660
Imports, excluding ships and aircraft	4,116	4,556	5,332
Trade balance	327	128	-1,167
Trade balance, excluding ships and aircraft	364	222	-145
Balance of payments	811	1,043	n.a.

Source: Hagstova Føroya.

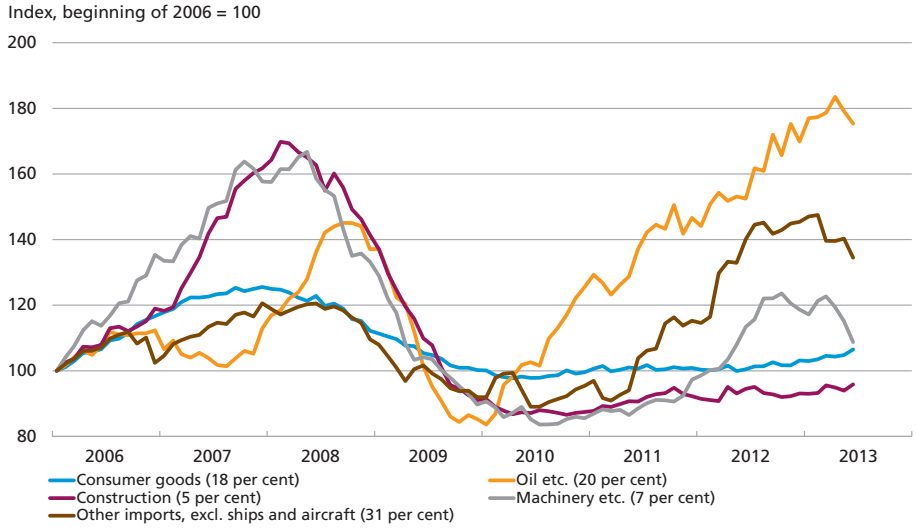
Foreign trade

The balance of trade, excluding ships and aircraft, showed a deficit of kr. 145 million in 2012, corresponding to 1.1 per cent of GDP. If ships and aircraft are included, extraordinarily large purchases increased the trade deficit to kr. 1,167 million, cf. Table 2, corresponding to 8.6 per cent of GDP.

In value terms, exports, excluding ships and aircraft, grew by 9 per cent from 2011 to 2012, primarily as a result of further increases in exports of salmon and mackerel.

The value of imports, excluding ships and aircraft, rose by 17 per cent from 2011 to 2012. The increase was mainly driven by higher imports for the corporate sector, cf. Chart 5, but rising oil prices also played a role.

VALUE OF IMPORTS, EXCLUDING SHIPS AND AIRCRAFT, BROKEN DOWN BY SUBCOMPONENTS — Chart 5



Note: Sum of last 12 months converted into indices. The most recent observations are July 2012-June 2013. Figures in brackets indicate percentages of total imports in 2012. In 2012, aircraft and ships accounted for 20 per cent of the total import value, which is extraordinarily high.

Source: Hagstova Føroya.

Fuel constitutes a considerable share of Faroese imports as the fishing fleet is very energy-intensive and oil is a major source of heating for homes. Imports of household consumer goods rose only slightly. Preliminary data shows that both exports and imports, excluding aircraft and ships, were higher in the 1st half of 2013 than in the same period of 2012.

The current account for 2012 has not been compiled yet, but will reflect the large trade deficit. On the other hand, wage income from people living in the Faroe Islands but working abroad is expected to have increased from 2011 to 2012.

Public finances

The public finances have shown a deficit since 2008. However, the deficit has been decreasing and was kr. 300 million in 2012, corresponding to 2.2 per cent of GDP. Local government and the public-sector pension funds that are being built up posted surpluses, while the central government and the unemployment fund posted deficits, cf. Table 3.

The mandatory unemployment fund has been operating at a loss in recent years. This reflects the economic situation, with large disbursements due to relatively high unemployment and dwindling contributions as a result of low wage earnings. Tightening measures in 2012 reduced disbursements, and based on average levels of unemployment and wages in recent years, these measures seem to be sufficient to ensure that the finances of the fund will balance over time.

The central government deficit of kr. 335 million in 2012 was in line with the previous year's deficit, cf. Table 4. However, both income and expenses had fallen by more than kr. 150 million.

The block grant has been frozen in nominal terms since 2002, but from 2012 it is regulated in accordance with the general price and wage index over the Danish Finance Act. In 2012, this meant an increase of kr. 8.6 million, bringing the block grant to 4.6 per cent of GDP. The block grant for 2013 is kr. 632.2 million.

BALANCES OF PUBLIC SUBSECTORS — Table 3

Kr. million	2009	2010	2011	2012
Central government	-688	-581	-322	-335
Local government	-74	-93	28	34
Unemployment fund	22	-112	-189	-77
Public-sector pension funds	120	94	65	78
Government budget balance	-620	-692	-418	-300

Note: CIL balance for central and local government.
Source: Landsbanki Føroya, Arbeiðsloysisskipanin (the Faroese unemployment fund) and High Commissioner of the Faroe Islands.

CENTRAL GOVERNMENT FINANCES Table 4

Kr. million	2009	2010	2011	2012	Finance Act 2013
Taxes and duties, etc.	3,234	3,489	3,705	3,610	3,850
Other income	43	40	113	33	57
Block grant	616	616	616	624	632
Total income	3,893	4,145	4,433	4,268	4,538
Operating costs	4,366	4,500	4,541	4,375	4,477
Capital investments	184	169	150	182	258
Net interest expenses	31	57	65	45	46
Total expenses	4,581	4,726	4,756	4,602	4,782
Budget balance	-688	-581	-322	-335	-243
Gross government debt, year-end	3,903	4,954	5,604	5,443	5,434

Note: Gross debts for 2012 and 2013 are estimates from March 2013 by Landsbanki Føroya. Repayment of kr. 300 million in loans from Iceland reduces the gross debt in 2012. Settlement in connection with the discontinuation of Landsbanki Føroya is expected to reduce the gross debt by kr. 160 million in 2013.
Source: Fíggjarmálaráðið (Faroese Ministry of Finance), Landsbanki Føroya and High Commissioner of the Faroe Islands.

The Faroese government has decided that the government budget must show a surplus from 2016. Recent years' economic recovery has contributed to this, and certain savings and new taxes on mackerel fishing have also reduced the deficit. Furthermore, since 2012 pension savings have been taxed when contributions are made, not on disbursement. This will boost revenue these years, but reduce future tax revenue. Since this revenue has to a large extent been used for tax cuts, it has increased pressure on the sustainability of public finances.

Further measures are required if the target of a surplus in 2016 is to be achieved. In this context it is positive that the Faroese government has prepared a consolidation plan with specific proposals. However, only a small number of these initiatives have been adopted and implemented. This increases uncertainty in the population and may dampen consumption and investment. Bringing forward the decisions would boost confidence in the government's ability to reach its target of surplus in 2016.

Part of the improvement in central government revenue is to come from resource taxes on fisheries and aquaculture. The government is calculating with revenue of kr. 120 million in 2013. In 2012, taxes on mackerel fishing generated kr. 69 million. The resource tax is highly dependent on the situation in the fisheries sector and hence revenue may fluctuate substantially over time. In years with extraordinarily high revenue it is therefore important not to increase public spending correspondingly, as this will lead to a funding gap in years with normal or low revenue from resource tax.

Consumer prices

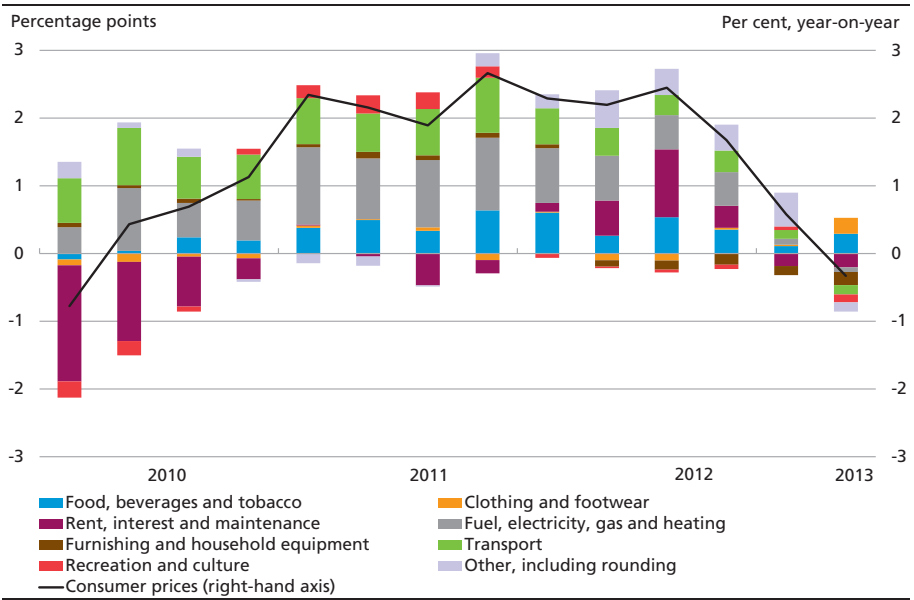
Annual consumer price inflation has declined in recent quarters, and in the 2nd quarter of 2013 consumer prices were 0.3 per cent lower than in the same quarter of 2012, cf. Chart 6. This is well below the average since 2000 of just under 2 per cent. The lower rate of price increase is primarily attributable to the prices of energy and transport and housing-related expenses such as rent, interest and maintenance being a little lower now than one year ago. Throughout 2012, these items made a positive contribution to consumer price inflation.

Economic outlook

The outlook for the Faroese economy is closely linked to developments in fisheries and aquaculture, where both prices and volumes may fluctuate considerably over time. This is a fundamental condition in an economy which relies so strongly on fish.

At present aquaculture is doing extremely well, and in recent years the Faroe Islands have also increased mackerel catches substantially. If the autonomously fixed herring quotas are also exploited, they will contribute to activity in the form of increased catch volumes. But to ensure sound earnings in the longer term, it is important also to take sustainability into account when fixing the quotas for the various species.

CONSUMER PRICE INFLATION — Chart 6



Source: Hagstova Føroya and own calculations.

