REPORT

DANMARKS NATIONALBANK

13 SEPTEMBER 2017 — No. 6

MONETARY AND FINANCIAL TRENDS – SEPTEMBER 2017

Stable krone and limited intervention

- In the last six months, the krone has been stable slightly on the strong side of the central rate vis-à-vis the euro. In the beginning of this period Danmarks Nationalbank intervened modestly in the foreign exchange market.
- Danmarks Nationalbank has kept its monetary policy rates unchanged. The rate of interest on certificates of deposit, CD rate, is -0.65 per cent. The interest spread to the European Central Bank's monetary policy rate has been unchanged at -0.25 percentage points since March 2016.
- Growth in lending to households and the corporate sector has been moderate. In July 2017, lending to the corporate sector was approximately 3 per cent higher than the year before, while lending to households had grown by approximately 1 per cent. The debt level is still relatively high.

Stable krone

The krone has been stable slightly on the strong side of the central rate

Read more

Unchanged policy rates

The CD rate is unchanged at -0.65 per cent

Read more

Credit growth

Growth in lending to households and the corporate sector has been moderate

Read more

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ECONOMICS AND MONETARY POLICY

Foreign exchange market

Stable krone rate and limited intervention
In the last six months, the Danish krone has been stable slightly on the strong side of the central rate vis-à-vis the euro. During this period, Danmarks Nationalbank intervened modestly in the foreign exchange market. Most recently, small interventions were made in February and March 2017 prior to the French presidential election, during which France's participation in the euro was an topic. On previous occasions, Denmark has also seen inflows of capital in periods of political or economic uncertainty in the euro area.

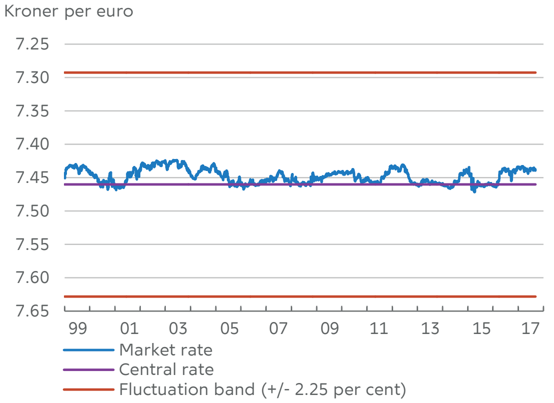
At the end of August, the foreign exchange reserve was kr. 464 billion, corresponding to 22 per cent of Denmark's gross domestic product, GDP. Due to the limited intervention, the size of the foreign exchange reserve has been stable since June 2016 after the UK referendum on membership of the EU.

Danmarks Nationalbank has kept its monetary policy rates unchanged since January 2016. As a result, the rate of interest on certificates of deposit, CD rate, remains unchanged at -0.65 per cent. The monetary policy spread to the European Central Bank, ECB, has been unchanged at -0.25 percentage point since March 2016.

Weakening of the dollar
The dollar strengthened against the euro in the wake of the US presidential election in November 2016, including as a result of market expectations of expansionary fiscal policy under President Donald Trump. This development has reversed, and the dollar is now weaker than before the election, cf. Chart 3. This may reflect the Trump administration's problems in implementing its fiscal expansion, among other factors. Furthermore, the strengthening of the euro against the dollar since early April should be viewed in the light of declining political uncertainty following the French presidential election and the impression of stronger momentum in the euro area economy over the spring.

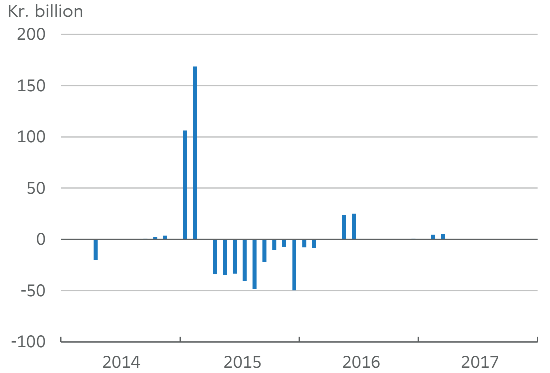
In April, the Czech National Bank abandoned its exchange rate floor vis-à-vis the euro, which it had kept in place since November 2013, cf. Box 1. During that period, the Czech National Bank kept the Czech currency on the weak side of 27 koruna per euro.

The krone has been stable on the strong side of the central rate Chart 1



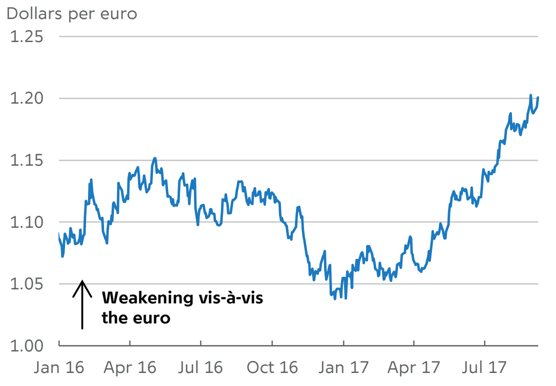
Note: Reverse scale.
Source: Danmarks Nationalbank.

