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THE DANISH EXPERIENCE WITH NEGATIVE INTEREST RATES

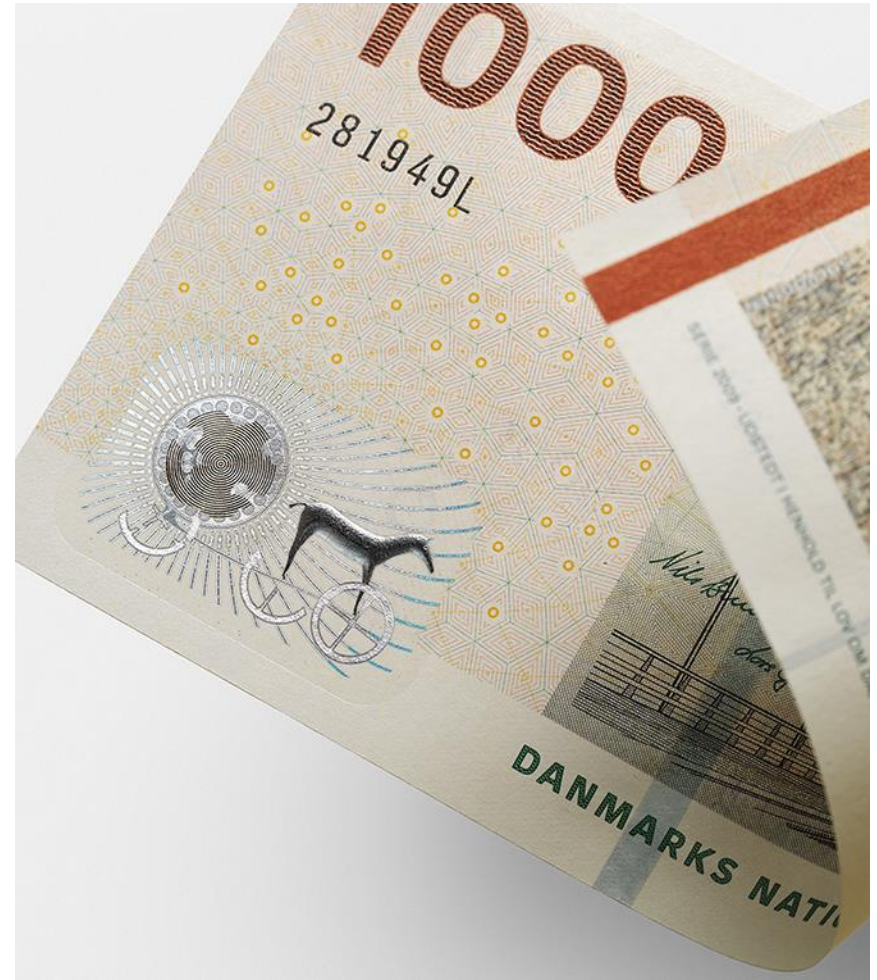
Lars Rohde, Chairman of the Board of Governors, 2 October 2017



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Agenda

1. Background on monetary policy regime
2. Negative policy rates in Denmark
3. Implications for banks
4. Implications for households

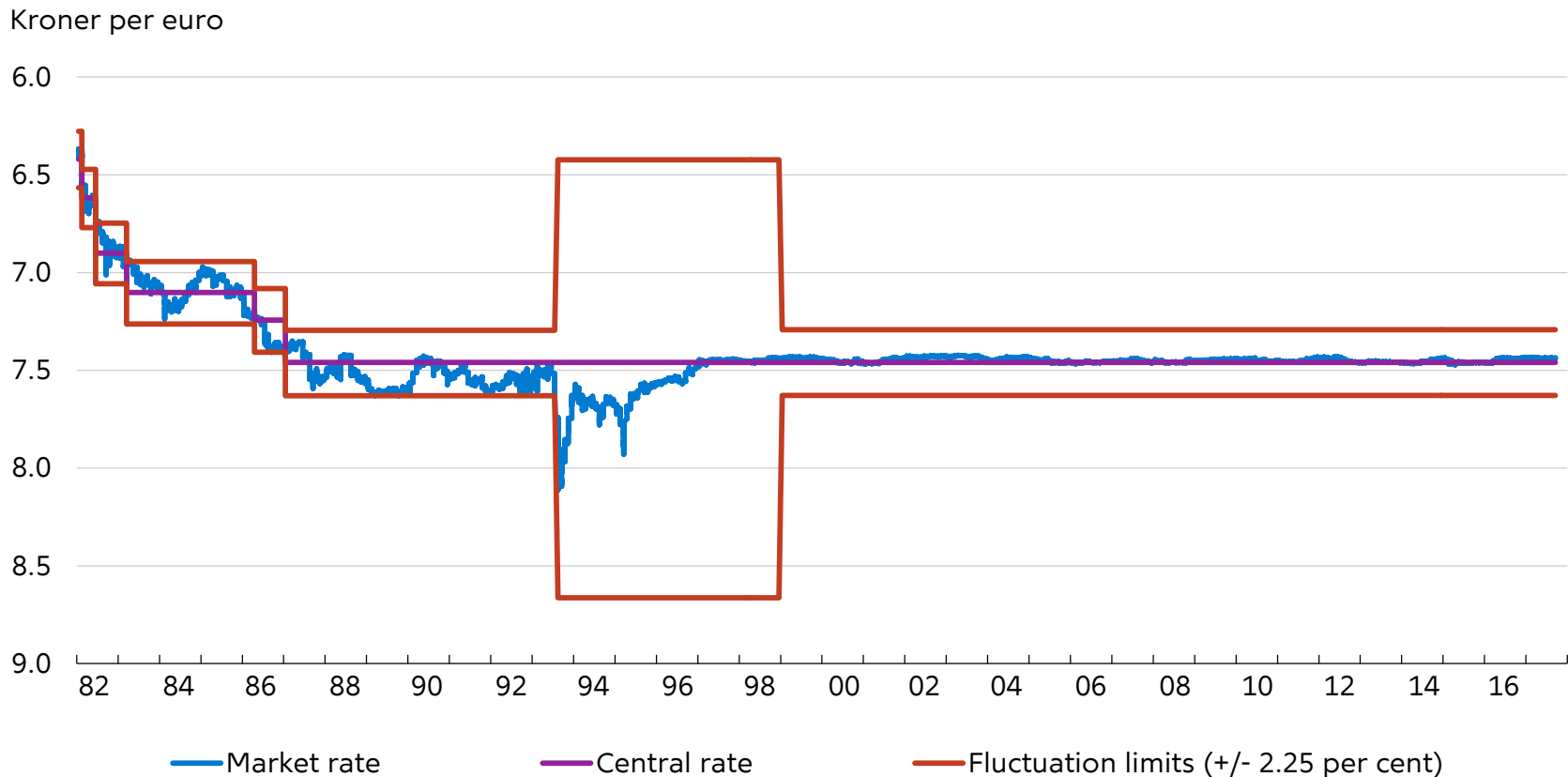


Background on monetary policy regime



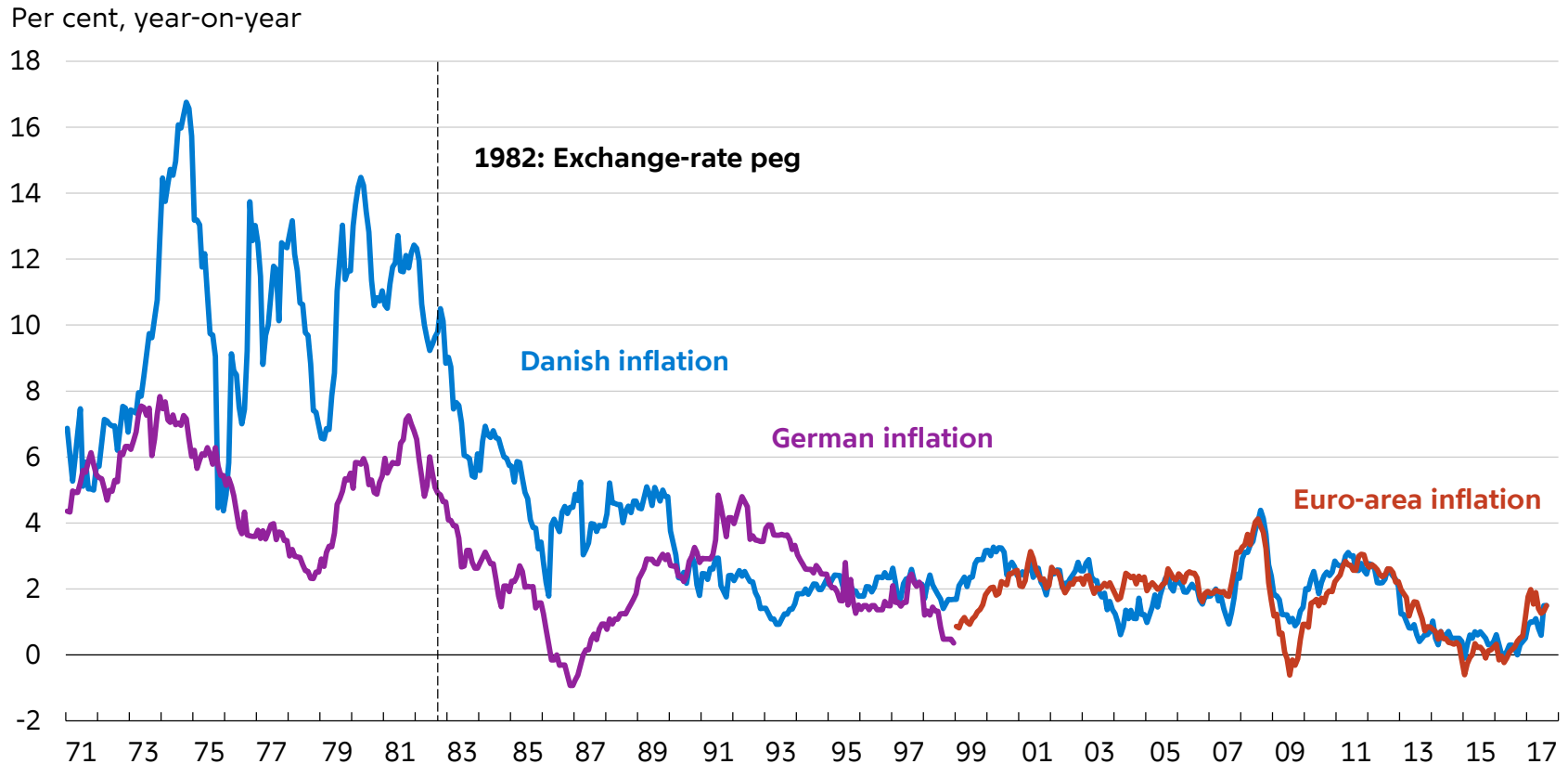
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Unchanged central parity for three decades