The EU's sanctions in response to the autonomously fixed herring quotas for 2013 prevent the Faroe Islands from landing and selling herring and mackerel in the EU. This means that the Faroe Islands lose access to the important European market and cannot expect to obtain the same prices as they would otherwise get.

Private-sector confidence is low, which may dampen domestic demand. The uncertainty partly reflects the status of the Faroe Islands as a small open economy which is highly dependent on the international economy. This applies to import prices, but also to fish prices and sales opportunities for fish. If the global economy picks up, this can be expected to have a positive knock-on effect on the Faroe Islands. On the other hand, the EU's sanctions in relation to mackerel and herring may increase uncertainty about future earnings, which in turn may dampen domestic demand.

It is positive that the Faroese government aims for a surplus from 2016. An unsustainable fiscal policy may quickly lead to a lower credit rating and higher interest rates. However, there is considerable uncertainty as to how the government plans to reduce the deficit. The faster it consolidates, the sooner households and firms will know what to expect so that they can plan accordingly.

Speedy implementation will also increase fiscal credibility, thereby boosting the credit rating of the Faroese government. In September 2013, the credit rating agency Moody's confirmed its Aa3 rating of the Faroe Islands. But there is a risk of a later downgrading due to uncertainty about the Faroese economy as a result of the EU's trade sanctions.

Many people living in the Faroe Islands work abroad. With the prospect of continued high demand for Faroese labour abroad, there are no immediate indications that this will change. In recent years, this has helped to dampen the negative effects of the weak economic activity in the Faroe Islands. But rising domestic demand, especially for housing investments, may be impeded by an existing or imminent shortage of labour within certain sectors.

Presse Releases

5 SEPTEMBER 2013: IMF REVIEW OF THE DANISH ECONOMY IN CONNECTION WITH NORDIC REGIONAL REPORT

As part of its increased focus on regional and cross-border surveillance, the International Monetary Fund (IMF) has conducted a survey of the largest Nordic economies.

Along with the other Nordic countries, Denmark has recommended that regional focus be increased in the IMF's traditional surveillance of its member countries' economies. The four Nordic countries have close real economic and financial linkages and provide a good basis for such an analysis.

However, there are also important differences between the four countries. Areas where the regional focus of the report may not provide a sufficient picture include the structure of the financial sector, monetary-policy targets and implementation, as well as economic and political integration with the EU.

Danmarks Nationalbank shares the view that the Nordic countries should cooperate closely in the financial area, as they already do to a large extent.

As regards Denmark, the report emphasises the high level of household debt compared with other countries. This is one of the reasons why Danmarks Nationalbank has carried-out a number of analyses of the impact of the Danish households' high gross debt. The main conclusion is that the threat to financial stability from families' debt and its composition is limited. However, families' high gross debt may reinforce the link between fluctuations in house prices and the macroeconomy.

Danmarks Nationalbank is also of the opinion that the Danish mortgage-credit system has proved to be robust during the financial crisis. Mortgage banks have been able to lend, and it has been possible to sell mortgage bonds in the market. Looking ahead, it is important to continue to focus on the robustness of the mortgage-credit system.

Tables

Symbols and Sources

0 Magnitude nil or less than one half of unit employed.
… Data not available or of negligible interest.

Some of the most recent statistics may be provisional. Due to rounding-off there may be small differences between the sum of the individual figures and the totals stated.

The Tables section of this publication is closed on 11 September 2013.

Danmarks Nationalbank is the source for Tables 1-17, 19-21 and 26-27, while the Nasdaq OMX Copenhagen is the source for series of bond yields and the share-price index in Table 2. Statistics Denmark is the source for Tables 18 and 22-25. The calculations in Tables 23 and 27 have been made by Danmarks Nationalbank on the basis of data from Statistics Denmark and OECD.

INTEREST RATES — Table 1

Effective end-of-year/from	Danmarks Nationalbank's interest rates				The ECB's interest rate
	Lending	Certificates of deposit	Current account deposits	Discount rate	Main refinancing operations, fixed rate[1]
	Per cent per annum				
2008	3.75	3.75	3.50	3.50	2.50
2009	1.20	0.95	0.85	1.00	1.00
2010	1.05	0.70	0.60	0.75	1.00
2011	0.70	0.30	0.25	0.75	1.00
2012	0.20	-0.20	0.00	0.00	0.75
2011 26 Aug	1.55	1.10	1.00	1.25	1.50
16 Sep	1.55	1.00	0.90	1.25	1.50
4 Nov	1.20	0.65	0.55	1.00	1.25
9 Dec	0.80	0.40	0.30	0.75	1.00
16 Dec	0.70	0.30	0.25	0.75	1.00
2012 25 May	0.60	0.20	0.15	0.75	1.00
1 Jun	0.45	0.05	0.00	0.25	1.00
6 Jul	0.20	-0.20	0.00	0.00	0.75
2013 25 Jan	0.30	-0.10	0.00	0.00	0.75
3 May	0.20	-0.10	0.00	0.00	0.50
11 Sep	0.20	-0.10	0.00	0.00	0.50

[1] Until 7 October 2008 minimum bid rate.

INTEREST RATES AND SHARE-PRICE INDEX — Table 2

Average	Inter-bank interest rate, 3-months CIBOR	Effective bond yields		Share-price index OMXC20 (prev.KFX), ultimo
		10-year central government bond	30-year mortgage bond	
	Per cent per annum			3.7.89=100
2008	5.28	4.28	6.08	247.72
2009	2.48	3.59	5.53	336.69
2010	1.25	2.93	4.68	457.58
2011	1.38	2.73	4.72	389.95
2012	0.62	1.40	3.74	496.16
Aug 12	0.31	1.15	3.55	490.06
Sep 12	0.32	1.31	3.60	493.22
Oct 12	0.33	1.29	3.59	485.28
Nov 12	0.30	1.11	3.52	490.93
Dec 12	0.28	1.07	3.45	496.16
Jan 13	0.31	1.61	3.50	535.73
Feb 13	0.33	1.73	3.34	546.55
Mar 13	0.27	1.59	3.26	534.47
Apr 13	0.26	1.42	3.14	539.28
May 13	0.24	1.45	3.10	535.37
Jun 13	0.26	1.72	3.31	512.03
Jul 13	0.27	1.77	3.37	546.92
Aug 13	0.27	1.94	3.70	551.76

SELECTED ITEMS FROM DANMARKS NATIONALBANK'S BALANCE SHEET Table 3

End of period	The foreign-exchange reserve (net)	Notes and coin in circulation	The central government's account with Danmarks Nationalbank	The banks' and the mortgage banks' net position with Danmarks Nationalbank			
				Certificates of deposit	Deposits (current account)	Loans	Total net position
	Kr. billion						
2008	211.7	61.3	262.8	118.5	9.7	240.9	-112.7
2009	394.5	60.8	212.4	166.2	22.1	104.2	84.1
2010	428.7	62.5	179.4	132.5	14.5	9.3	137.8
2011	491.9	62.4	225.8	150.0	23.2	24.0	149.1
2012	501.6	65.8	163.7	184.1	102.6	66.4	220.3
Aug 12	514.4	63.2	213.8	151.1	55.2	19.5	186.7
Sep 12	513.5	63.2	205.2	181.5	65.2	53.2	193.5
Oct 12	513.4	62.8	209.7	141.6	98.7	53.6	186.6
Nov 12	512.1	63.8	205.5	143.4	99.4	53.6	189.2
Dec 12	504.0	65.8	162.0	184.1	102.6	66.4	220.3
Jan 13	495.6	62.7	171.4	161.7	94.3	53.2	202.8
Feb 13	483.2	62.0	205.9	128.2	80.0	53.4	154.8
Mar 13	481.9	64.0	174.2	147.0	94.4	52.1	189.4
Apr 13	491.7	63.3	182.0	157.1	82.8	50.3	189.6
May 13	492.3	64.6	200.1	95.8	90.2	14.7	171.3
Jun 13	490.6	65.2	179.5	151.8	61.0	20.9	191.8
Jul 13	491.9	65.2	153.9	174.8	63.0	17.6	220.2
Aug 13	491.8	64.8	188.7	151.1	51.6	17.5	185.2

FACTORS AFFECTING THE BANKS' AND THE MORTGAGE BANKS' NET POSITION WITH DANMARKS NATIONALBANK

Table 4

	Central-government finance			Net purchase of foreign exchange by Danmarks Nationalbank			Net purchase of bonds by Danmarks Nationalbank	Other factors	The banks' and the mortgage banks' net position with Danmarks Nationalbank	
	Domestic gross financing requirement	Sales of domestic central-government securities, etc.	Liquidity effect	Interventions to purchase foreign exchange, net	Other	Total			Change in net position	End of period
	Kr. billion									
2008	-11.9	99.6	-111.5	-19.9	0.1	-19.8	0.6	24.9	-105.8	-112.7
2009	178.6	123.8	54.8	153.6	17.1	170.7	6.5	-35.3	196.8	84.1
2010	169.6	160.7	8.8	45.7	4.3	50.0	-0.4	-4.7	53.7	137.8
2011	93.9	143.8	-49.9	53.3	2.5	55.8	0.9	4.5	11.4	149.1
2012	146.7	105.4	41.3	31.7	2.4	34.1	0.9	-5.2	71.1	220.3
Aug 12	-10.4	9.0	-19.5	0.0	0.0	0.0	0.3	0.4	-18.8	186.7
Sep 12	8.3	0.8	7.5	-0.6	0.8	0.2	-0.1	-0.8	6.8	193.5
Oct 12	12.3	16.2	-3.8	-0.5	-0.1	-0.6	0.1	-2.5	-6.9	186.6
Nov 12	15.2	11.8	3.4	-1.5	0.2	-1.3	0.2	0.2	2.6	189.2
Dec 12	25.6	-15.3	40.9	-2.6	-2.8	-5.4	-0.3	-4.2	31.1	220.3
Jan 13	4.8	11.8	-7.0	-11.9	3.5	-8.4	-0.4	-1.7	-17.5	202.8
Feb 13	-39.6	15.5	-55.1	0.0	8.2	8.2	0.5	-1.7	-48.0	154.8
Mar 13	14.4	-17.2	31.6	0.0	-1.0	-1.0	0.1	3.9	34.5	189.4
Apr 13	15.2	14.1	1.0	0.0	1.0	1.0	0.0	-1.8	0.3	189.6
May 13	-5.9	12.5	-18.4	0.0	1.0	1.0	0.2	-1.1	-18.3	171.3
Jun 13	9.4	-10.1	19.5	0.0	-1.3	-1.3	-0.1	2.4	20.5	191.8
Jul 13	33.4	7.5	25.8	0.0	1.3	1.3	0.2	1.1	28.3	220.2
Aug 13	-24.6	10.1	-34.7	0.0	-0.2	-0.2	-0.1	-0.1	-35.0	185.2