Very limited interventions since June 2016 Chart 2



Note: Danmarks Nationalbank's net purchases of foreign exchange. The most recent observation is August 2017.
Source: Danmarks Nationalbank.

Weakening of the dollar vis-à-vis the euro Chart 3



Source: Thomson Reuters Datastream.

Unlike the Swiss National Bank's removal of its exchange rate floor vis-à-vis the euro in January 2015, the Czech decision was very much expected.

Money market

The ECB has maintained its interest rates unchanged, but changed its forward guidance
The ECB decided to remove its reference to possible lower interest rates in its forward guidance on the monetary policy rates at the monetary policy meeting in June. Accordingly, it no longer expects that further lowering of the monetary policy rates will be necessary. The ECB's risk assessment of the outlook for the euro area economy is now more balanced than previously, and in the ECB's assessment, the risk of deflation in the euro area is no longer present.

Despite the more optimistic outlook for the euro area economy, the ECB expects the monetary policy rates to remain at the current low levels for some time to come. The ECB intends not to raise its monetary policy rates until the asset purchase programme has been completed.

The economic upswing in the euro area has not yet been reflected in a rate of price increase in accord-

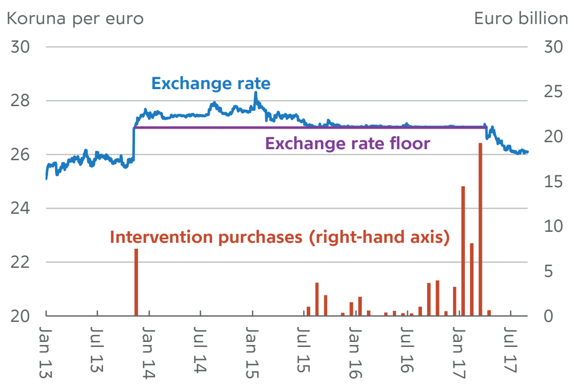
The Czech Republic removed its exchange rate floor vis-à-vis the euro in April Box 1

On 6 April 2017, the Czech National Bank, the CNB, removed its exchange rate floor which has kept the Czech currency on the weak side of 27 koruna per euro since November 2013. The Czech exchange rate floor was introduced to avoid a long-term rate of price increase under the target of 2 per cent. In connection with the removal, the CNB announced that the exchange rate floor was no longer necessary to meet the inflation target.

At end-2016, the rate of price increase in the Czech Republic reached 2 per cent for the first time in four years. This caused speculation in the markets as to when the CNB would remove the exchange rate floor. Inflation rose further in 2017. Speculation about removal of the exchange rate floor led to substantial inflow of capital to the Czech Republic, and the CNB had to make large intervention purchases of foreign exchange in the market to prevent a strengthening of the Czech koruna. The CNB's decision in April had no knock-on effect on the krone market.

As a result of the CNB's interventions in the market, the Czech foreign exchange reserve grew to more than 120 billion euros, approximately 70 per cent of GDP. The Czech foreign exchange reserve has tripled since November 2013. The CNB intervened at a time where the koruna was kept weak vis-à-vis the euro due to the exchange rate floor. The strengthening of the koruna since 6 April means that the value of the foreign exchange reserve has fallen. Based on estimates from the IMF, the CNB has lost more than 3 billion euros due to the strengthening of the koruna.

The Czech currency has strengthened vis-à-vis the euro since April



Note: The chart shows data on the CNB's intervention purchases up to and including July 2017.
Source: CNB and Macrobond.

ance with the ECB's inflation target. Hence, the ECB's Governing Council, which is responsible for setting monetary policy in the euro area, finds that the highly accommodative monetary policy remains appropriate.

As part of the ECB's extraordinary monetary policy measures, the central banks of the euro area member states have been purchasing bonds through the expanded asset purchase programme, APP, since March 2015. Most of the asset purchases are still conducted through the Public Sector Purchase Programme, PSPP, under which the ECB has been purchasing bonds issued by the public sector in the euro area, primarily government bonds. In April 2017, the ECB reduced its monthly net asset purchases by 20 billion euro. Hence, the ECB is now purchasing bonds for 60 billion euro per month.

The ECB asset purchase programme increases excess liquidity in the banking sector

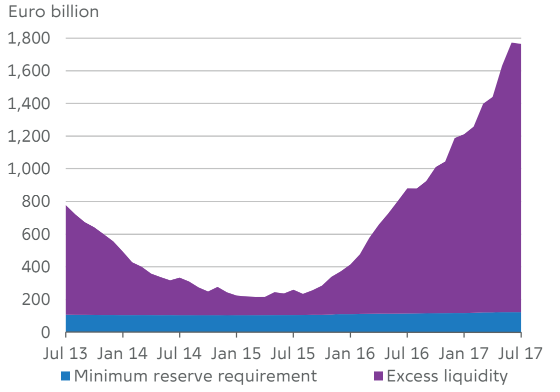
The ECB's bond purchases provide liquidity to the euro area banking sector. Excess liquidity has increased due to the ECB's asset purchase programme, reaching around 1,650 billion euro in July 2017, cf. Chart 4. Excess liquidity has increased by more than 1,500 billion euro since the ECB started purchasing government bonds in March 2015. Excess liquidity is the banks' total deposits with the central bank over and above the sum of the individual banks' minimum reserve requirements.[1]

The high level of excess liquidity helps to keep money market rates in the euro area close to the ECB's deposit rate, the bottom of the ECB's interest rate corridor, cf. Chart 5. The low and stable money market rates in the euro area are reflected in the Danish money market.