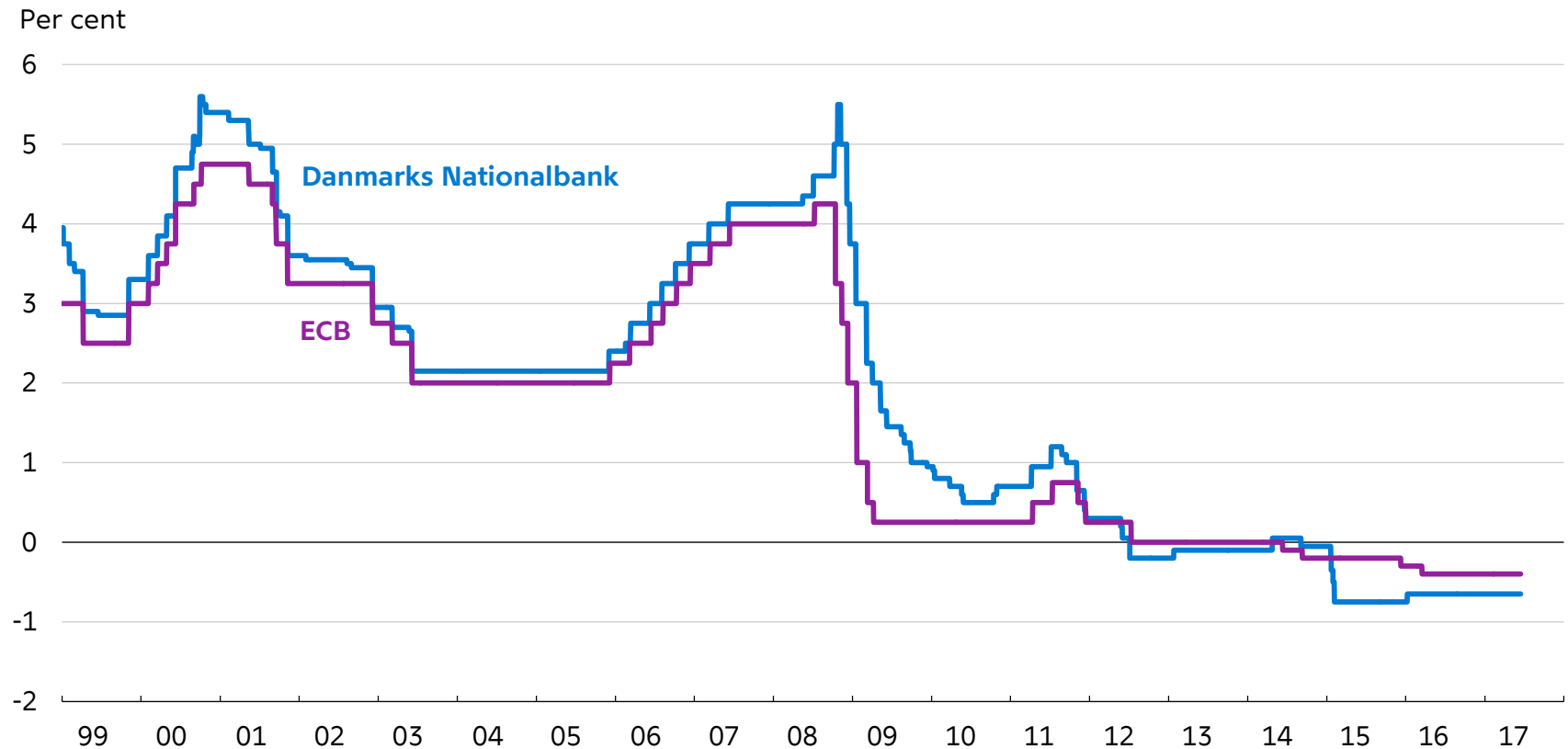
Note: Reverse scale.
Source: Danmarks Nationalbank.

Fixed exchange rate introduced after a period of high and volatile inflation



Source: Statistics Denmark and Thomson Reuters Datastream.

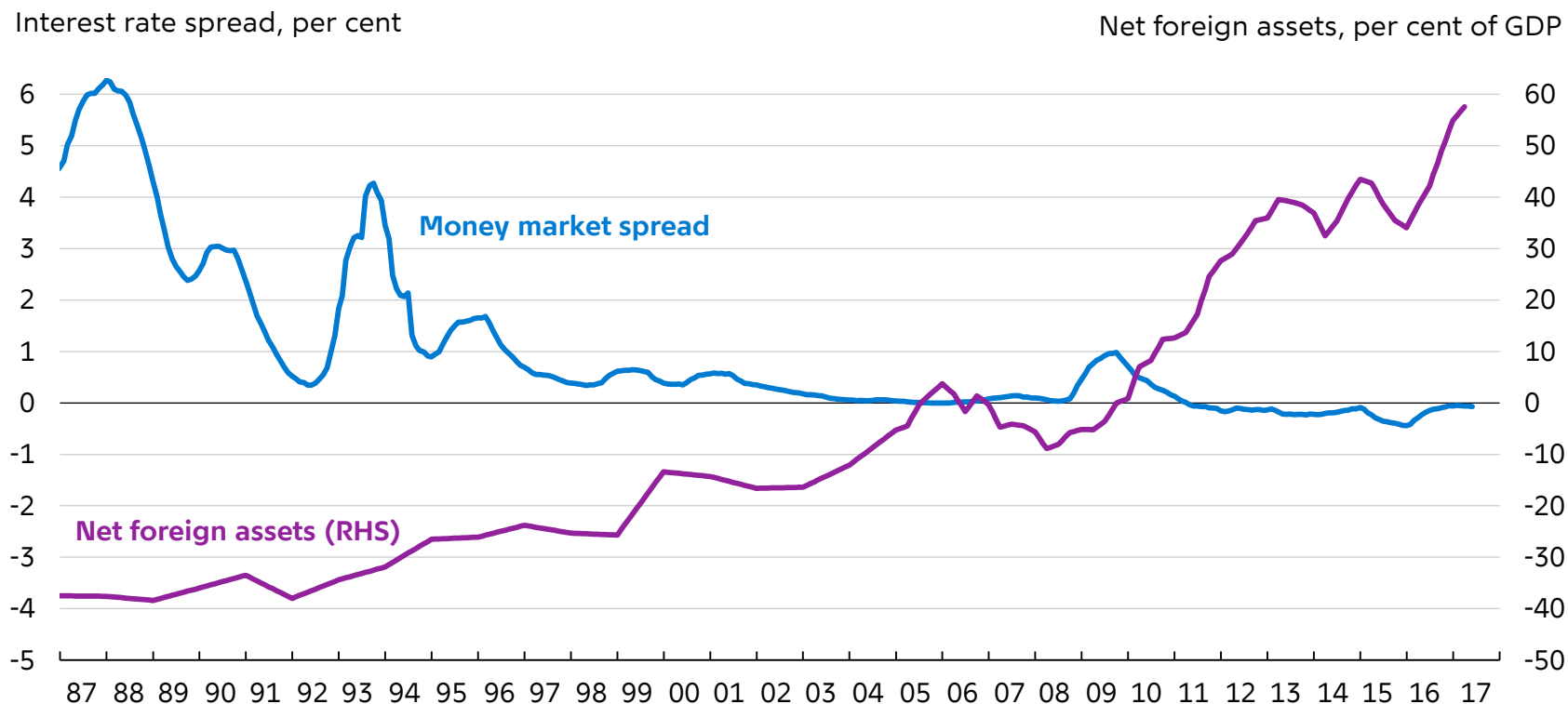
Danish monetary-policy rates tightly linked to ECB rates



Note: Key policy rates.

Source: Thomson Reuters og Danmarks Nationalbank.

Rising net foreign assets have reduced money market spread



Source: Thomson Reuters Datastream and Statistics Denmark.