SELECTED ITEMS FROM THE CONSOLIDATED BALANCE SHEET OF THE MFI SECTOR

Table 5

End of period	Total balance	Assets				Liabilities		Foreign assets, net[1]
		Domestic lending		Domestic securities		Domestic deposits	Bonds, etc. issued	
		Public sector	Private sector	Bonds, etc.	Shares, etc.			
	Kr. billion							
2008	6,286.4	129.1	3,724.3	40.6	56.7	1,487.5	1,508.4	-407.9
2009	5,968.5	135.9	3,647.9	78.2	65.5	1,442.8	1,650.9	-417.6
2010	6,159.1	146.6	3,696.6	41.8	87.9	1,410.1	1,660.4	-397.6
2011	6,310.3	148.8	3,640.2	45.1	82.4	1,430.5	1,740.0	-330.9
2012	6,139.1	157.4	3,637.5	42.6	98.8	1,419.0	1,796.6	-376.8
Jul 12	6,581.6	152.4	3,690.7	42.1	96.7	1,458.9	1,819.7	-337.8
Aug 12	6,618.6	146.9	3,685.5	47.7	96.9	1,480.9	1,836.5	-308.7
Sep 12	6,532.3	148.3	3,689.6	33.4	98.4	1,461.9	1,836.4	-320.8
Oct 12	6,442.5	149.2	3,666.5	36.6	99.2	1,474.7	1,814.8	-294.5
Nov 12	6,507.5	154.5	3,650.4	44.8	97.9	1,459.4	1,829.4	-333.8
Dec 12	6,139.1	157.4	3,637.5	42.6	98.8	1,419.0	1,796.6	-376.8
Jan 13	6,139.0	153.2	3,619.5	53.1	99.7	1,451.5	1,810.5	-281.9
Feb 13	6,177.6	149.2	3,622.2	63.4	100.3	1,456.2	1,841.7	-268.1
Mar 13	6,264.2	149.6	3,638.7	54.4	100.3	1,439.6	1,849.9	-258.6
Apr 13	6,205.1	149.8	3,647.3	49.3	98.0	1,457.1	1,866.6	-224.9
May 13	6,119.9	152.5	3,649.4	57.8	98.9	1,473.6	1,889.9	-207.9
Jun 13	6,066.0	156.0	3,669.9	53.2	96.0	1,455.9	1,846.4	-204.8
Jul 13	6,070.1	156.7	3,645.0	46.2	99.6	1,444.1	1,834.7	-151.8
	Change compared with previous year, per cent							
2008	…	9.8	11.0	-6.1	-10.7	21.5	0.2	…
2009	…	5.3	-2.1	92.4	15.5	-3.0	9.4	…
2010	…	7.9	1.3	-46.6	34.3	-2.3	0.6	…
2011	…	1.5	-1.5	7.9	-6.3	1.4	4.8	…
2012	…	5.8	-0.1	-5.5	19.9	-0.8	3.3	…
Jul 12	…	2.6	1.6	-27.1	10.9	-0.3	5.2	…
Aug 12	…	3.0	1.5	-29.0	15.9	-0.4	5.8	…
Sep 12	…	3.5	0.9	-51.8	23.3	-3.3	5.8	…
Oct 12	…	3.2	0.5	-49.8	21.9	-2.3	5.1	…
Nov 12	…	6.5	0.5	-13.0	18.3	0.0	4.1	…
Dec 12	…	5.8	-0.1	-5.5	19.9	-0.8	3.3	…
Jan 13	…	3.3	-1.4	26.6	16.2	0.2	0.7	…
Feb 13	…	2.2	-1.2	-15.1	15.2	-2.2	1.6	…
Mar 13	…	1.5	-1.3	-5.9	16.8	1.8	1.7	…
Apr 13	…	0.9	-1.5	-11.1	13.5	0.5	2.6	…
May 13	…	2.0	-1.2	-1.0	14.9	0.6	3.3	…
Jun 13	…	2.8	-1.2	32.3	1.7	-0.7	1.7	…
Jul 13	…	2.8	-1.2	9.6	3.0	-1.0	0.8	…

Note: The MFI sector includes Danish monetary financial institutions, i.e. banks and mortgage banks, other credit institutions, money-market funds and Danmarks Nationalbank.

[1] The net foreign assets of the MFI sector has been compiled as the difference between all assets and liabilities vis-a-vis non-residents.

MONEY STOCK Table 6

End of period	Bank-notes and coin in circula-tion[1]	Deposits on demand	M1	Time deposits with original maturity =<2 years	Deposits at notice with original maturity =< 3 months	M2	Repu-rchase agree-ments	Bonds, etc. issued with original maturity =< 2 years	M3
	Kr. billion								
2008	50.4	702.8	753.2	286.4	18.4	1,058.0	4.0	57.0	1,119.1
2009	48.5	744.6	793.1	203.0	19.6	1,015.7	10.9	143.0	1,169.7
2010	52.6	747.8	800.4	143.9	18.0	962.3	58.2	241.0	1,261.8
2011	52.5	727.2	779.7	134.1	17.2	931.0	59.1	196.5	1,186.9
2012	54.6	796.8	851.4	115.7	19.1	986.2	43.2	181.6	1,211.1
Jul 12	53.4	781.9	835.4	129.7	20.4	985.4	61.9	275.8	1,323.4
Aug 12	53.5	787.9	841.4	128.8	19.9	990.1	59.7	279.9	1,329.9
Sep 12	53.5	785.6	839.1	121.0	19.8	979.9	60.2	275.3	1,315.6
Oct 12	53.5	797.8	851.3	126.3	18.6	996.2	52.9	220.3	1,269.6
Nov 12	54.1	797.6	851.7	119.8	18.7	990.2	48.7	181.4	1,220.5
Dec 12	54.6	796.8	851.4	115.7	19.1	986.2	43.2	181.6	1,211.1
Jan 13	53.6	809.4	863.0	132.1	19.3	1,014.3	37.9	118.5	1,170.8
Feb 13	53.5	794.8	848.3	124.6	19.4	992.3	27.8	114.9	1,135.2
Mar 13	53.3	799.2	852.5	125.3	19.8	997.6	34.1	104.1	1,136.0
Apr 13	54.2	818.3	872.5	121.8	20.1	1,014.4	33.0	46.0	1,093.6
May 13	54.5	821.6	876.1	117.7	23.4	1,017.2	29.5	43.2	1,090.2
Jun 13	55.7	808.3	864.0	121.3	23.9	1,009.2	45.6	32.8	1,087.8
Jul 13	55.1	825.0	880.1	122.4	24.7	1,027.2	42.2	37.6	1,107.2
	Change compared with previous year, per cent								
2008	...	...	-0.2	...	...	8.2	...	...	7.0
2009	...	...	5.3	...	...	-4.0	...	...	4.5
2010	...	...	0.9	...	...	-5.3	...	...	7.9
2011	...	...	-2.6	...	...	-3.3	...	...	-5.9
2012	...	...	9.2	...	...	5.9	...	...	2.0
Jul 12	...	...	4.2	...	...	2.1	...	...	14.3
Aug 12	...	...	7.0	...	...	4.9	...	...	16.4
Sep 12	...	...	7.3	...	...	4.4	...	...	11.3
Oct 12	...	...	8.5	...	...	6.2	...	...	10.9
Nov 12	...	...	9.3	...	...	6.2	...	...	4.2
Dec 12	...	...	9.2	...	...	5.9	...	...	2.0
Jan 13	...	...	10.3	...	...	7.2	...	...	-9.8
Feb 13	...	...	9.0	...	...	5.4	...	...	-12.2
Mar 13	...	...	10.1	...	...	7.6	...	...	-14.6
Apr 13	...	...	8.2	...	...	5.7	...	...	-17.5
May 13	...	...	7.6	...	...	4.9	...	...	-17.2
Jun 13	...	...	5.4	...	...	3.8	...	...	-17.8
Jul 13	...	...	5.4	...	...	4.2	...	...	-16.3

[1] Notes and coin in circulation, excluding the banks' holdings.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE BANKS — Table 7