Money market rates are low and stable

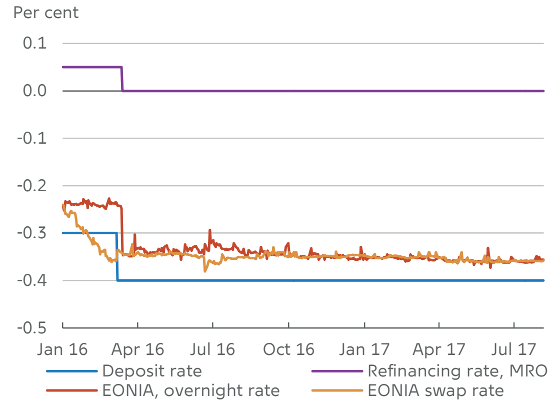
The money market rate in Denmark, measured by the 3-month CITA swap rate, has been around -0.5 per cent since the autumn of 2016, cf. Chart 6.[2] Short-term interest rate expectations have not

The ECB asset purchase programme increases excess liquidity in the euro area Chart 4



Source: ECB.

Low and stable money market rates in the euro area Chart 5



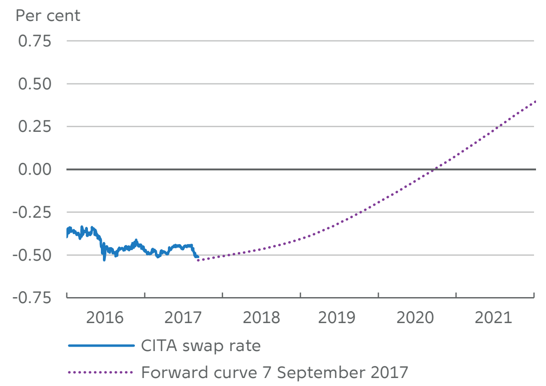
Note: The EONIA swap rate shown is a 3-month rate.
Source: Bloomberg.

1 The minimum reserve requirement is the volume of liquidity each bank in the euro area must hold as reserves in their current accounts with the national central bank on average over a specified period, i.e. the reserve maintenance period.

2 In a CITA interest rate swap, one party pays the average of the overnight rate over the period and receives a fixed rate agreed on entering the swap.

Money market rates remain stable and low

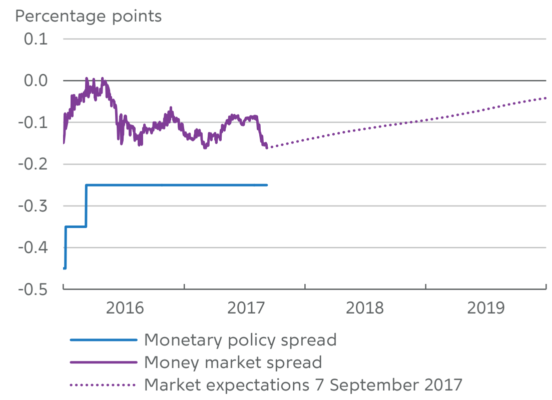
Chart 6



Note: The CITA swap rate shown has a maturity of 3 months. Implied market expectations are indicated by forward rates calculated on the basis of CITA interest rate.
Source: Thomson Reuters Datastream, Scanrate RIO.

Money market spread remains negative

Chart 7



Note: The monetary policy spread is the difference between Danmarks Nationalbank's rate of interest on certificates of deposit and the ECB's deposit rate. The money market spread is based on 3-month CITA and EONIA swap rates and the broken line indicates the spread between forward rates based on CITA and EONIA swap rates.
Source: Scanrate Rio, Thomson Reuters and Danmarks Nationalbank.

changed materially during the period. The slight slope of the forward curve up until the end of 2018 indicates that the market expects a very modest rise in interest rates from the ECB by that time. Based on the forward rates, expectations in the market are that the money market rates will remain negative up until the beginning of 2020.

The yield spread to the ECB, measured as the difference between 3-month money market rates in Denmark and the euro area, has been around -10 basis points since mid-2016. Market expectations indicate that the money market spread to the euro area is expected to narrow, cf. Chart 7.

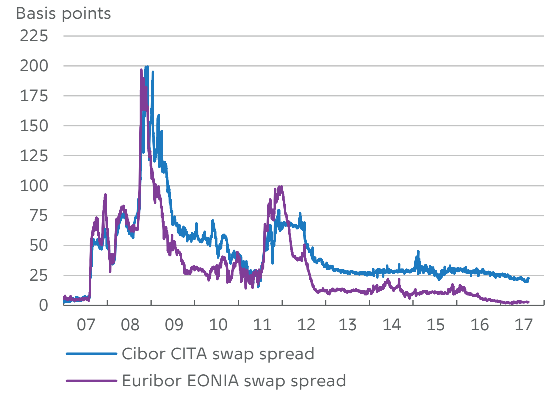
Smaller spread between unsecured and secured money market rates

The yield spread between unsecured money market rates and swap rates in the euro area has been narrowing since the beginning of 2016, cf. Chart 8. In August 2017, the spread had been reduced to 2-3 basis points, corresponding to a level slightly below the pre-crisis level. The swap rate can be seen as an expression of the overall rate of interest achieved by lending in the overnight money market for e.g. three months.