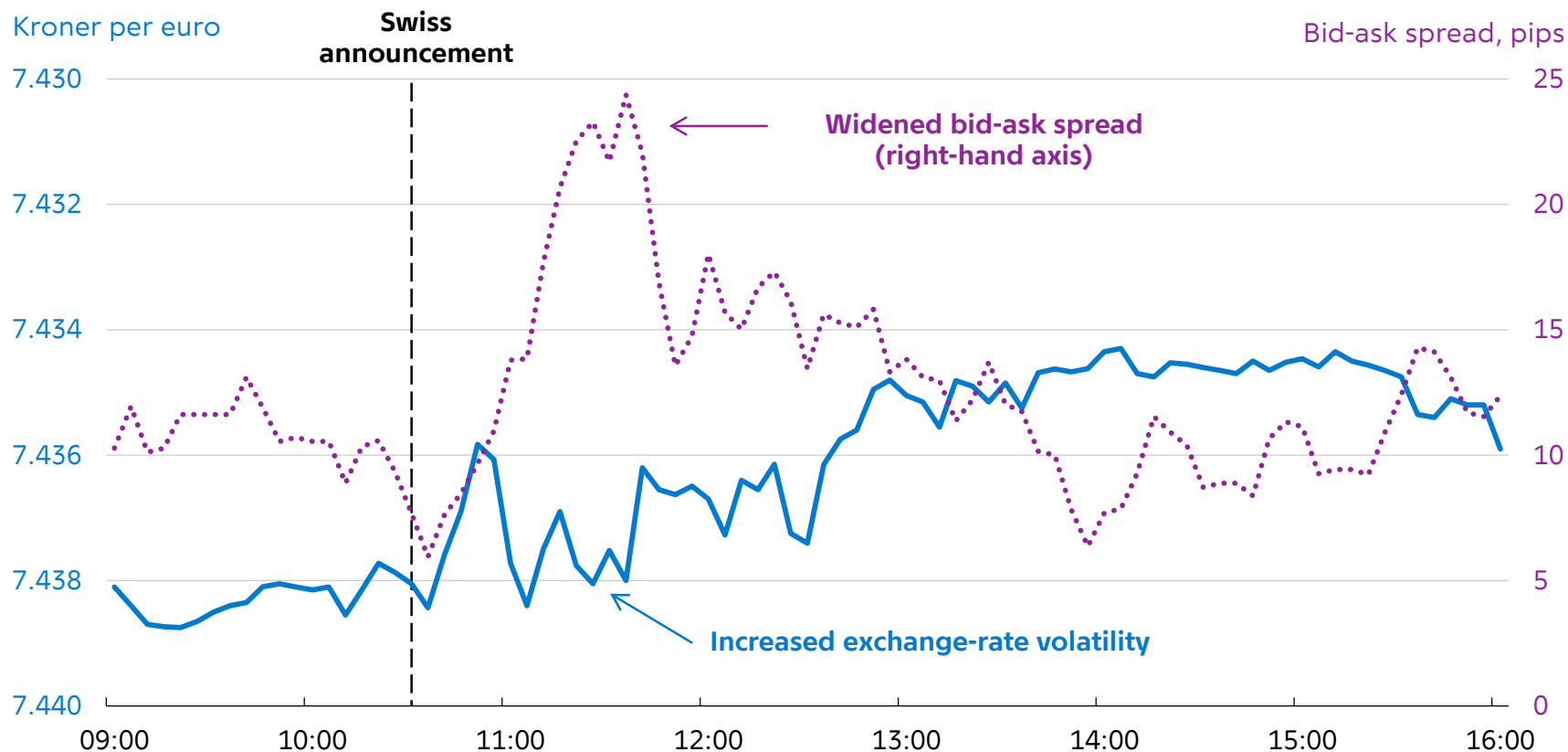
Strong capital inflows
led to a forceful policy
response



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Swiss contagion to Danish FX market

15 January 2015

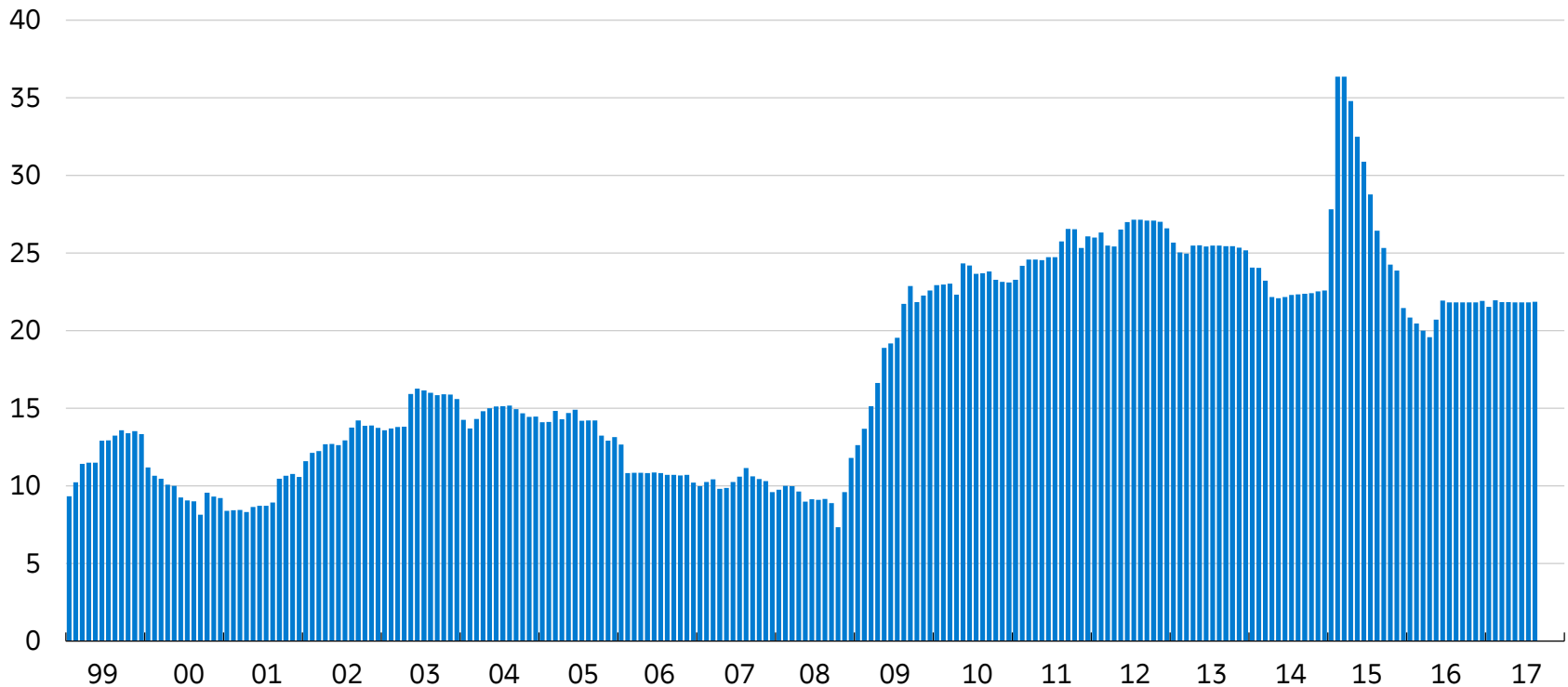


Note: Left-hand axis: Reversed scale. Right-hand axis: 30-minutes moving average of bid-ask spreads measured at 5 minutes intervals.

Source: OlsenData.

Sharp increase in foreign exchange reserve in 2015

Per cent of GDP

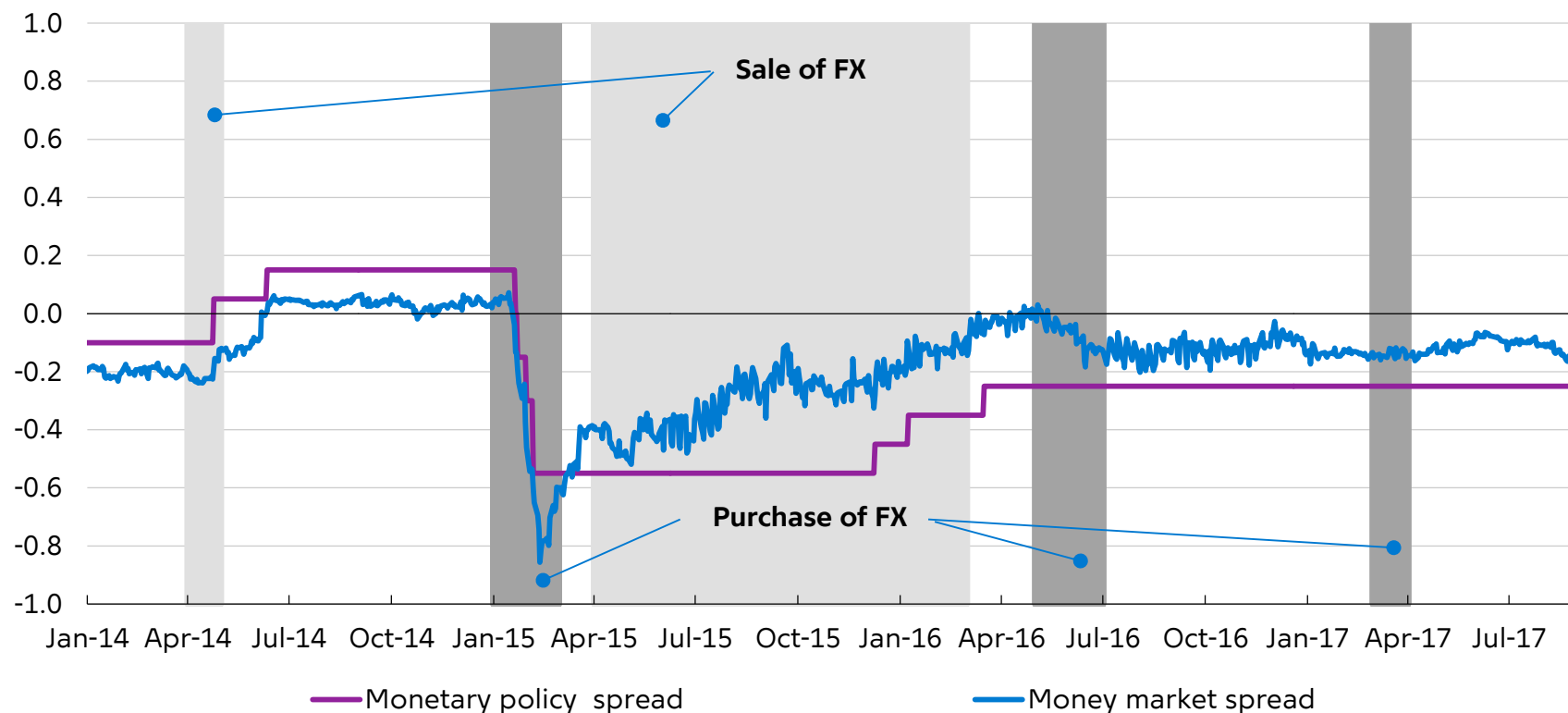


Note: In per cent of nominal GDP at yearly frequency. GDP for 2017 is from Danmarks Nationalbank's projection.