End of period	Total balance	Assets					Liabilities	
		Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Deposits
			Total	of which:				
				Households, etc.	Non-financial companies			
	Kr. billion							
2008	4,568.5	974.6	1,546.3	586.8	603.3	1,092.1	1,444.2	1,424.2
2009	4,147.6	876.1	1,359.1	575.7	529.7	1,203.5	1,168.8	1,427.4
2010	4,197.4	902.7	1,334.6	570.2	494.7	1,157.1	1,118.3	1,489.7
2011	4,234.7	841.3	1,230.0	562.0	434.1	1,151.6	1,052.5	1,483.6
2012	4,168.6	835.1	1,169.8	538.4	390.0	1,233.7	1,139.7	1,496.1
Jul 12	4,491.4	875.1	1,247.4	544.0	426.9	1,151.6	1,161.1	1,504.9
Aug 12	4,517.3	878.8	1,231.7	540.1	417.5	1,169.0	1,175.0	1,512.1
Sep 12	4,533.5	848.4	1,233.0	545.7	414.2	1,204.3	1,201.4	1,506.3
Oct 12	4,412.5	833.6	1,206.4	536.4	404.3	1,175.1	1,142.7	1,499.6
Nov 12	4,460.7	880.2	1,187.1	532.4	403.9	1,174.8	1,204.9	1,471.6
Dec 12	4,168.6	835.1	1,169.8	538.4	390.0	1,233.7	1,139.7	1,496.1
Jan 13	4,097.1	776.1	1,150.8	527.9	382.1	1,226.8	1,083.0	1,496.0
Feb 13	4,058.5	794.2	1,143.6	524.8	387.6	1,200.5	1,052.4	1,510.6
Mar 13	4,181.2	878.0	1,157.5	529.5	389.1	1,185.3	1,146.0	1,551.2
Apr 13	4,103.9	795.7	1,164.3	522.0	387.1	1,174.4	1,082.8	1,546.1
May 13	3,940.0	746.1	1,162.0	519.7	387.5	1,113.5	997.4	1,532.6
Jun 13	3,914.0	699.5	1,183.3	527.0	387.0	1,185.3	1,050.3	1,531.5
Jul 13	3,867.5	708.2	1,153.3	522.3	374.0	1,171.3	1,048.2	1,506.9
	Change compared with previous year, per cent							
2008	…	5.4	15.9	5.3	9.3	2.5	0.7	5.2
2009	…	-10.1	-12.1	-1.9	-12.2	10.2	-19.1	0.2
2010	…	3.0	-1.8	-1.0	-6.6	-3.9	-4.3	4.4
2011	…	-6.8	-7.8	-1.4	-12.3	-0.5	-5.9	-0.4
2012	…	-0.7	-4.9	-4.2	-10.2	7.1	8.3	0.8
Jul 12	…	21.0	-0.5	-2.9	-5.0	0.4	23.8	0.8
Aug 12	…	19.9	-0.5	-3.5	-6.5	2.6	23.2	2.4
Sep 12	…	11.8	-2.5	-3.7	-8.7	7.5	21.5	1.3
Oct 12	…	13.5	-3.7	-4.5	-9.7	4.7	16.8	3.2
Nov 12	…	17.8	-3.4	-4.4	-9.6	5.0	23.3	0.6
Dec 12	…	-0.7	-4.9	-4.2	-10.2	7.1	8.3	0.8
Jan 13	…	1.7	-8.5	-4.7	-11.4	4.9	3.0	0.3
Feb 13	…	-1.0	-8.1	-4.7	-10.2	4.9	-3.6	5.1
Mar 13	…	4.1	-8.3	-5.2	-11.1	-0.6	-3.9	8.0
Apr 13	…	-0.6	-8.8	-4.7	-13.1	3.1	-1.3	6.5
May 13	…	-7.7	-8.0	-4.2	-11.0	-3.6	-13.2	5.5
Jun 13	…	-20.7	-7.0	-4.6	-12.5	2.0	-15.1	2.1
Jul 13	…	-19.1	-7.5	-4.0	-12.4	1.7	-9.7	0.1

Note: Excluding Danish banks' units abroad.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE MORTGAGE BANKS Table 8

End of period	Assets						Liabilities	
			Domestic lending					
				of which:				
	Total balance	Lending to MFIs	Total	Households, etc.	Non-financial companies	Holdings of securities	Loans from MFIs	Bonds, etc. issued
	Kr. billion							
2008	3,322.7	428.5	2,164.6	1,629.6	466.7	633.5	474.4	2,582.3
2009	3,827.1	512.2	2,278.8	1,712.2	501.0	927.6	539.3	3,048.3
2010	4,009.6	572.6	2,347.1	1,749.2	532.0	976.9	632.1	3,139.3
2011	3,996.4	602.9	2,396.2	1,775.5	558.1	869.9	660.9	3,135.3
2012	4,175.0	673.6	2,454.0	1,811.9	577.9	902.2	657.8	3,301.7
Jul 12	3,557.0	616.2	2,427.0	1,797.1	566.5	382.4	630.6	2,735.3
Aug 12	3,734.3	669.0	2,432.6	1,800.8	567.4	489.4	680.7	2,855.4
Sep 12	3,843.8	713.8	2,437.1	1,802.5	570.2	561.1	693.2	2,939.0
Oct 12	3,552.9	626.4	2,441.4	1,805.2	571.9	350.0	615.9	2,734.3
Nov 12	3,830.2	637.8	2,448.0	1,808.3	575.7	599.0	662.6	2,969.7
Dec 12	4,175.0	673.6	2,454.0	1,811.9	577.9	902.2	657.8	3,301.7
Jan 13	3,506.9	595.2	2,450.5	1,814.5	579.2	318.4	591.3	2,710.4
Feb 13	3,580.4	618.0	2,455.1	1,817.1	580.6	356.8	594.4	2,780.0
Mar 13	3,847.4	692.7	2,456.7	1,819.6	578.7	553.1	649.8	2,984.5
Apr 13	3,483.9	605.2	2,457.4	1,821.4	577.5	297.0	593.5	2,718.0
May 13	3,521.6	627.1	2,462.2	1,824.6	580.4	309.6	595.9	2,753.9
Jun 13	3,559.9	656.9	2,464.0	1,824.1	582.5	319.2	590.9	2,759.3
Jul 13	3,510.6	613.3	2,469.5	1,827.0	584.5	302.9	591.4	2,714.8
	Change compared with previous year, per cent							
2008	…	18.1	7.4	5.2	15.5	-2.4	37.8	3.5
2009	…	19.5	5.3	5.1	7.4	46.4	13.7	18.0
2010	…	11.8	3.0	2.2	6.2	5.3	17.2	3.0
2011	…	5.3	2.1	1.5	4.9	-11.0	4.6	-0.1
2012	…	11.7	2.4	2.1	3.6	3.7	-0.5	5.3
Jul 12	…	27.9	2.5	2.3	3.9	27.1	18.8	8.7
Aug 12	…	35.6	2.4	2.2	3.5	50.4	24.5	11.5
Sep 12	…	24.3	2.6	2.4	3.9	29.3	16.0	9.1
Oct 12	…	22.7	2.6	2.4	3.6	3.9	11.2	5.6
Nov 12	…	23.2	2.6	2.3	3.9	43.4	19.4	10.4
Dec 12	…	11.7	2.4	2.1	3.6	3.7	-0.5	5.3
Jan 13	…	9.5	2.2	2.1	3.7	-1.0	3.9	2.8
Feb 13	…	7.9	2.2	2.0	3.8	-4.6	0.5	3.1
Mar 13	…	2.8	2.0	2.1	3.0	3.4	0.8	3.3
Apr 13	…	9.3	2.0	2.1	2.7	-7.7	2.6	2.9
May 13	…	14.3	2.0	2.1	2.9	-12.7	2.7	2.5
Jun 13	…	4.2	1.6	1.7	2.9	-26.5	-6.0	-0.5
Jul 13	…	-0.5	1.7	1.7	3.2	-20.8	-6.2	-0.7

LENDING TO RESIDENTS BY THE BANKS AND THE MORTGAGE BANKS Table 9

End of period	Total lending			The banks' lending			The mortgage banks' lending		
	Total	House-holds, etc.	Business, etc.	Total	House-holds, etc.	Business, etc.	Total	House-holds, etc.	Business, etc.
	Kr. billion								
2008	3,787.5	2,216.4	1,456.4	1,622.9	586.8	978.3	2,164.6	1,629.6	478.1
2009	3,682.4	2,287.9	1,283.8	1,403.6	575.7	770.0	2,278.8	1,712.2	513.8
2010	3,704.3	2,319.4	1,281.8	1,357.2	570.2	738.6	2,347.1	1,749.2	543.1
2011	3,644.8	2,337.5	1,216.5	1,248.6	562.0	646.3	2,396.2	1,775.5	570.1
2012	3,630.8	2,350.4	1,187.3	1,176.8	538.4	598.1	2,454.0	1,811.9	589.2
Jul 12	3,684.3	2,341.1	1,250.2	1,257.2	544.0	671.0	2,427.0	1,797.1	579.3
Aug 12	3,674.1	2,340.9	1,245.5	1,241.5	540.1	665.3	2,432.6	1,800.8	580.2
Sep 12	3,679.9	2,348.2	1,242.1	1,242.8	545.7	659.6	2,437.1	1,802.5	582.5
Oct 12	3,654.8	2,341.6	1,223.1	1,213.4	536.4	639.0	2,441.4	1,805.2	584.1
Nov 12	3,642.1	2,340.7	1,210.8	1,194.2	532.4	623.2	2,448.0	1,808.3	587.6
Dec 12	3,630.8	2,350.4	1,187.3	1,176.8	538.4	598.1	2,454.0	1,811.9	589.2
Jan 13	3,610.0	2,342.3	1,178.0	1,159.4	527.9	587.3	2,450.5	1,814.5	590.7
Feb 13	3,607.3	2,342.0	1,179.7	1,152.2	524.8	587.5	2,455.1	1,817.1	592.2
Mar 13	3,622.8	2,349.0	1,187.6	1,166.1	529.5	597.3	2,456.7	1,819.6	590.4
Apr 13	3,629.8	2,343.4	1,201.2	1,172.4	522.0	611.7	2,457.4	1,821.4	589.5
May 13	3,632.3	2,344.4	1,206.0	1,170.1	519.7	614.2	2,462.2	1,824.6	591.8
Jun 13	3,655.4	2,351.1	1,218.8	1,191.4	527.0	624.9	2,464.0	1,824.1	593.9
Jul 13	3,630.8	2,349.2	1,195.3	1,161.4	522.3	598.7	2,469.5	1,827.0	596.6
	Change compared with previous year, per cent								
2008	11.8	5.2	24.2	18.3	5.3	28.6	7.4	5.2	15.9
2009	-2.8	3.2	-11.9	-13.5	-1.9	-21.3	5.3	5.1	7.5
2010	0.6	1.4	-0.2	-3.3	-1.0	-4.1	3.0	2.2	5.7
2011	-1.6	0.8	-5.1	-8.0	-1.4	-12.5	2.1	1.5	5.0
2012	-0.4	0.5	-2.4	-5.7	-4.2	-7.5	2.4	2.1	3.3
Jul 12	1.2	1.1	2.1	-1.2	-2.9	0.6	2.5	2.3	4.0
Aug 12	1.1	0.8	2.1	-1.2	-3.5	0.8	2.4	2.2	3.6
Sep 12	0.6	0.9	0.2	-3.1	-3.7	-2.8	2.6	2.4	3.8
Oct 12	0.1	0.7	-0.9	-4.5	-4.5	-4.7	2.6	2.4	3.6
Nov 12	0.2	0.7	-0.6	-4.3	-4.4	-4.5	2.6	2.3	3.8
Dec 12	-0.4	0.5	-2.4	-5.7	-4.2	-7.5	2.4	2.1	3.3
Jan 13	-1.7	0.5	-6.0	-9.1	-4.7	-14.0	2.2	2.1	3.6
Feb 13	-1.6	0.4	-5.3	-8.7	-4.7	-12.9	2.2	2.0	3.5
Mar 13	-1.8	0.4	-5.6	-8.9	-5.2	-12.7	2.0	2.1	2.7
Apr 13	-1.7	0.5	-5.7	-8.8	-4.7	-12.5	2.0	2.1	2.4
May 13	-1.4	0.6	-4.6	-7.9	-4.2	-10.7	2.0	2.1	2.7
Jun 13	-1.3	0.2	-3.7	-7.0	-4.6	-9.0	1.6	1.7	2.7
Jul 13	-1.5	0.3	-4.4	-7.6	-4.0	-10.8	1.7	1.7	3.0

Note: Including lending in Danish banks' units abroad. The category "Business etc." includes non-financial companies, pension and insurance companies, other financial intermediaries (except banks and mortgage banks) and unknown sector.