The unsecured money market rate is normally higher than the swap rate with the same term to maturity to compensate for the higher credit and liquidity

Narrowing spread between uncollateralised and collateralised money market rates

Chart 8



Note: The money market spread is calculated as 3-month Euribor, which is a reference interest rate for uncollateralised lending, minus the 3-month interest rate of interest rate swaps at the overnight interest rate.
Source: Thomson Reuters Datastream.

risk of providing unsecured loans for which liquidity and credit risks are tied up longer than for overnight loans. The narrowing of the yield spread since 2016 has coincided with the increase in excess liquidity in the euro area due to the ECB's asset purchase programmes. The rise in excess liquidity helps to reduce the liquidity premium on lending in euro. The yield spread between unsecured money market rates and swap rates has also narrowed in Denmark since the beginning of 2016.

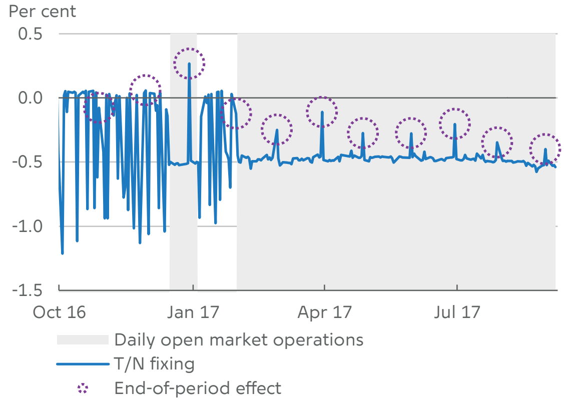
Status of Danmarks Nationalbank's daily open market operations

From 1 February 2017, Danmarks Nationalbank introduced daily purchases and sales of certificates of deposit to support a smooth exchange of liquidity in the Danish money market. The reference rate for money market lending – the T/N rate – has remained stable since then at around -0.50 per cent, cf. Chart 9. At the turn of the month, the interest rate is slightly higher due to lower liquidity supply in the money market. A higher interest rate around the turn of the month is also seen e.g. in the euro area and is attributable to the banks' wish to reduce their lending activities on the cut-off date for monthly accounts, among other factors. Here, a number of liquidity and risk indicators are calculated which is why some banks prefer to hold deposits with the central bank rather than lending to other banks over the turn of the month.

The stability of the T/N rate has also affected the CITA interest rate swap market, which during the period of daily open market operations has not exhibited the day-to-day fluctuations previously seen. The first period after the introduction of daily open market operations saw a limited decline in the interbank exchange of liquidity in the overnight money market. Turnover fell considerably in July, cf. Chart 10, and fixing of the T/N rate has often been supplemented by quoted rates reported by a panel of banks. The purpose of the quoted rates is to help to ensure appropriate T/N interest rate setting on days of low turnover. The banks' reporting of quoted rates indicates broad consensus on the market price of the T/N rate, measured as a low spread between the highest and the lowest quoted rate.

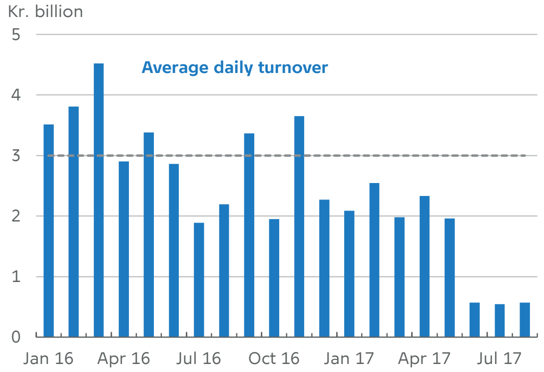
Since the autumn of 2016, Danish banks' net position vis-à-vis Danmarks Nationalbank has averaged around kr. 200 billion, cf. Chart 11. The stable average reflects e.g. the limited number of foreign exchange interventions during that period. In add-

Overnight money market rate Chart 9



Source: Finans Danmark.

Lower turnover in the T/N market Chart 10

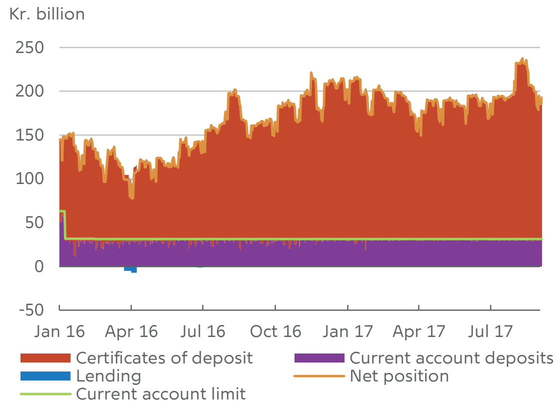


Note: On days with turnover below kr. 3 billion, the fixing of the T/N rate is supplemented by quoted rates.
Source: Finans Danmark.

ition to interventions, mainly central government payments may affect the net position, especially in the short term. The net position was higher at the beginning of August, because VAT to the central government is not payable in July. In August, VAT to the central government is paid twice, so the net position is reduced again over the month.