Source: Danmarks Nationalbank and Statistics Denmark.

Interest rate spread to the ECB became negative

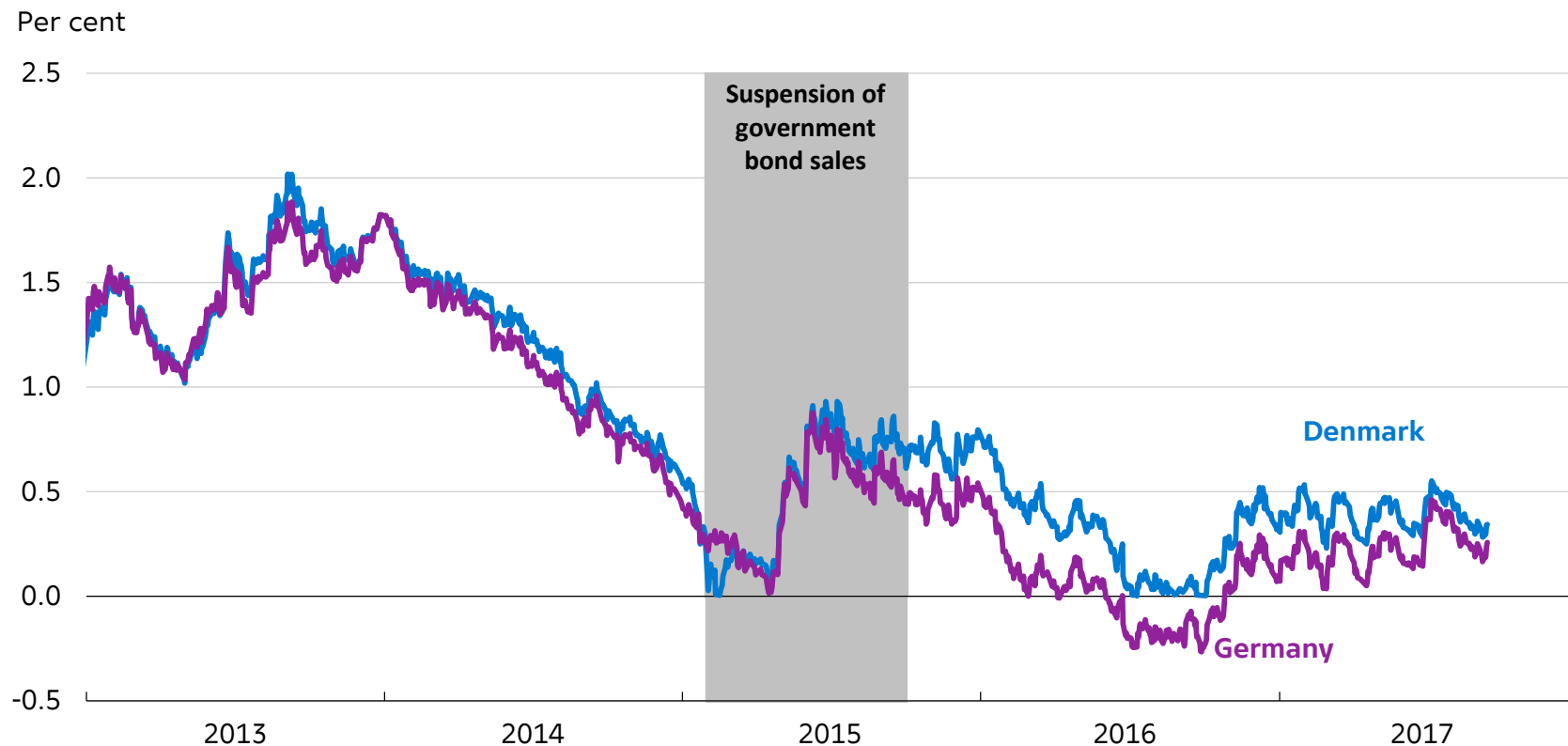
Interest rate spread, percentage points



Note: Shaded quarters illustrate quarters where Danmarks Nationalbank intervened for more than kr. 5 billion (net). Money market spread is the spread between 1 month OIS rates (i.e. EONIA- and CITA-swaps). Monetary policy spread is the spread between Danmark Nationalbank's CD rate and the ECB's deposit rate.

Source: Rio, Thomson Reuters Datastream, Danmarks Nationalbank and own calculations.

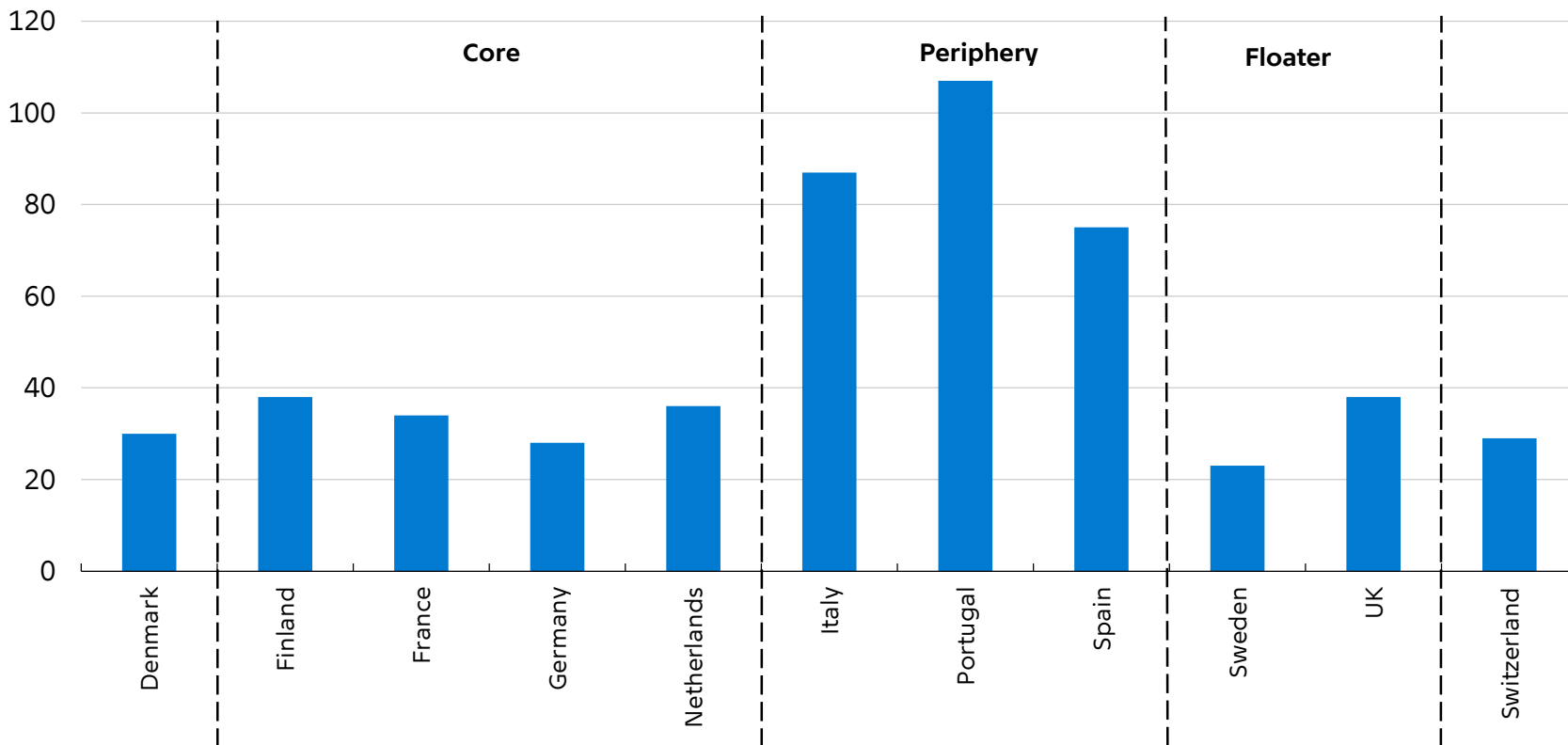
Danish government bond yields co-moves strongly with German yields



Note: 9-year par rates.
Source: Nordea Analytics.

Decline in long-term Danish yields in line with core euro area countries

Basis points decline in 9-year government bond yields



Note: Aggregate decline in sovereign bond yields in two-day windows following 17 pieces of ECB communication.

Source: Thomson Reuters Datastream, ECB and own calculations.