THE MORTGAGE BANKS' LENDING BROKEN DOWN BY TYPE Table 10

End of period	Index-linked lending	Fixed-rate lending	Adjustable-rate lending		Total	of which:	
			Total	of which =<1 year		Lending in foreign currency	Instalment-free lending[1]
	Kr. billion						
2008	72.4	915.9	1,177.1	900.3	2,165.4	155.3	626.4
2009	68.3	752.6	1,460.3	1,106.6	2,281.2	211.4	695.1
2010	63.9	656.8	1,628.3	1,190.5	2,349.0	232.3	740.6
2011	59.8	619.2	1,715.3	1,229.5	2,394.4	219.0	780.2
2012	56.3	616.3	1,783.3	1,246.9	2,455.9	195.8	805.3
Jul 12	58.8	601.8	1,768.5	1,273.7	2,429.1	206.8	800.1
Aug 12	58.7	605.5	1,770.5	1,274.2	2,434.7	206.6	801.5
Sep 12	58.7	605.5	1,774.4	1,266.2	2,438.5	206.0	802.5
Oct 12	58.6	606.3	1,778.0	1,247.9	2,443.0	205.0	805.0
Nov 12	58.2	610.3	1,782.5	1,248.0	2,450.9	205.2	807.9
Dec 12	56.3	616.3	1,783.3	1,246.9	2,455.9	195.8	805.3
Jan 13	56.4	614.3	1,781.2	1,204.6	2,451.9	193.6	799.9
Feb 13	56.5	616.8	1,783.3	1,208.7	2,456.7	193.0	803.2
Mar 13	56.7	620.8	1,780.6	1,191.1	2,458.0	191.2	803.2
Apr 13	56.8	620.9	1,780.9	1,174.4	2,458.7	189.9	804.2
May 13	56.6	624.4	1,782.9	1,174.1	2,463.9	189.5	806.4
Jun 13	55.0	623.0	1,787.3	1,174.5	2,465.3	188.7	808.7
Jul 13	55.0	625.6	1,790.4	1,175.6	2,471.0	188.0	811.1

Note: The Table includes the mortgage-credit lending to residents only, whereas Tables 8 and 9 include the institutes' total lending to residents.

[1] The mortgage banks' instalment-free lending to owner-occupied dwellings.

THE BANKS' EFFECTIVE INTEREST RATES — Table 11

	Lending				Deposits			
	All sectors	Households, etc.	Non-financial companies	Financial companies	All sectors	Households, etc.	Non-financial companies	Financial companies
	Per cent, per annum							
Q1 08	6.2	7.5	6.1	4.5	3.7	3.5	3.8	4.2
Q2 08	6.5	7.7	6.3	4.6	3.8	3.6	3.9	4.2
Q3 08	6.6	7.8	6.5	4.9	4.0	3.6	4.1	4.5
Q4 08	7.0	8.4	7.1	5.2	4.4	3.9	4.5	5.0
Q1 09	6.0	7.4	6.3	4.0	3.3	2.8	3.2	4.1
Q2 09	5.1	6.4	5.4	2.7	2.2	2.0	2.0	2.6
Q3 09	4.6	6.0	5.0	2.1	1.7	1.7	1.5	1.9
Q4 09	4.1	5.6	4.6	1.7	1.4	1.5	1.1	1.5
Q1 10	3.9	5.5	4.4	1.5	1.2	1.4	0.9	1.3
Q2 10	3.6	5.3	4.2	1.3	1.0	1.2	0.7	1.0
Q3 10	3.5	5.1	4.1	1.2	0.9	1.1	0.6	0.8
Q4 10	3.6	5.1	4.2	1.2	0.9	1.1	0.6	0.9
Q1 11	3.8	5.2	4.2	1.3	1.0	1.1	0.7	0.9
Q2 11	4.0	5.3	4.3	1.6	1.1	1.2	0.8	1.1
Q3 11	4.2	5.6	4.6	1.7	1.2	1.3	0.9	1.3
Q4 11	4.1	5.6	4.6	1.5	1.1	1.3	0.8	1.0
Q1 12	3.8	5.6	4.5	1.0	0.9	1.2	0.6	0.6
Q2 12	3.8	5.7	4.5	1.0	0.9	1.1	0.5	0.5
Q3 12	3.5	5.5	4.2	0.6	0.7	1.1	0.4	0.2
Q4 12	3.5	5.6	4.1	0.5	0.7	1.1	0.4	0.2
Q1 13	3.5	5.5	4.1	0.6	0.7	1.1	0.3	0.2
Q2 13	3.4	5.4	3.8	0.6	0.7	1.0	0.3	0.2
Q3 13	...	...	...	...	...	...	...	...
Jul 12	3.5	5.5	4.3	0.7	0.8	1.1	0.4	0.3
Aug 12	3.5	5.5	4.2	0.6	0.7	1.1	0.4	0.2
Sep 12	3.5	5.5	4.1	0.5	0.7	1.1	0.4	0.2
Oct 12	3.5	5.6	4.1	0.5	0.7	1.1	0.4	0.1
Nov 12	3.6	5.6	4.2	0.5	0.7	1.1	0.4	0.2
Dec 12	3.4	5.5	4.0	0.5	0.7	1.1	0.4	0.3
Jan 13	3.5	5.6	4.1	0.6	0.7	1.1	0.3	0.2
Feb 13	3.6	5.6	4.1	0.6	0.7	1.1	0.3	0.2
Mar 13	3.6	5.5	4.1	0.7	0.7	1.1	0.4	0.2
Apr 13	3.4	5.4	3.9	0.6	0.7	1.0	0.3	0.2
May 13	3.4	5.4	3.8	0.6	0.7	1.0	0.3	0.2
Jun 13	3.4	5.4	3.8	0.6	0.7	1.0	0.4	0.2
Jul 13	3.4	5.4	4.0	0.6	0.7	1.0	0.4	0.2

LENDING SURVEY, BANKS — Table 12

	Changes in banks' credit policies			
	Corporate lending		Lending to households	
	Development in current quarter	Expectations for the coming quarter	Development in current quarter	Expectations for the coming quarter
	Net balance			
Q3 10	3.1	-0.2	-1.0	0.1
Q4 10	-3.2	1.6	0.0	0.5
Q1 11	-7.4	-0.5	-0.5	-21.4
Q2 11	4.4	-6.9	0.0	-16.6
Q3 11	-2.5	-1.1	-26.3	1.0
Q4 11	-21.9	-1.0	-22.5	-22.5
Q1 12	-16.5	3.5	-1.3	-0.6
Q2 12	-15.3	-1.0	0.1	-23.7
Q3 12	-2.9	-0.5	-19.7	0.0
Q4 12	-2.9	0.3	-6.1	0.0
Q1 13	-0.6	-0.1	-0.6	1.6
Q2 13	0.6	0.6	1.1	1.1

Note: A negative net balance indicates that, overall, the institutions have tightened their credit policies, thus making it more difficult to obtain loans, while a positive net balance indicates an overall easing of credit policies. The net balance indicates the institutions' assessment of quarter-on-quarter changes and not absolute changes. For a detailed presentation of the lending survey, see Carina Moselund Jensen and Tania Al-Zagheer Sass, Danmarks Nationalbank's Lending Survey – New Statistics for Changes in Banks' and Mortgage-Credit Institutes' Credit Policies, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2009.

LENDING SURVEY, MORTGAGE BANKS — Table 13

	Changes in banks and mortgage banks' credit policies			
	Corporate lending		Lending to households	
	Development in current quarter	Expectations for the coming quarter	Development in current quarter	Expectations for the coming quarter
	Net balance			
Q3 10	0.0	0.0	0.0	6.2
Q4 10	15.2	15.2	0.0	0.0
Q1 11	0.0	5.0	6.2	0.0
Q2 11	-15.1	4.9	0.0	0.0
Q3 11	-30.1	-2.3	-22.2	0.0
Q4 11	4.9	-15.1	0.0	-22.2
Q1 12	0.0	-4.9	-33.6	0.0
Q2 12	-15.3	0.0	-21.8	-11.5
Q3 12	-15.3	-4.7	-32.4	-10.5
Q4 12	-4.7	-4.7	-10.5	-5.3
Q1 13	0.0	-10.6	-10.5	-5.3
Q2 13	-3.4	0.0	0.0	-12.1

Note: A negative net balance indicates that, overall, the institutions have tightened their credit policies, thus making it more difficult to obtain loans, while a positive net balance indicates an overall easing of credit policies. The net balance indicates the institutions' assessment of quarter-on-quarter changes and not absolute changes. For a detailed presentation of the lending survey, see Carina Moselund Jensen and Tania Al-Zagheer Sass, Danmarks Nationalbank's Lending Survey – New Statistics for Changes in Banks' and Mortgage-Credit Institutes' Credit Policies, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2009.