Since the introduction of daily open market operations in February 2017, the difference between the total current account deposit and the total current account limits has been close to zero, cf. Chart 11. The banks' daily open market operations have enabled them to better exploit their current account limits to the full.

Net position Chart 11



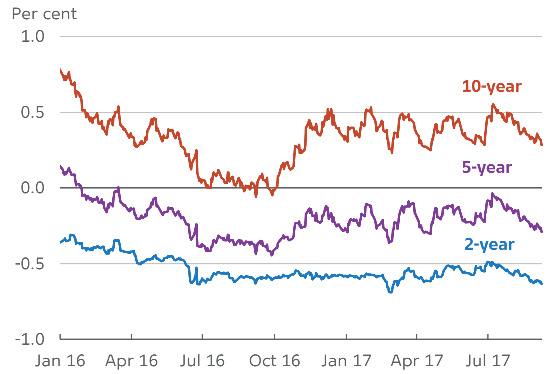
Note: The net position is the monetary policy counterparties' total net account in kroner with Danmarks Nationalbank. It is defined as the counterparties' holdings of certificates of deposit and current account deposits less monetary policy loans.
Source: Danmarks Nationalbank.

Capital market

Long-term bond yields remain unchanged
Long-term interest rates remain very low. The 10-year government bond yield in Denmark has been on the low side of 0.50 per cent since the end of 2016, cf. Chart 12. In the same period, the 2-year government bond yield has been around -0.60 per cent.

The spread between Danish and German 10-year government bond yields was 10 basis points in August 2017. This is a decrease compared with the beginning of 2016 when the yield spread was 30 basis points. Part of the decrease has taken place after 1 April 2017, when a new primary dealer model was introduced in the Danish government securities market. Preliminary results indicate that the new model has improvd liquidity in the Danish government securities market.[3] Improved liquidity of Danish government bonds may contribute to reducing the spread between Danish and German government bond yields. Since April 2017, the yield spreads between Germany and countries such as France, Spain and Italy have also narrowed, cf. Chart 13. Presumably, the narrowing yield spreads are attributable to both reduced political uncertainty and better growth prospects in the euro area.

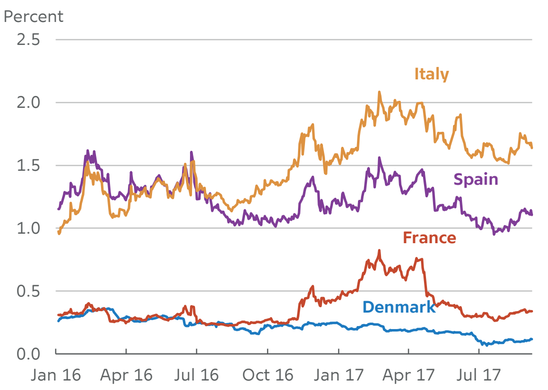
Government yields have been almost unchanged since the autumn of 2016 Chart 12



Note: Par yields. To ensure comparability, a 9-year par yield is shown instead of the 10-year point in the curve. The most recent observation is from 7 September.
Source: Nordea Analytics.

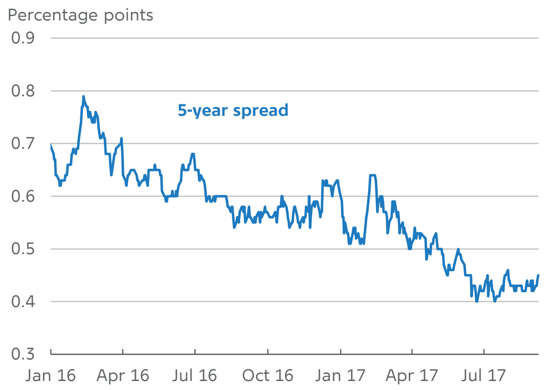
3 Cf. Anders Tofthøj Andersen and Jonas Staghøj, New model has improved liquidity in the Danish government securities market, *Danmarks Nationalbank Analysis*, No. 8, May 2017.

Narrowing yield spreads to Germany for several European countries since April 2017 Chart 13



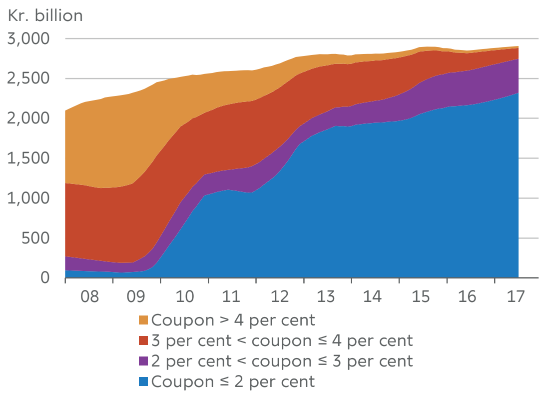
Note: To ensure cross-country comparability, a 9-year par yield is shown. The most recent observation is from 7 September.
Source: Nordea Analytics.