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Implications for banks

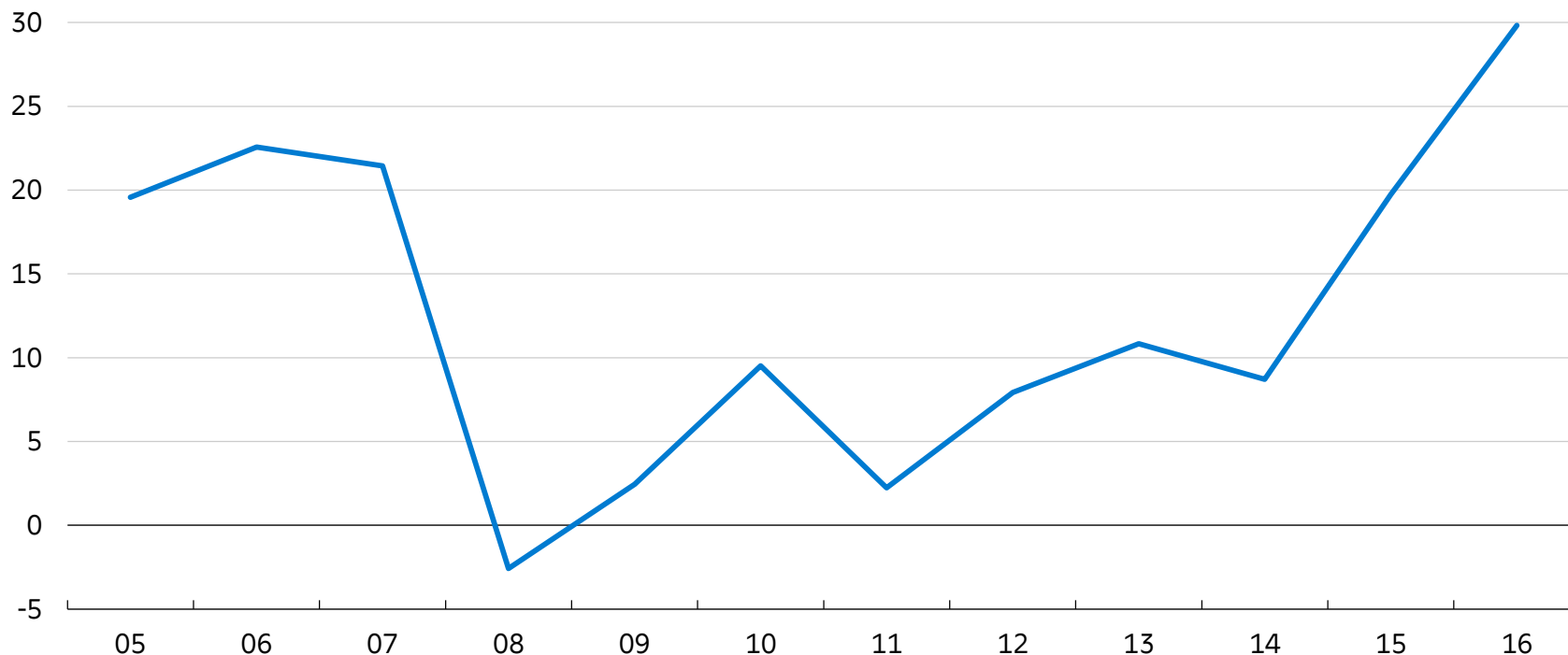


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Strong earnings in largest Danish banks

Earnings of largest Danish banks

Kr. billion



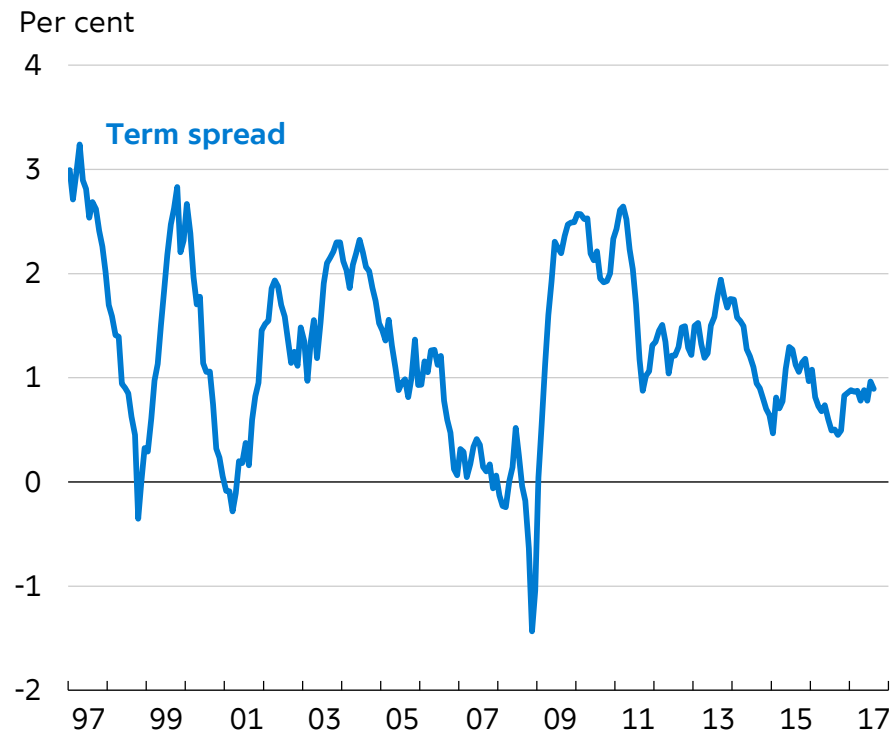
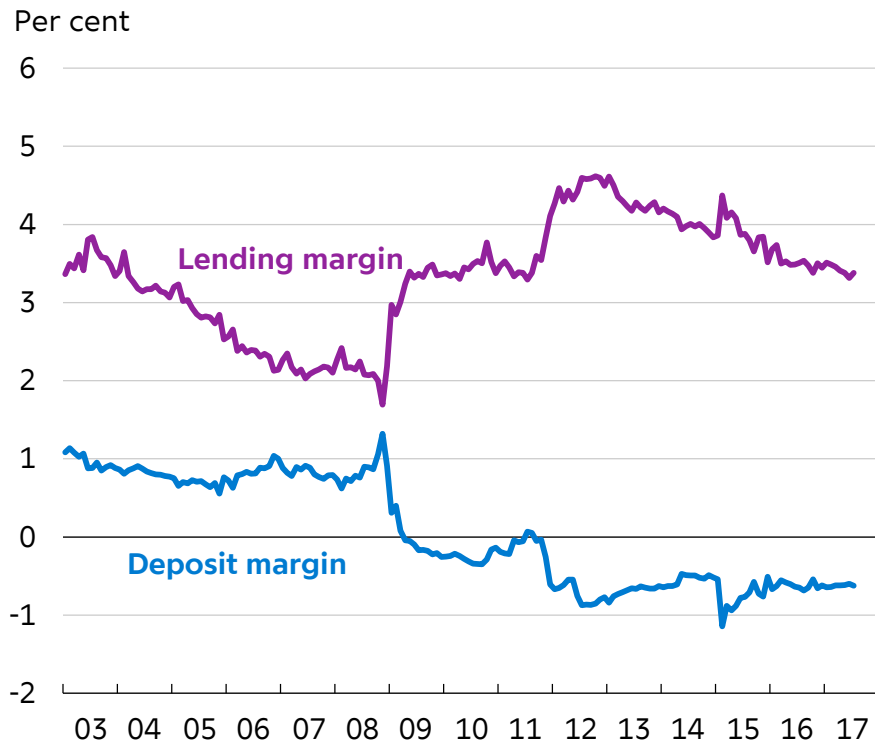
Note: The chart shows financial statements for the Danske Bank, Nykredit, Jyske Bank and Sydbank groups.
Source: Danish Financial Supervisory Authority and own calculations.



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29. september 2017
15

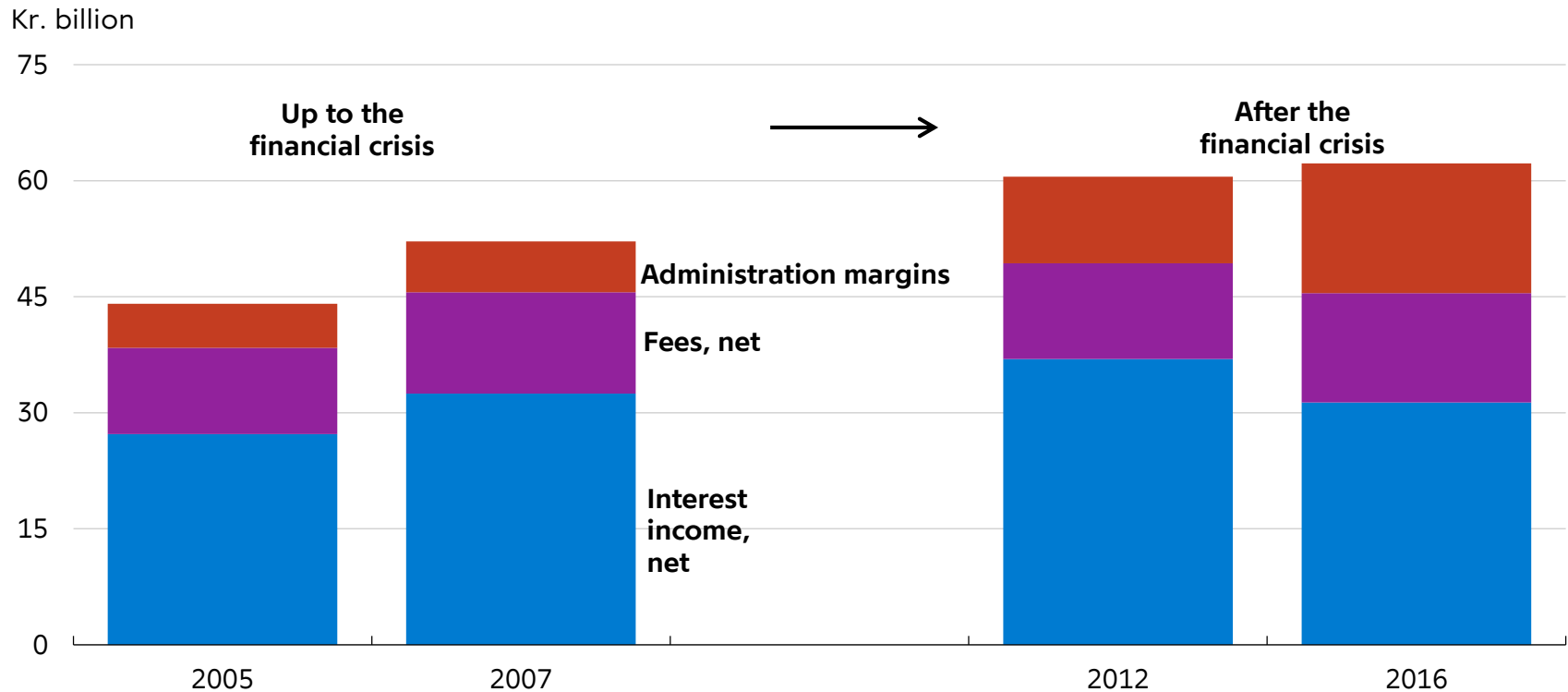
Interest rate margins are being squeezed