SELECTED ITEMS FROM THE BALANCE SHEET OF INVESTMENT FUNDS Table 14

End of period	Total balance	Assets		Liabilities			
		Holdings of securities		Investment fund shares/units broken down by sector			
		Bonds, etc.	Shares, etc.	House-holds	Insurance compa-nies and pension funds	Other	Abroad
	Kr. billion						
2008	773.2	425.3	222.5	211.4	266.9	238.1	14.6
2009	865.4	487.5	301.4	252.7	357.8	184.9	22.7
2010	1,287.6	768.3	387.8	298.7	654.9	235.5	23.9
2011	1,424.5	874.5	357.3	300.0	682.5	316.5	25.6
2012	1,675.5	995.2	449.9	344.3	812.2	375.5	33.0
Jul 12	1,609.2	947.4	409.0	329.5	748.1	359.0	30.6
Aug 12	1,627.2	952.4	413.3	330.5	759.3	367.0	30.4
Sep 12	1,717.7	964.9	424.1	333.9	772.2	370.2	30.5
Oct 12	1,727.3	972.3	424.6	335.6	779.3	370.1	30.9
Nov 12	1,755.1	987.7	433.2	340.4	797.5	373.7	32.1
Dec 12	1,675.5	995.2	449.9	344.4	812.2	375.5	33.0
Jan 13	1,681.2	980.6	465.7	347.0	817.0	371.1	35.7
Feb 13	1,706.0	986.6	481.7	350.7	832.2	378.5	34.2
Mar 13	1,781.5	1,009.7	500.6	354.1	850.5	382.2	36.6
Apr 13	1,800.6	1,023.9	502.2	353.8	866.3	385.1	37.3
May 13	1,808.3	1,022.5	510.7	357.5	866.6	389.4	36.7
Jun 13	1,778.9	1,032.0	493.7	348.8	860.8	379.3	35.4
Jul 13	1,806.8	1,036.7	512.5	355.8	872.1	387.8	36.5

SECURITIES ISSUED BY RESIDENTS BY OWNER'S HOME COUNTRY Table 15

End of period	Bonds, etc.						Shares	
	Total		of which:					
			Central-government securities		Mortgage bonds			
	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad
	Market value, kr. billion							
2008	2,981.3	405.0	363.1	158.5	2,419.4	227.4	529.9	244.4
2009	3,424.2	422.4	394.2	159.8	2,812.0	242.7	641.0	347.5
2010	3,552.5	541.0	474.3	172.7	2,844.6	342.8	786.2	545.5
2011	3,539.0	647.9	513.6	263.3	2,828.7	368.6	601.6	471.9
2012	3,549.9	752.4	525.9	290.7	2,854.3	449.6	722.0	609.2
Jul 12	3,053.9	710.2	528.2	312.1	2,353.4	386.9	697.3	589.1
Aug 12	3,161.3	726.1	529.7	315.2	2,459.6	399.8	700.5	595.5
Sep 12	3,244.5	738.7	519.3	318.1	2,555.7	409.6	714.0	600.4
Oct 12	3,080.9	770.6	529.7	320.6	2,383.0	437.6	709.3	597.4
Nov 12	3,336.6	758.7	536.8	293.0	2,631.7	452.5	715.9	601.2
Dec 12	3,549.9	752.4	525.9	290.7	2,854.3	449.6	722.0	609.2
Jan 13	2,905.3	783.5	530.6	277.3	2,212.5	494.9	759.9	661.9
Feb 13	2,999.3	782.3	534.3	294.7	2,302.4	478.9	776.3	668.9
Mar 13	3,198.8	786.2	534.2	279.2	2,504.5	497.3	778.5	659.9
Apr 13	2,918.7	810.8	546.1	286.5	2,215.6	513.5	757.8	667.5
May 13	2,957.4	801.3	548.5	279.5	2,252.7	512.6	766.3	665.4
Jun 13	2,979.3	772.3	539.1	261.6	2,279.1	502.1	737.8	641.9
Jul 13	2,905.9	793.6	537.8	268.3	2,211.0	516.5	781.9	679.6

Note: Comprise quoted and unquoted securities registered with the VP Securities Services (VP).

HOUSEHOLDS' FINANCIAL ASSETS AND LIABILITIES — Table 16

	Assets					Liabilities		
End of period	Currency and bank deposits, etc.	Bonds, etc.	Shares and certificates issued by investment funds, etc.	Life-insurance and pension-scheme savings, etc.	Total	Loans, etc.	Net financial assets	Total
	Kr. billion							
2008	905	173	880	1,786	3,745	2,422	1,323	3,745
2009	934	165	1,023	1,924	4,045	2,523	1,523	4,045
2010	964	148	1,222	2,128	4,462	2,631	1,831	4,462
2011	950	136	1,123	2,379	4,588	2,669	1,919	4,588
2012	982	108	1,257	2,601	4,947	2,741	2,206	4,947
Q1 12	943	137	1,268	2,428	4,776	2,688	2,089	4,776
Q2 12	976	123	1,175	2,491	4,765	2,704	2,061	4,765
Q3 12	971	115	1,218	2,557	4,860	2,703	2,157	4,860
Q4 12	982	108	1,257	2,601	4,947	2,741	2,206	4,947
Q1 13	994	97	1,350	2,647	5,089	2,740	2,348	5,089

COMPANIES' FINANCIAL ASSETS AND LIABILITIES Table 17

	Assets				Liabilities				
					Debt				
End of period	Currency, bank deposits and granted credits, etc.	Bonds, etc.	Shares and certificates issued by investment funds, etc.	Total	Loans, etc.	Bonds, etc. issued	Shares, etc. issued	Net financial assets	Total
	Kr. billion								
2008	1,448	110	1,990	3,548	2,360	108	2,806	-1,726	3,548
2009	1,442	108	2,318	3,867	2,341	136	3,144	-1,754	3,867
2010	1,513	124	2,924	4,561	2,355	143	3,999	-1,936	4,561
2011	1,756	110	2,729	4,596	2,504	159	3,609	-1,677	4,596
2012	1,722	123	2,972	4,816	2,469	196	3,958	-1,806	4,816
Q1 12	1,719	129	3,113	4,960	2,492	175	4,138	-1,846	4,960
Q2 12	1,714	115	2,864	4,692	2,504	166	3,780	-1,758	4,692
Q3 12	1,721	122	2,914	4,755	2,483	185	3,870	-1,781	4,755
Q4 12	1,722	123	2,972	4,816	2,469	196	3,958	-1,806	4,816
Q1 13	1,714	130	3,178	5,021	2,466	190	4,268	-1,903	5,021

Note: Companies are defined as non-financial companies,

CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS (NET REVENUES) Table 18

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
2008	4.2	52.1	56.3	23.0	-28.7	50.5
2009	47.4	20.8	68.1	17.3	-28.9	56.5
2010	53.4	48.9	102.3	33.0	-31.7	103.6
2011	55.3	40.9	96.2	36.6	-31.6	101.2
2012	47.2	47.0	94.2	48.3	-35.4	107.1
Aug 11 - Jul 12	51.7	42.4	94.1	42.2	-34.3	102.0
Aug 12 - Jul 13	43.7	53.6	97.4	56.1	-36.2	117.2
Jul 12	7.2	3.4	10.6	4.6	-2.5	12.7
Aug 12	4.3	7.0	11.2	3.6	-2.6	12.2
Sep 12	3.6	5.0	8.6	5.0	-2.6	11.0
Oct 12	4.9	4.7	9.6	5.3	-2.8	12.0
Nov 12	5.5	3.3	8.9	4.8	-2.8	10.9
Dec 12	-2.2	5.4	3.2	5.5	-2.7	6.1
Jan 13	2.9	3.7	6.6	4.5	-4.1	7.1
Feb 13	1.2	3.9	5.1	4.8	-4.1	5.8
Mar 13	3.0	4.1	7.1	-2.2	-3.9	1.1
Apr 13	3.8	3.9	7.7	4.0	-2.7	9.0
May 13	6.1	2.9	9.0	7.5	-2.7	13.8
Jun 13	5.1	6.0	11.1	6.8	-2.8	15.2
Jul 13	5.4	3.7	9.1	6.3	-2.4	13.0

FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 19

	Current account and capital account, etc., total[1]	Capital import				Other[3]	Danmarks Nationalbank's transactions with abroad[4]
		Direct investments		Portfolio investments[2]	Other capital import		
		Danish abroad	Foreign in Denmark				
	Kr. billion						
2008	50.9	-67.6	9.3	52.7	-49.5	-67.1	-71.4
2009	56.3	-33.9	21.1	69.7	193.3	-18.5	288.0
2010	104.1	0.6	-64.9	-11.9	102.5	-103.8	26.5
2011	105.9	-71.5	68.1	21.3	-49.4	-18.3	56.1
2012	107.8	-31.2	7.6	-91.2	20.4	-2.2	11.1
Aug 11 - Jul 12	102.7	-68.5	48.1	-133.1	46.4	43.6	39.1
Aug 12 - Jul 13	117.7	-37.2	4.9	138	-98.9	-137.3	-12.9
Jul 12	12.8	-6.3	9.3	2.9	-11.7	-8.6	-1.6
Aug 12	12.3	-0.4	-6.3	2.6	5.1	-13.6	-0.4
Sep 12	11.1	1.4	-1.4	9.1	-23.2	2.8	-0.2
Oct 12	12.1	-5.0	3.8	22.7	-35.2	3.4	1.8
Nov 12	10.9	-10.6	0.4	-32.8	7.4	24.4	-0.3
Dec 12	6.2	9.8	8.9	4.7	12.1	-49.6	-8.0
Jan 13	7.1	-17.1	2.1	41.3	-51.9	13.3	-5.2
Feb 13	5.8	-2.3	-5.6	16.3	-31.1	4.3	-12.5
Mar 13	1.1	3.7	-8.0	46.4	-4.1	-40.1	-1.0
Apr 13	9.0	-8.7	-6.9	17.4	-6.2	7.6	12.2
May 13	13.9	-7.9	10.6	4.0	-2.8	-16.4	1.4
Jun 13	15.2	3.6	11.0	-25.1	34.3	-40.7	-1.7
Jul 13	13.0	-3.7	-3.7	31.4	-3.3	-32.7	1.0

[1] Including total current account and capital transfers, etc.
[2] This item may differ from the total of Table 20, as portfolio investments are published 1-2 weeks earlier than the rest of the balance of payments.
[3] Including errors and omissions.
[4] Including transactions on *all* Danmarks Nationalbank's accounts with abroad and not only transactions on accounts included by compilation of the foreign-exchange reserve. The latter is published by press release on the 2nd banking day of each month and included in Table 2 of this section.