Narrower yield spread between government and mortgage bonds Chart 14



Note: Spread between mortgage bond yields and government bond yields. Based on 5-year par yields.
Source: Nordea Analytics.

Most mortgage bonds have low coupon rates Chart 15



Note: 12 -month moving average of the nominal value of all outstanding Danish mortgage bonds.
Source: Danmarks Nationalbank.

Fewer short-term adjustable rate loans

The tendency towards fewer short-term adjustable rate loans in Denmark has continued over the last six months. Since the 1st quarter of 2013, the share of 1-year (F1) and 2-year (F2) adjustable rate loans has decreased from 29 per cent to 8 per cent of total mortgage lending. This mainly reflects a change in the mortgage banks' administration margins in favour of loans with longer fixed interest periods. Only a small proportion has changed in favour of fixed rate loans, which have increased from 28 per cent to 35 per cent of the total outstanding volume of mortgage loans since the 1st quarter of 2013. Most of the increase is related to loans with medium-term fixed interest periods. The spread between mortgage and government bonds has gradually narrowed since the beginning of 2016, cf. Chart 14.

The low level of interest rates has increased loan conversions broadly across households and corporate customers. Since July 2016, especially mortgage bonds with coupons of 3 and 3.5 per cent have been replaced by mortgage bonds with coupons of 2 per cent or less. The latter accounted for 82 per cent of all issued mortgage bonds in July 2017, cf. Chart 15.

The foreign ownership share of Danish bonds has increased notably in recent years and now amounts to approximately 25 per cent, cf. Box 2.

Increasing foreign ownership of Danish bonds

Box 2

The foreign ownership share of Danish bonds taken as one has increased considerably since the beginning of 2010. In July 2017, the foreign ownership share was around 25 per cent of all Danish bonds.

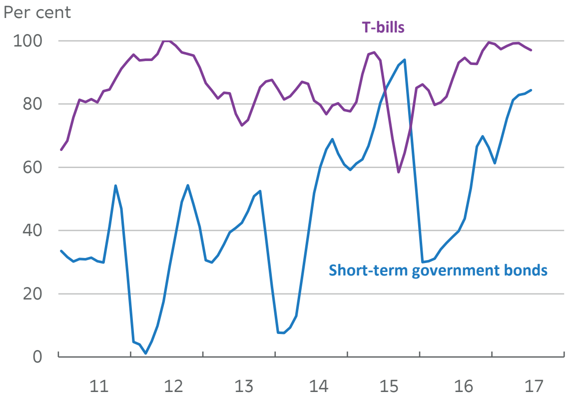
Foreign ownership of Danish bonds is highest among short-term securities. For example, the ownership share for government bonds maturing within 1 year is 88 per cent. At the same time, foreigns hold just under 100 per cent of all T-bills.

The large foreign holdings of very short-term securities may be attributable to the pricing of FX swaps between kroner and dollars. When dollar-based investors hedge their exchange rate risk from Danish kroner via FX swaps, they receive a premium. They may achieve a higher return than Danish investors.[1] The foreign ownership share of Danish government bonds with a maturity longer than 1 year has been largely unchanged since 2011.

The foreign ownership share of Danish short-term government bonds tends to increase over the year until the bonds expire on 15 November. Part of the explanation is that the Danish insurance and pension companies typically reduce their holdings while foreign investors increase their holdings as the expiry date approaches. This may reflect that foreign investors prefer short-term government securities to a greater extent than the Danish insurance and pension sector. The central government's buy-backs of government bonds before expiry also contribute to higher foreign ownership as the domestic sector typically sells in connection with buy-backs.

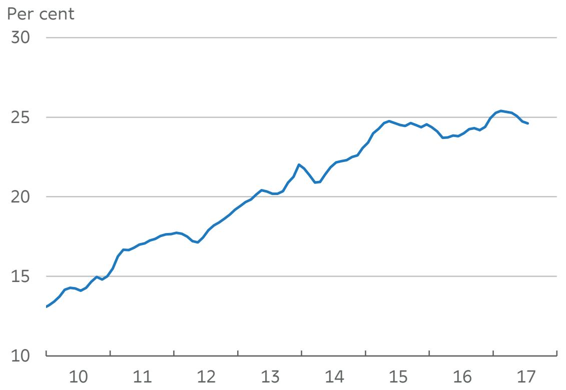
Foreign investors are also major buyers of Danish mortgage bonds. The foreign ownership share has risen considerably for long-term mortgage bonds in particular.