Note: The lending margin is calculated as the difference between the average lending rate and the T/N money market rate. The deposit margin is the difference between the T/N money market rate and the average deposit rate. Lending rates and deposit rates are based on data for Danske Bank, Nykredit, Jyske Bank and Sydbank. The term spread is calculated as the difference between 10-year government bond yield and the T/N money market rate. Data are monthly averages.

Source: Danmarks Nationalbank and Nordea Analytics.

Scope to rebuild interest income when interest rates start rising



Note: The chart shows financial statements for Danske Bank, Nykredit, Jyske Bank and Sydbank.
Source: Danish Financial Supervisory Authority and own calculations.

Implications for households

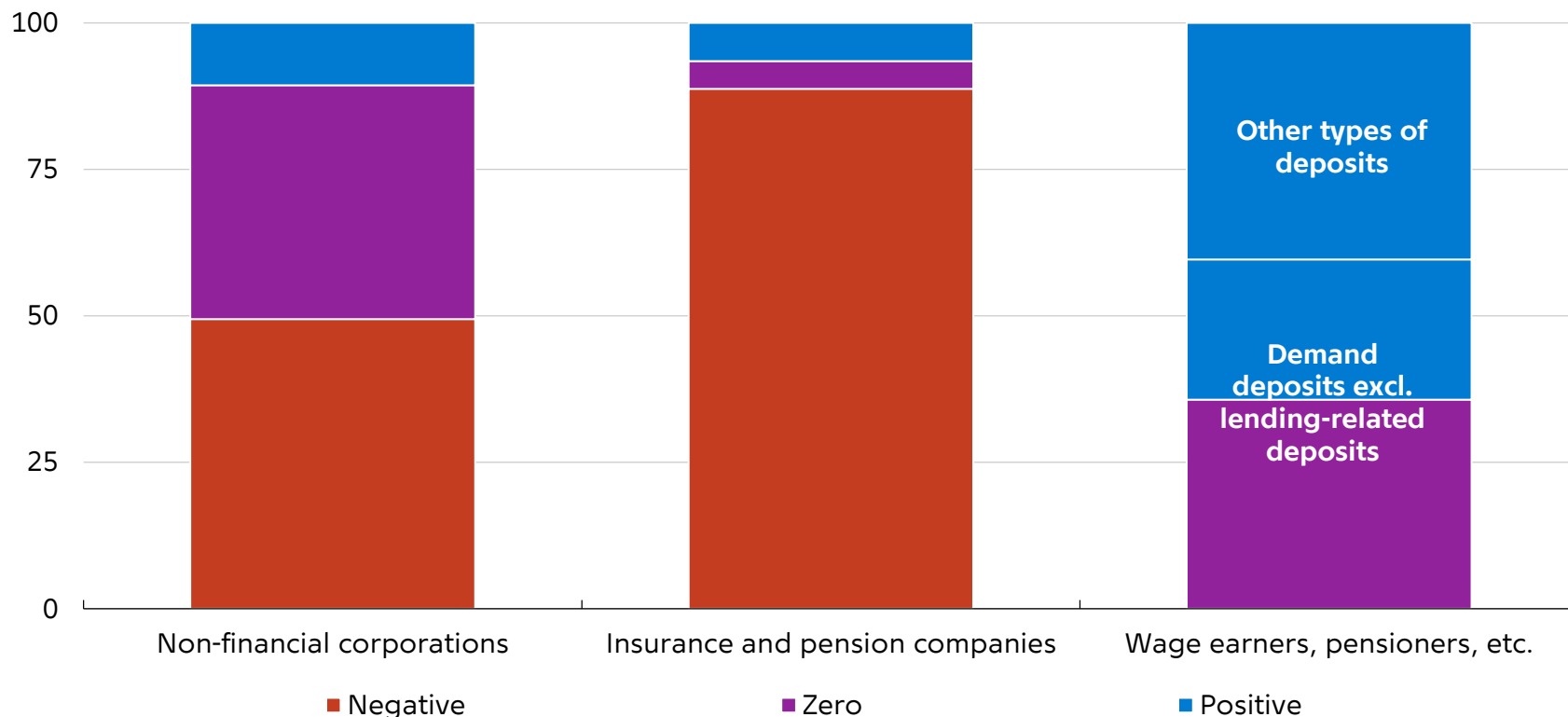


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Households are largely exempt from negative interest rates on deposits

Rate of interest on bank deposits

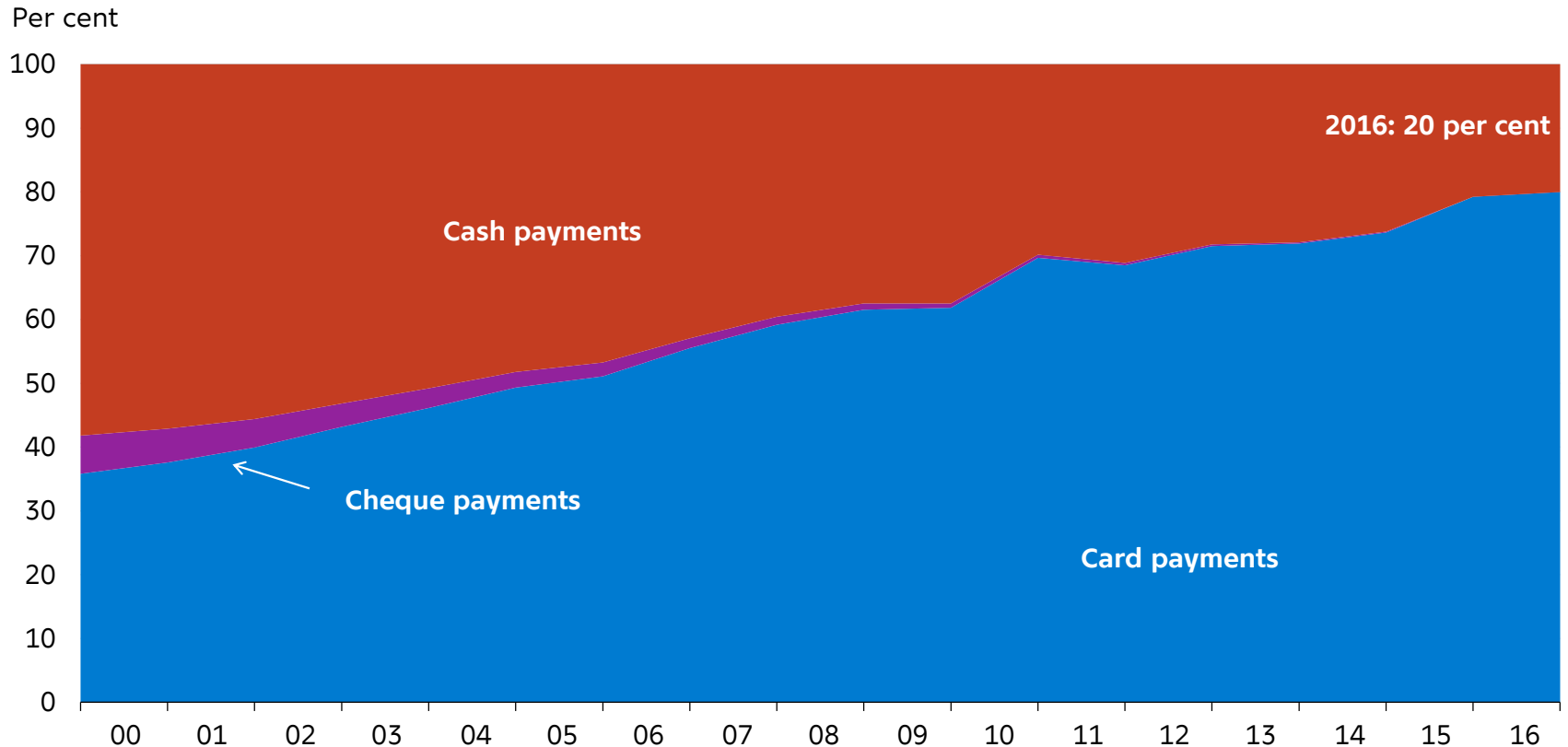
Percentage share



Note: "Other types of deposits" refer to time deposits, lending-related deposits, etc.