PORTFOLIO INVESTMENTS OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 20

	Danish securities			Foreign securities		
	Krone-denominated bonds, etc.	Foreign currency denominated bonds, etc.	Shares	Bonds, etc.	Shares	Total [1]
	Kr. billion					
2008	-59.8	142.1	11.3	-91.0	50.1	52.7
2009	-4.3	162.3	38.0	-82.5	-43.8	69.7
2010	66.5	-35.5	48.9	-65.9	-26.0	-11.9
2011	83.0	-70.5	-11.7	31.0	-10.6	21.3
2012	87.1	-53.9	27.4	-82.6	-69.2	-91.2
Jul 12	10.6	3.1	2.6	-10.8	-2.6	2.9
Aug 12	14.9	6.1	-0.1	-12.4	-5.8	2.6
Sep 12	21.4	0.1	1.0	-6.0	-7.4	9.1
Oct 12	32.8	3.8	1.1	-4.0	-11.1	22.7
Nov 12	-25.9	22.5	7.4	-34.3	-2.5	-32.8
Dec 12	-14.0	-3.2	6.0	29.4	-13.4	4.7
Jan 13	28.6	20.5	2.8	6.6	-17.3	41.3
Feb 13	19.7	-10.4	7.8	-0.9	0.2	16.3
Mar 13	13.8	-21.0	9.4	40.5	3.8	46.4
Apr 12	30.0	6.3	-1.9	-10.4	-6.6	17.4
May 13	3.6	1.1	2.7	3.0	-6.4	4.0
Jun 13	-14.2	-33.0	-1.3	9.5	13.9	-25.1
Jul 13	11.9	13.8	2.3	9.5	-6.1	31.4

Note: A negative sign (-) indicates residents' net purchase of foreign securities, or non-residents' net sale of Danish securities.

[1] This item may differ from "Portfolio investments" in Table 19, as the rest of the balance of payments is published 1-2 weeks later.

DENMARK'S EXTERNAL ASSETS AND LIABILITIES — Table 21

End of period	Direct investments		Portfolio investments		Financial derivatives, net	Other investments			Danmarks Nationalbank	Total
	Equity	Inter-company debt, etc.	Shares, etc.	Bonds, etc.		Trade credits	Loans and deposits	Other		
	Kr. billion									
Assets										
2008	650	380	449	784	83	45	1,101	37	226	3,754
2009	730	376	612	926	21	38	927	32	400	4,061
2010	822	407	762	1,057	37	47	997	33	432	4,594
2011	842	474	733	1,041	120	50	938	35	492	4,724
2012	933	435	901	1,153	116	59	937	21	512	5,067
Q1 12	892	462	794	1,061	121	52	999	34	487	4,903
Q2 12	924	455	792	1,087	134	56	1,050	35	519	5,052
Q3 12	935	445	847	1,140	127	55	995	36	522	5,102
Q4 12	933	435	901	1,153	116	59	937	21	512	5,067
Q1 13	946	443	994	1,134	85	55	1,066	29	488	5,241
Liabilities										
2008	511	292	241	1,198	•	41	1,398	40	121	3,843
2009	497	303	348	1,362	•	34	1,402	38	5	3,988
2010	492	293	521	1,436	•	41	1,539	40	5	4,367
2011	504	302	451	1,467	•	43	1,422	44	5	4,238
2012	523	310	609	1,524	•	37	1,415	45	5	4,467
Q1 12	508	298	531	1,458	•	42	1,515	45	2	4,399
Q2 12	529	303	538	1,455	•	40	1,604	46	4	4,518
Q3 12	531	298	593	1,514	•	40	1,494	48	2	4,521
Q4 12	523	310	609	1,524	•	37	1,415	45	5	4,467
Q1 13	523	303	672	1,544	•	38	1,456	44	3	4,583
Net assets										
2008	139	87	208	-415	83	4	-297	-3	105	-89
2009	233	73	264	-436	21	3	-475	-6	395	73
2010	330	113	241	-379	37	6	-542	-7	428	227
2011	338	172	282	-426	120	7	-484	-9	487	486
2012	411	125	292	-371	116	21	-478	-24	507	600
Q1 12	383	165	263	-397	121	10	-517	-11	485	503
Q2 12	395	153	253	-368	134	16	-554	-11	515	534
Q3 12	404	147	254	-374	127	15	-498	-12	520	581
Q4 12	411	125	292	-371	116	21	-478	-24	507	600
Q1 13	424	140	321	-411	85	17	-389	-15	485	658

Note: As a key principle, the market value has been used for the compilation.

GDP BY TYPE OF EXPENDITURE Table 22

	GDP	Final domestic demand					Exports of goods and services	Imports of goods and services
		Private consumption	General-government consumption	Gross fixed capital formation	Change in inventories	Total		
	Kr. billion							
2008	1,753.2	840.0	465.4	371.7	20.4	1,697.5	959.6	904.0
2009	1,664.8	822.1	495.9	303.5	-21.7	1,599.8	793.1	728.2
2010	1,761.1	857.6	509.8	300.1	-4.7	1,662.8	887.0	788.7
2011	1,791.5	874.5	508.1	311.7	3.6	1,698.0	956.8	863.3
2012	1,824.0	900.7	521.6	315.2	-4.0	1,733.5	991.8	901.3
Q2 12	457.0	224.7	129.3	79.5	-1.4	432.1	251.6	226.7
Q3 12	457.4	219.3	130.5	76.8	1.1	427.8	255.1	225.5
Q4 12	467.0	235.4	135.8	84.1	-8.4	446.8	247.1	226.9
Q1 13	446.8	225.1	126.5	73.6	7.5	432.6	236.3	222.1
Q2 13	463.0	227.8	129.9	80.5	1.1	439.3	250.3	226.6
	Real growth compared with previous year, per cent							
2008	-0.8	-0.3	1.9	-4.1	...	-0.9	3.3	3.3
2009	-5.7	-3.6	2.1	-15.9	...	-7.0	-9.5	-12.3
2010	1.6	1.7	0.4	-2.4	...	1.6	3.0	3.2
2011	1.1	-0.5	-1.5	2.8	...	0.3	6.5	5.6
2012	-0.4	0.5	0.7	-0.1	...	0.0	0.2	1.0
Q2 12	-1.2	0.4	-1.1	-1.0	...	-1.4	2.4	2.3
Q3 12	0.0	0.4	1.4	-1.8	...	-0.4	0.9	0.3
Q4 12	-0.3	0.5	3.5	-1.0	...	0.5	-2.1	-0.6
Q1 13	-0.8	0.4	0.0	-1.6	...	0.5	-1.3	1.2
Q2 13	0.4	0.1	0.3	1.1	...	0.9	-0.4	0.5
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q2 12	-0.8	-0.1	0.4	-1.9	...	-1.1	1.1	0.9
Q3 12	0.9	-0.4	1.0	-0.1	...	0.4	-0.4	-0.3
Q4 12	-0.7	0.7	1.4	1.5	...	0.9	-2.3	-1.1
Q1 13	-0.2	-0.1	-2.8	-1.2	...	0.1	0.4	1.7
Q2 13	0.5	0.0	0.7	0.9	...	-0.8	1.8	0.1

EU-HARMONIZED INDEX OF CONSUMER PRICES (HICP) AND UNDERLYING INFLATION (IMI)

Table 23

	HICP							Index of net retail prices[1]		
		Subcomponents:								
					Administered prices		HICP excl. energy, food and administered prices[3]	Index of net retail prices excl. energy, food and administered prices[3]	Split into[4]:	
	Total	Energy	Food	Core inflation[2]	Rent	Public services			Import content[5]	IMI[6]
	Weights, per cent									
	100	10.3	18.4	71.3	8.5	4.1	58.7	53.4	16.2	37.2
	Year-on-year growth, per cent									
2008	3.6	7.7	6.7	2.1	2.8	3.5	1.9	2.1	4.0	1.1
2009	1.1	-4.0	0.5	2.0	3.1	4.8	1.7	1.9	-4.3	5.1
2010	2.2	9.2	2.1	1.2	2.8	3.9	0.8	0.9	1.7	0.5
2011	2.7	8.9	4.0	1.4	3.0	2.4	1.1	0.9	4.8	-0.9
2012	2.4	2.9	5.1	1.6	2.6	2.3	1.4	1.2	1.1	1.2
Q1 10	1.9	8.9	0.0	1.4	2.9	3.7	1.0	1.2	-1.3	2.3
Q2 10	2.0	10.1	0.8	1.1	2.8	3.9	0.7	0.7	1.0	0.6
Q3 10	2.3	8.8	3.2	1.1	2.5	4.0	0.8	0.9	3.2	-0.2
Q4 10	2.5	9.1	4.5	1.1	2.9	4.0	0.7	0.8	3.8	-0.6
Q1 11	2.6	9.3	3.4	1.4	2.9	3.7	1.0	0.8	5.4	-1.3
Q2 11	2.9	9.0	4.9	1.5	2.8	2.0	1.3	1.3	6.0	-0.9
Q3 11	2.6	9.3	3.3	1.4	3.2	1.9	1.1	0.9	4.2	-0.7
Q4 11	2.5	8.2	4.4	1.2	3.0	2.1	0.9	0.6	3.5	-0.7
Q1 12	2.8	5.3	5.5	1.7	2.8	1.9	1.5	1.4	1.9	1.2
Q2 12	2.2	1.6	5.1	1.6	2.7	2.5	1.4	1.0	0.5	1.2
Q3 12	2.4	3.0	5.4	1.6	2.2	2.5	1.4	1.1	0.9	1.2
Q4 12	2.1	1.6	4.4	1.6	2.6	2.4	1.5	1.2	1.1	1.2
Q1 13	0.9	0.5	2.6	0.6	2.3	2.7	0.2	0.1	0.1	0.2
Q2 13	0.5	-0.2	1.1	0.5	2.1	2.4	0.2	0.2	-1.4	1.0

Note: The weights reflect the weighting basis as of January 2013.

[1] Prices in the index of net retail prices are compiled excluding indirect taxes and subsidies.

[2] Core inflation is defined as the increase in HICP excluding energy and food.

[3] Goods and services excluding energy. food and administered prices constitute 58.7 per cent of HICP's weight basis and 53.4 per cent of the index of net retail prices. The difference reflects that the same goods and services do not count equally in the two indices. and does not express the indirect taxation content of the consumer prices.

[4] The division of the index of net retail prices into import and IMI is based on Statistics Denmark's input-output table.

[5] The indirect energy content is included in the import content.