High foreign ownership share of short-term Danish government securities



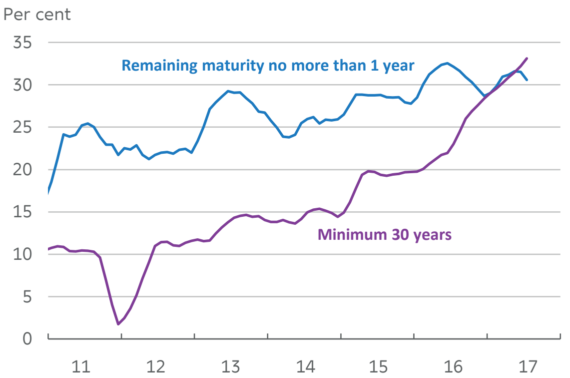
Note: Short-term government bonds are bonds with a remaining maturity of no more than 1 year. The series are 3-month moving averages of the foreign ownership shares of Danish government securities. The ownership shares have been adjusted for the central government's own holdings, which includes current buy-backs.
Source: Danmarks Nationalbank.

Increasing foreign ownership of Danish bonds



Note: The series is a 3-month moving average of the seasonally adjusted foreign ownership share of Danish bonds. Danish bonds include mortgage bonds, government bonds and corporate bonds, among others.
Source: Danmarks Nationalbank.

Increasing foreign ownership of Danish mortgage bonds



Note: The series are 3-month moving averages of the foreign ownership shares of Danish mortgage bonds.
Source: Danmarks Nationalbank.

1. See also Danmarks Nationalbank, Stable krone and calm money market, *Danmarks Nationalbank Report (Monetary and financial trends)*, No. 2, March 2017, Box 1 on more expensive dollar funding.

Lending

Easing of credit standards and growing corporate sector demand for loans
In Danmarks Nationalbank's most recent lending survey, the banks and mortgage banks report an easing of credit standards for both the corporate sector and households in the 2nd quarter of 2017, cf. Chart 16. In the preceding three quarters, the banks and mortgage banks eased their credit standards for the corporate sector, while tightening them for households. The banks and mortgage banks state increased competition and a lower risk assessment as the reasons for the easing for the corporate sector. The banks and mortgage banks do not expect any further easing in the 3rd quarter.

Corporate sector demand for loans increased in the 2nd quarter of 2017, primarily in mortgage banks and medium-sized banks. Both mortgage banks and medium-sized banks expect the tendency for increasing demand from the corporate sector to continue in the 3rd quarter.

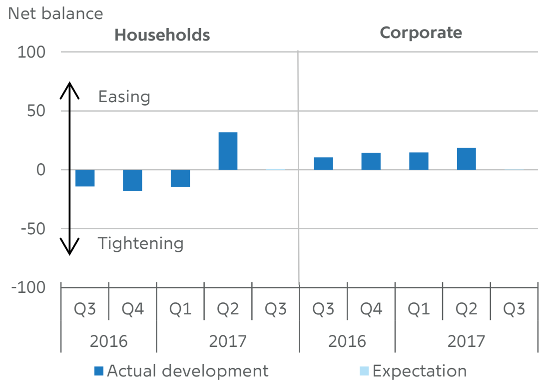
Limited growth in lending to households and corporate sector
Growth in total lending to households and the corporate sector is still moderate, cf. Chart 17. In July 2017, lending to the corporate sector was approximately 3 per cent higher than the year before, while lending to households had grown by approximately 1 per cent. The development for households is attributable to a decline in lending to sole proprietorships, while lending to wage earners, etc. has gone up. The debt level is still relatively high.

Since the peak in 2008, lending by banks to households and the corporate sector has declined by 27 per cent. In the same period, lending by mortgage banks increased by 23 per cent. From the beginning of 2017, lending by banks has begun to increase slightly. Total lending by banks and mortgage banks is now 5 per cent higher than at the peak in 2008.

Falling lending and deposit rates
The banks' lending and deposit rates have been falling since the lowering of the rate of interest on certificates of deposit at the beginning of 2015, cf. Chart 18. Lending rates have fallen more than deposit rates during this period. The banks have been hesitant to pass on Danmarks Nationalbank's nega-

Easing of credit standards for both corporate customers and households by financial institutions

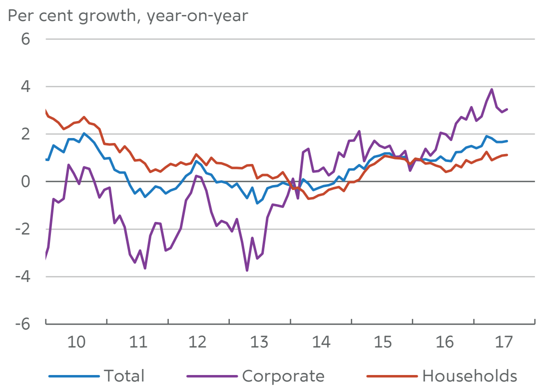
Chart 16



Note: The lending survey provides qualitative statistical data based on responses from the largest Danish banks and mortgage banks. A negative figure indicates a tightening and a positive figure an easing of credit standards. For example, a net balance of -100 means that all institutions have tightened their credit standards considerably, while a net balance of -50 means that they have tightened them a little.
Source: Danmarks Nationalbank.