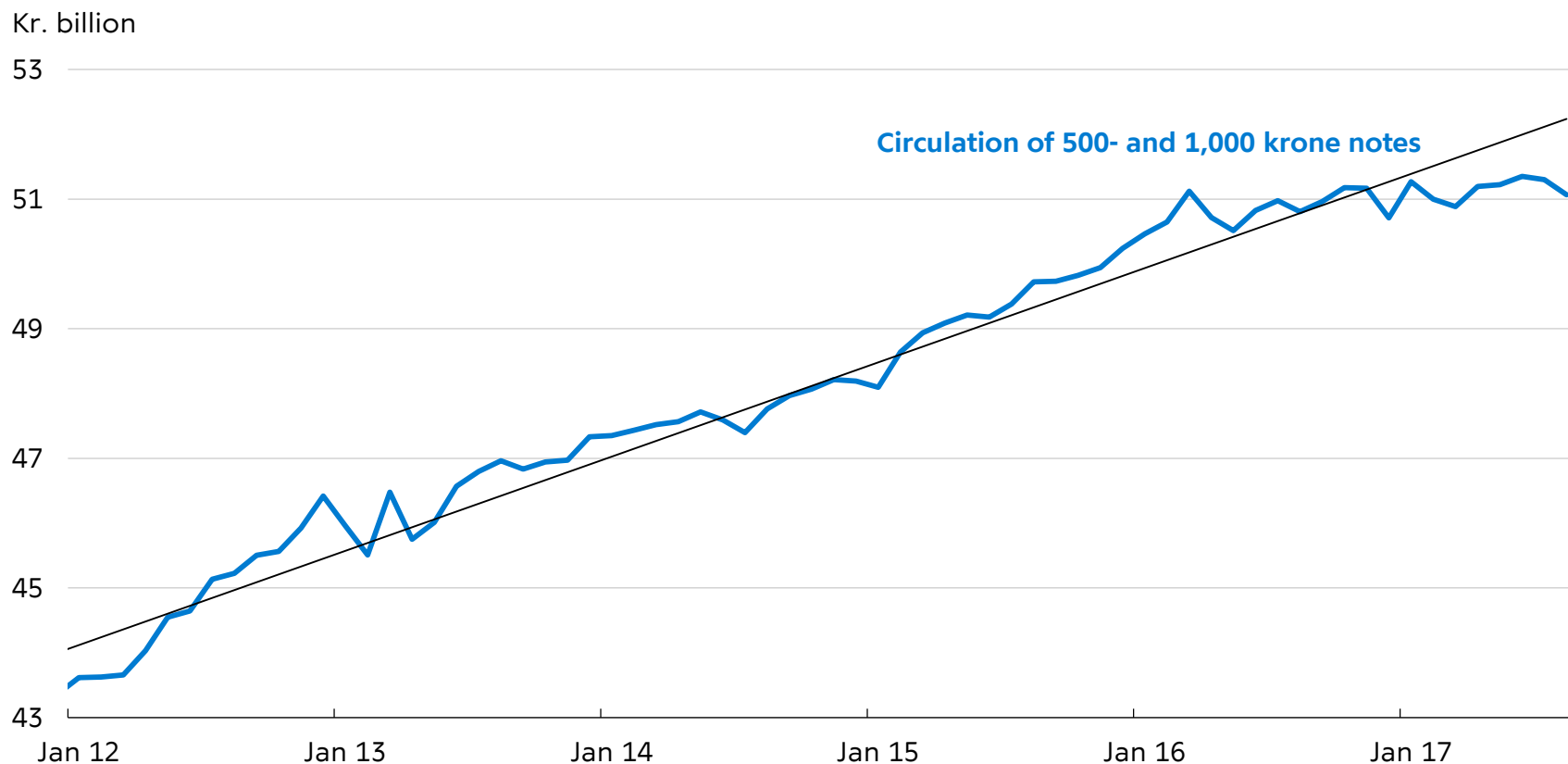
Source: Danmarks Nationalbank.

Share of cash payments in Denmark is declining steadily



Note: Payments made by smart phones are included in card payments.
Source: Statistics Denmark, Danmarks Nationalbank, Finance Denmark,
Nets and own calculations.

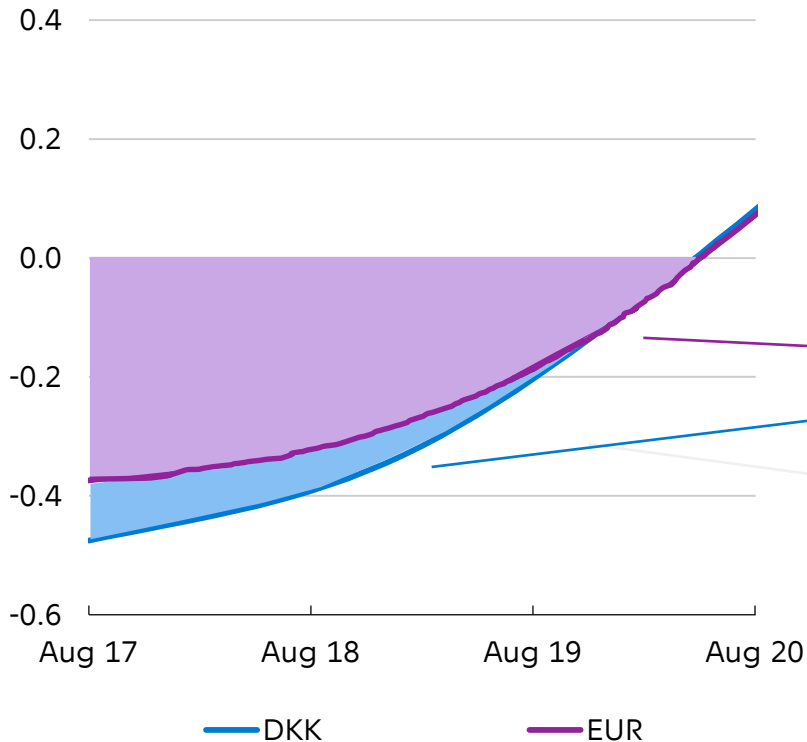
Stable circulation of large denomination notes



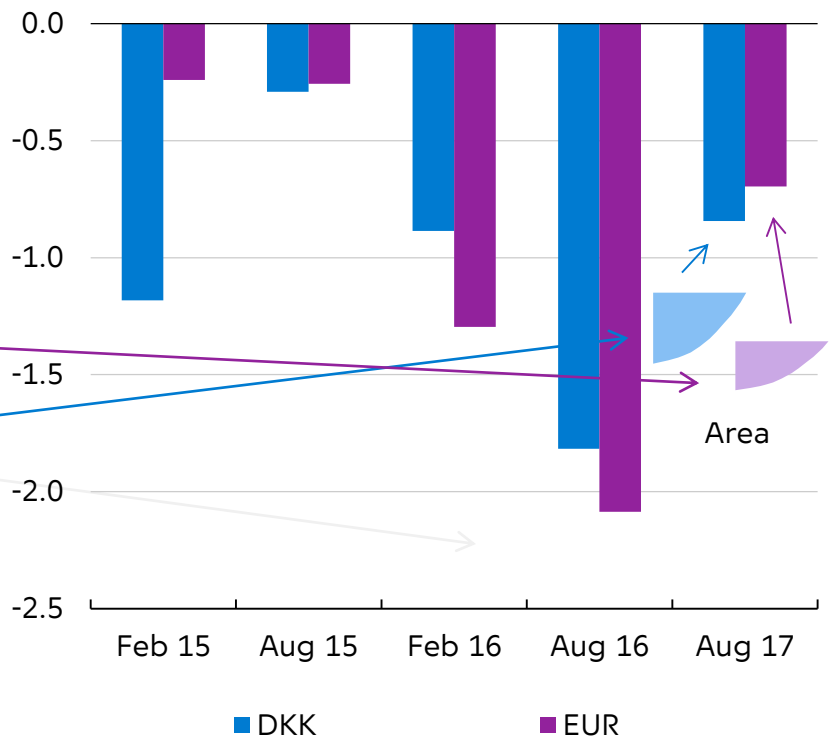
Source: Danmarks Nationalbank.