[6] IMI expresses the domestic market-determined inflation. For a detailed presentation of IMI. see Bo William Hansen and Dan Knudsen. Domestic Market-Determined Inflation. Danmarks Nationalbank. *Monetary Review*. 4th Quarter 2005.

SELECTED MONTHLY ECONOMIC INDICATORS Table 24

	Unemployment Per cent of labour force		Quantity index		Forced sales of real property	New passenger car registrations	Consumer confidence indicator	Composite cyclical Indicator for		
			Manufacturing industry[2]	Retail trade				Manufacturing industry	Building and construction	Service
	Gross[1]	Net	2005=100	2005=100	Number		Balance per cent			
2008	2.7	1.9	106.7	105.3	2,840	149,799	-7.7	-7	-16	3
2009	4.8	3.6	88.2	101.5	4,140	111,418	-5.0	-14	-44	-13
2010	6.1	4.3	90.6	100.0	5,222	152,825	1.8	3	-35	4
2011	6.0	4.1	94.9	97.6	5,025	170,226	-1.9	4	-20	4
2012	6.1	4.4	95.7	95.3	5,130	171,873	-2.4	2	-18	-5
					Seasonally adjusted					
Aug 12	6.1	4.6	98.9	94.4	439	14,087	-2.1	0	-20	-6
Sep 12	6.1	4.6	94.6	95.0	407	14,570	-2.2	0	-20	-7
Oct 12	6.2	4.6	95.5	94.4	416	14,934	-3.3	-6	-14	-6
Nov 12	6.1	4.6	96.0	94.7	446	15,562	-0.9	2	-14	-4
Dec 12	6.1	4.6	93.0	94.6	362	12,465	-0.9	-1	-18	-3
Jan 13	6.0	4.6	99.6	94.0	413	14,761	-2.1	5	-20	-3
Feb 13	5.9	4.5	95.9	94.3	363	14,614	-1.3	2	-19	-7
Mar 13	5.8	4.4	98.9	93.6	414	14,517	-1.0	4	-19	-6
Apr 13	5.9	4.5	99.6	93.2	389	15,108	-4.8	-4	-21	-8
May 13	5.8	4.4	99.1	93.7	429	13,853	-4.9	-6	-18	-7
Jun 13	5.8	4.4	98.5	94.2	369	15,598	3.3	2	-16	-4
Jul 13	5.7	4.4	101.5	93.6	385	14,716	1.4	-2	-15	-2
Aug 13	...	...	...	...	395	15,400	3.7	-2	-14	-2

[1] Including persons in activation programmes.
[2] Excluding shipbuilding.

SELECTED QUARTERLY ECONOMIC INDICATORS — Table 25

	Employment		Hourly earnings			Property prices (purchase sum, one-family dwellings)
	Total	Private	All sectors in Denmark, total	Manufacturing industry in Denmark	Manufacturing industry abroad	As a percentage of property value 2006
	1,000 persons		1996=100			
2008	2,952	2,114	158.1	158.5	142.5	100.1
2009	2,853	1,993	162.9	163.2	144.6	88.1
2010	2,783	1,912	166.6	167.4	148.8	90.5
2011	2,776	1,917	169.6	171.2	152.5	88.0
2012	2,769	1,919	172.2	174.4	156.3	85.1
			Seasonally adjusted			
Q2 12	2,768	1,918	171.9	174.2	156.0	85.3
Q3 12	2,773	1,922	172.3	174.7	156.8	85.3
Q4 12	2,765	1,918	173.2	176.0	157.5	85.4
Q1 13	2,763	1,918	173.7	176.2	158.3	86.4
Q2 13	2,773	1,924	174.2	177.2	159.3	...
			Change compared with previous year, per cent			
2008	1.7	2.6	4.4	4.2	3.3	-4.5
2009	-3.4	-5.7	3.0	2.9	1.5	-12.0
2010	-2.4	-4.0	2.3	2.6	2.9	2.8
2011	-0.3	0.2	1.8	2.3	2.4	-2.8
2012	-0.3	0.1	1.5	1.8	2.5	-3.2
Q2 12	-0.3	0.3	1.6	2.1	2.7	-5.4
Q3 12	-0.2	0.1	1.4	1.6	2.6	-2.5
Q4 12	-0.4	-0.3	1.4	1.7	2.4	0.7
Q1 13	-0.3	-0.1	1.3	1.5	2.2	2.2
Q2 13	0.2	0.3	1.3	1.7	2.1	...

EXCHANGE RATES

Table 26

	EUR	USD	GBP	SEK	NOK	CHF	JPY
	Kroner per 100 units						
	Average						
2008	745.60	509.86	939.73	77.73	91.02	469.90	4.9494
2009	744.63	535.51	836.26	70.18	85.39	493.17	5.7296
2010	744.74	562.57	869.02	78.15	93.02	540.60	6.4299
2011	745.05	536.22	859.05	82.52	95.61	605.74	6.7378
2012	744.38	579.72	918.37	85.62	99.62	617.57	7.2793
Aug 12	744.54	600.49	943.87	89.92	101.66	619.88	7.6309
Sep 12	745.39	579.91	933.86	87.77	100.81	616.61	7.4185
Oct 12	745.82	574.87	924.61	86.58	100.69	616.50	7.2791
Nov 12	745.87	581.48	927.85	86.65	101.66	618.89	7.1791
Dec 12	746.03	569.13	918.95	86.19	101.51	616.89	6.8249
Jan 13	746.14	561.59	896.36	86.55	101.08	607.31	6.3089
Feb 13	745.98	558.49	864.95	87.68	100.50	606.61	5.9982
Mar 13	745.53	574.74	866.26	89.32	99.61	607.64	6.0575
Apr 13	745.53	572.31	875.78	88.35	98.88	611.34	5.8504
May 13	745.37	573.73	877.15	86.95	98.53	600.48	5.6910
Jun 13	745.78	565.24	875.38	85.86	96.31	605.36	5.8134
Jul 13	745.79	570.24	865.29	86.11	94.60	603.11	5.7199
Aug 13	745.80	560.36	868.21	85.69	93.96	604.49	5.7223

EFFECTIVE KRONE RATE — Table 27

Average	Nominal effective krone rate	Consumer-price indices: Denmark	Consumer-price indices: Abroad	Real effective krone rate based on consumer prices	Real effective krone rate based on hourly earnings	Consumer-price index in the euro area
	1980=100					2005=100
2008	105.8	259.0	246.9	111.1	117.1	107.8
2009	107.8	262.4	247.4	114.8	121.5	108.1
2010	104.0	268.4	251.6	111.6	117.0	109.8
2011	103.6	275.8	258.4	111.1	116.3	112.8
2012	100.6	282.5	263.7	109.0	112.9	115.7
Aug 12	98.9	283.3	264.1	107.3	...	115.6
Sep 12	99.9	283.9	264.9	108.3	111.3	116.4
Oct 12	100.3	283.7	265.3	108.4	...	116.7
Nov 12	100.0	283.5	264.9	108.3	...	116.5
Dec 12	100.7	282.6	265.3	108.4	112.6	116.9
Jan 13	101.5	281.5	264.7	109.1	...	115.7
Feb 13	102.1	284.8	265.9	110.4	...	116.1
Mar 13	101.3	285.5	267.0	109.7	113.6	117.5
Apr 13	101.6	285.0	266.9	109.8	...	117.4
May 13	101.8	285.3	267.3	110.1	...	117.5
Jun 13	102.4	285.0	267.4	110.5	114.1	117.6
Jul 13	102.4	284.2	...	...	...	117.0
Aug 13	102.7	...	...	...	...	...
	Change compared with previous year, per cent					
2008	2.5	3.4	3.4	2.6	3.6	3.3
2009	1.9	1.3	0.2	3.4	3.7	0.3
2010	-3.6	2.3	1.7	-2.8	-3.7	1.6
2011	-0.3	2.8	2.7	-0.4	-0.6	2.7
2012	-2.9	2.4	2.1	-1.9	-2.9	2.5
Aug 12	-5.1	2.6	2.0	-3.6	...	2.6
Sep 12	-3.4	2.5	2.0	-2.5	-4.5	2.6
Oct 12	-3.1	2.3	2.1	-2.5	...	2.5
Nov 12	-3.2	2.3	1.8	-2.4	...	2.2
Dec 12	-1.7	2.0	1.8	-1.5	-3.0	2.2
Jan 13	0.1	1.3	1.6	-0.3	...	2.0
Feb 13	0.3	1.2	1.5	0.0	...	1.8
Mar 13	-0.6	0.9	1.4	-0.7	-0.6	1.7
Apr 13	-0.1	0.8	1.1	-0.2	...	1.2
May 13	0.7	0.9	1.3	0.4	...	1.4
Jun 13	1.8	0.9	1.5	1.3	0.6	1.6
Jul 13	3.1	0.6	...	...	...	1.6
Aug 13	3.9	...	...	...	...	...

Note: The nominal effective krone rate index is a geometric weighting of the development in the Danish krone rate against currencies of Denmark's 27 most important trading partners. However, only 25 countries are included in the calculation of consumer prices abroad and the real effective krone rate based on consumer prices and hourly earnings, respectively.

As from April 2010 the weights are based on trade in manufactured goods in 2009 and earlier on trade in manufactured goods in 2002.

An increase in the index reflects a nominal or a real appreciation of the krone.

Danmarks Nationalbank's Statistical Publications

Periodical electronic publications
Danmarks Nationalbank releases new financial statistics to the public in electronic publications composed of 2 elements:

- **"Nyt" (News)** describing the key development trends.
- **Tabeltillæg (Tables Supplement)** containing tables with as detailed specifications as possible.

"Nyt" is available in Danish only, whereas the tables supplement and the corresponding sources and methodologies also are available in English.

Statistics databank
The above publications are supplemented by a statistics database comprising all time series which are updated concurrent with a release. The time series include data as far back in time as possible. The statistical data from Danmarks Nationalbank are published through Statistics Denmark's "StatBank Denmark". Danmarks Nationalbank's part of the "StatBank Denmark" is available directly via:
nationalbanken.statbank.dk

Special Reports
Special Reports deal with statistics of a thematic character and are not prepared on a regular basis.

Release calendar
A release calendar for the statistical publications, covering the current month and the following quarter, is available on:
www.nationalbanken.dk (see Statistics > Release calendar).