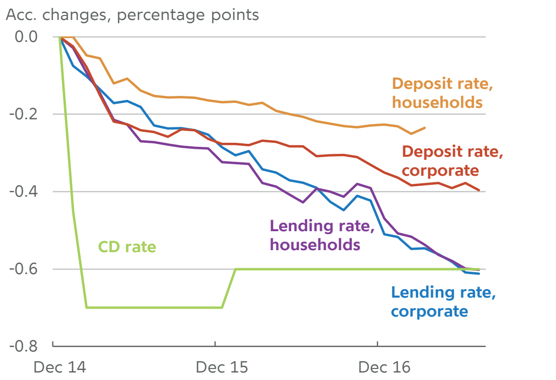
Credit growth is moderate

Chart 17



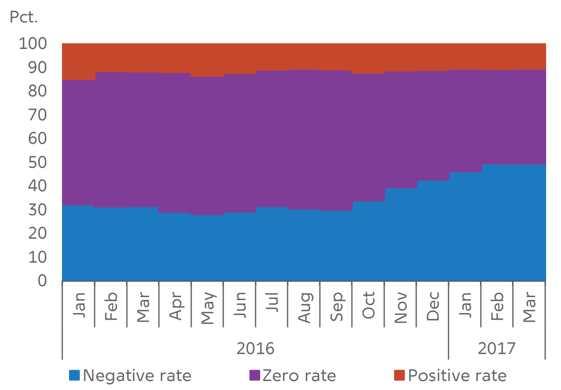
Note: Loans in the MFI sector.
Source: Danmarks Nationalbank.

Lending rates decreasing faster than deposit rates Chart 18



Note: For households, deposit rates are exclusive of lending-related deposits.
Source: Danmarks Nationalbank.

Interest rates are negative for half of corporate deposits Chart 19

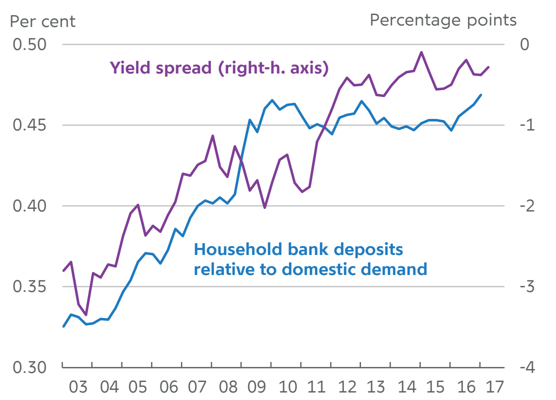


Note: Data for the share of corporate deposits at positive, negative and zero rates of interest are based on a survey conducted by Danmarks Nationalbank every six months among the reporting banks, covering around 80 per cent of all corporate deposits. Data relate to Danish counterparties in all currencies.
Source: Danmarks Nationalbank.

tive rate of interest to small firms and especially to households, which have been exempt from negative deposit rates.[4] This means that the banks' interest rate margin has fallen in this period. The banks have to a certain degree been able to compensate for this by increased income from administration margins payable on mortgage loans and other fees. On the expenditure side, there has been focus on increasing efficiency and reducing costs, cf. Financial stability, 1st Half 2017.[5]

At the end of March, just under 50 per cent of firms' deposits at banks earned interest at a negative rate, cf. Chart 19. This is an increase of 18 percentage points over the last year and reflects, among other things, that banks are adjusting to the negative rate of interest on certificates of deposit.

Rising bank deposits have followed lower yield spreads Chart 20



Note: The yield spread is measured as the difference between the average deposit rate for households and the average bond yield, which is an average of the yields to maturity for outstanding government bonds and mortgage bonds.
Source: Danmarks Nationalbank and Nasdaq OMX.

4 Cf. Rasmus Kofoed Mandsbjerg, Søren Lejsgaard Autrup and Lars Risbjerg, Pass-through from Danmarks Nationalbank's interest rates to the banks' interest rates, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 2016.

5 Danmarks Nationalbank, Optimism in the banking sector provides breeding ground for increased risk-taking, *Danmarks Nationalbank Analysis (Financial stability)*, No. 11, June 2017.

Households have increased their deposits with Danish banks

Bank deposits from Danish households have increased strongly in recent years, to a level close to the peak. Households need bank deposits for transaction and other purposes, and their bank deposits will typically rise in step with the increase in consumption measured in current prices.[6] For households, a cost of having large bank deposits is that they can potentially achieve a higher return by investing in other assets. The spread between households' return on bank deposits and return on investment in bonds has narrowed since 2009, cf. Chart 20. This means that despite the lower deposit rates for households, bank deposits have nevertheless become more attractive compared with alternative placement in bonds.

6 The Danish money demand has previously been estimated by Anders Møller Christensen and Hugo Frey Jensen, Den danske pengeefterspørgsel 1975-1986, *Nationaløkonomisk Tidsskrift*, No. 2, 1987 (in Danish), Niels Lynggård Hansen, Money Demand in Denmark, Danmarks Nationalbank, *Monetary Review*, August 1996 and Allan Bødskov Andersen, Money Demand in Denmark 1980-2002, Danmarks Nationalbank, *Working Papers*, No. 18, 2004.

ABOUT REPORT

Reports are fixed publications e.g. Danmarks Nationalbank's annual report.

Reports also includes e.g. the semi-annual report on monetary and financial trends and the annual Dankort Assessment.

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