Incentive to switch to cash depends on level and expected duration of negative rates

Expected short rate

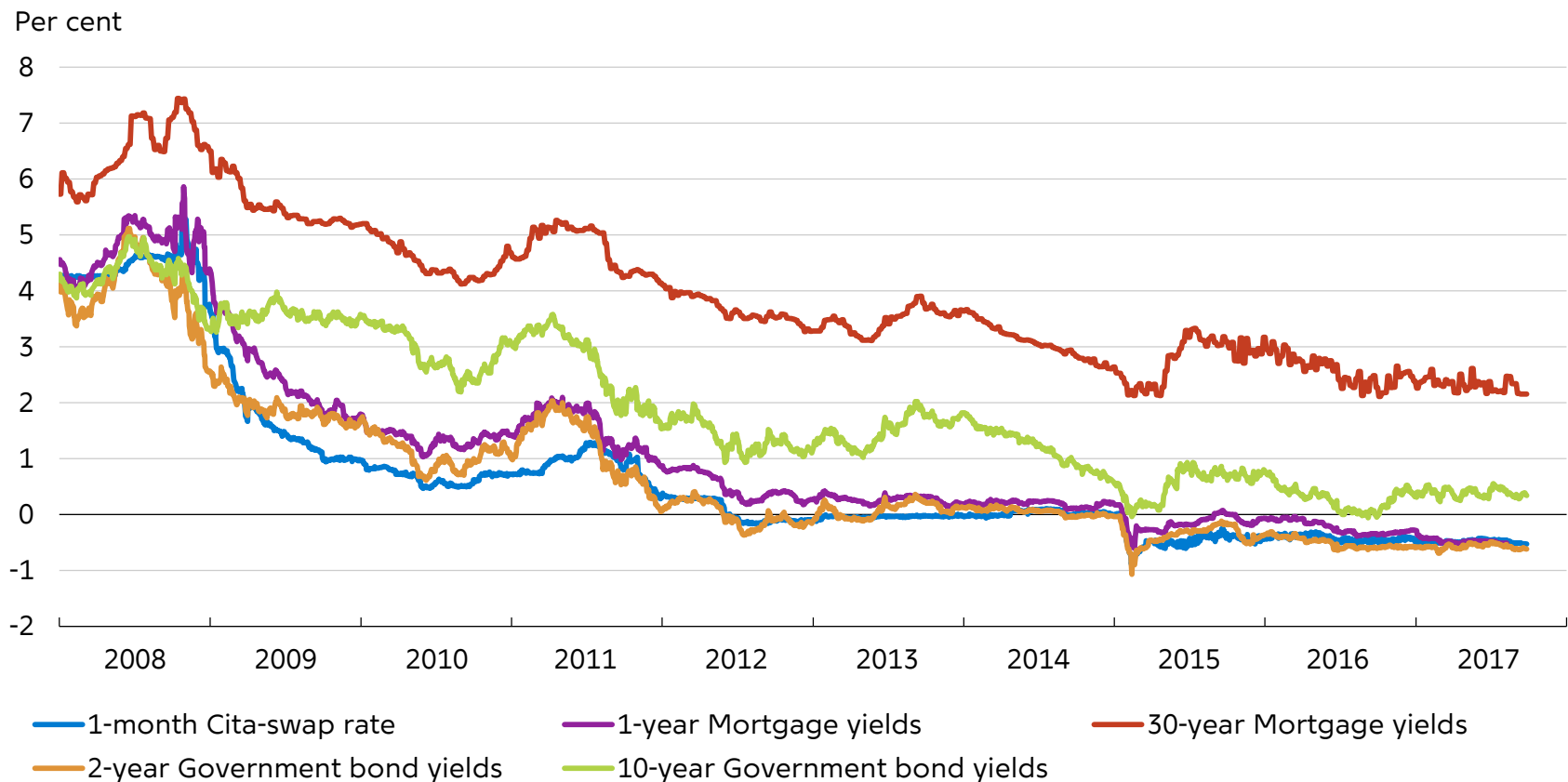


Incentive to switch to cash



Note: Derived from OIS rates. Observations are mid-month.
Source: Rio, own calculations.

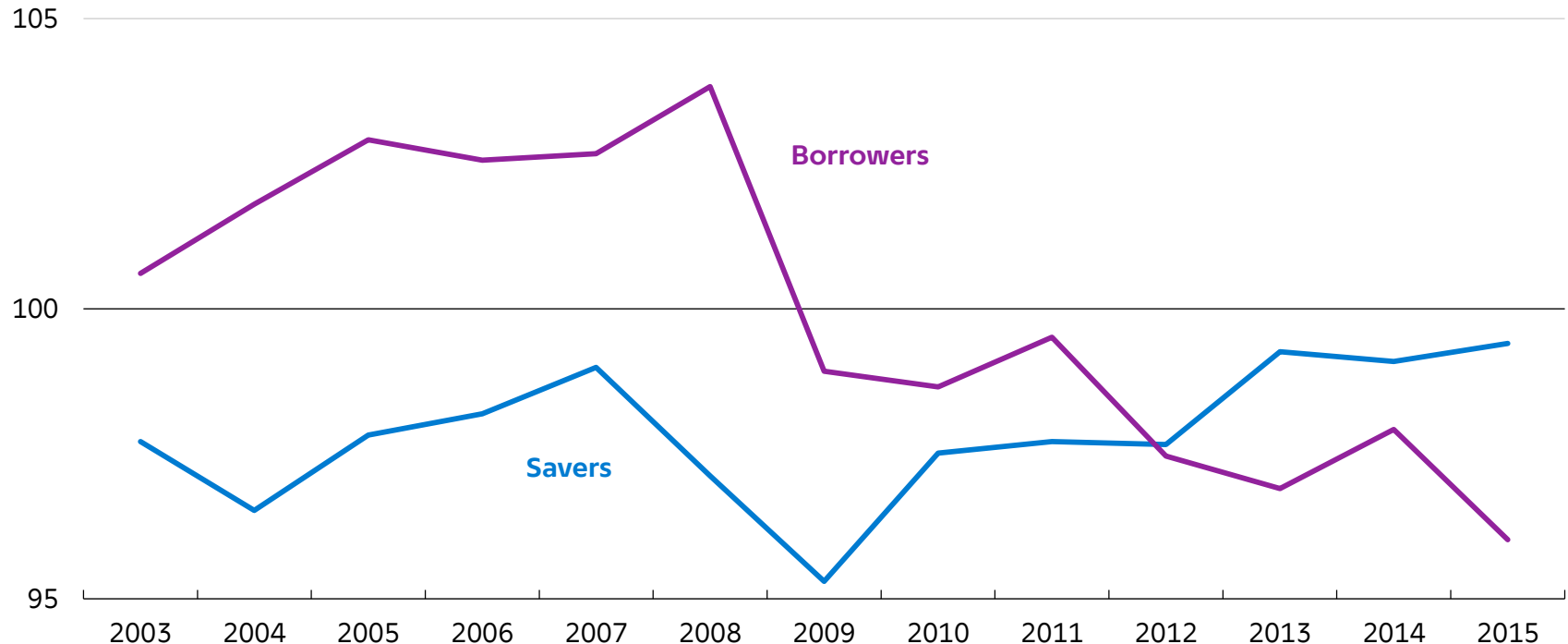
Mortgage rates and government bond rates became negative



Source: Thomson Reuters Datastream, Nordea Analytics and Danmarks Nationalbank.

Indebted households consolidated heavily following the financial crisis

Median consumption as a per cent of disposable income



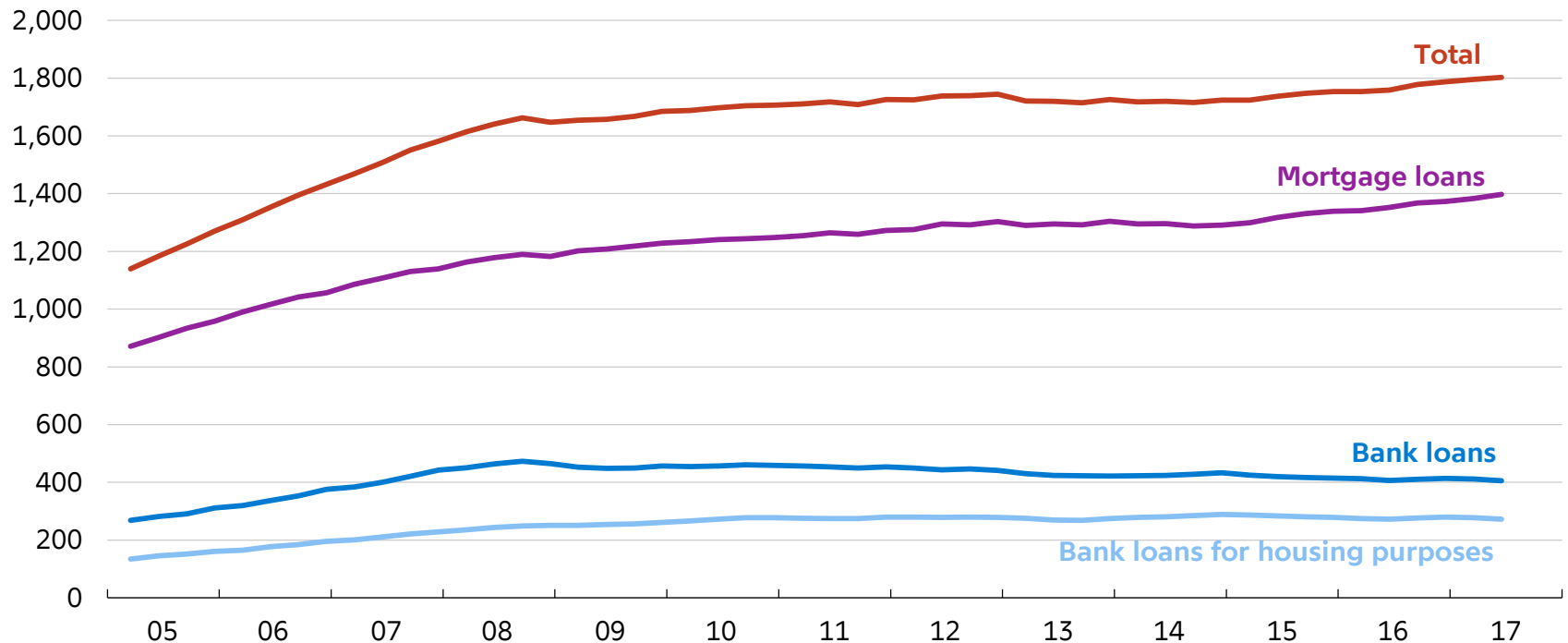
Note: Savers are defined as households whose liquid financial assets (bank deposits, stocks, and bonds etc. excl. pension savings) exceed their financial liabilities and vice versa for borrowers.

Source: Statistics Denmark and own calculations.

Danish households are well placed to cope with higher interest rates

Lending to households

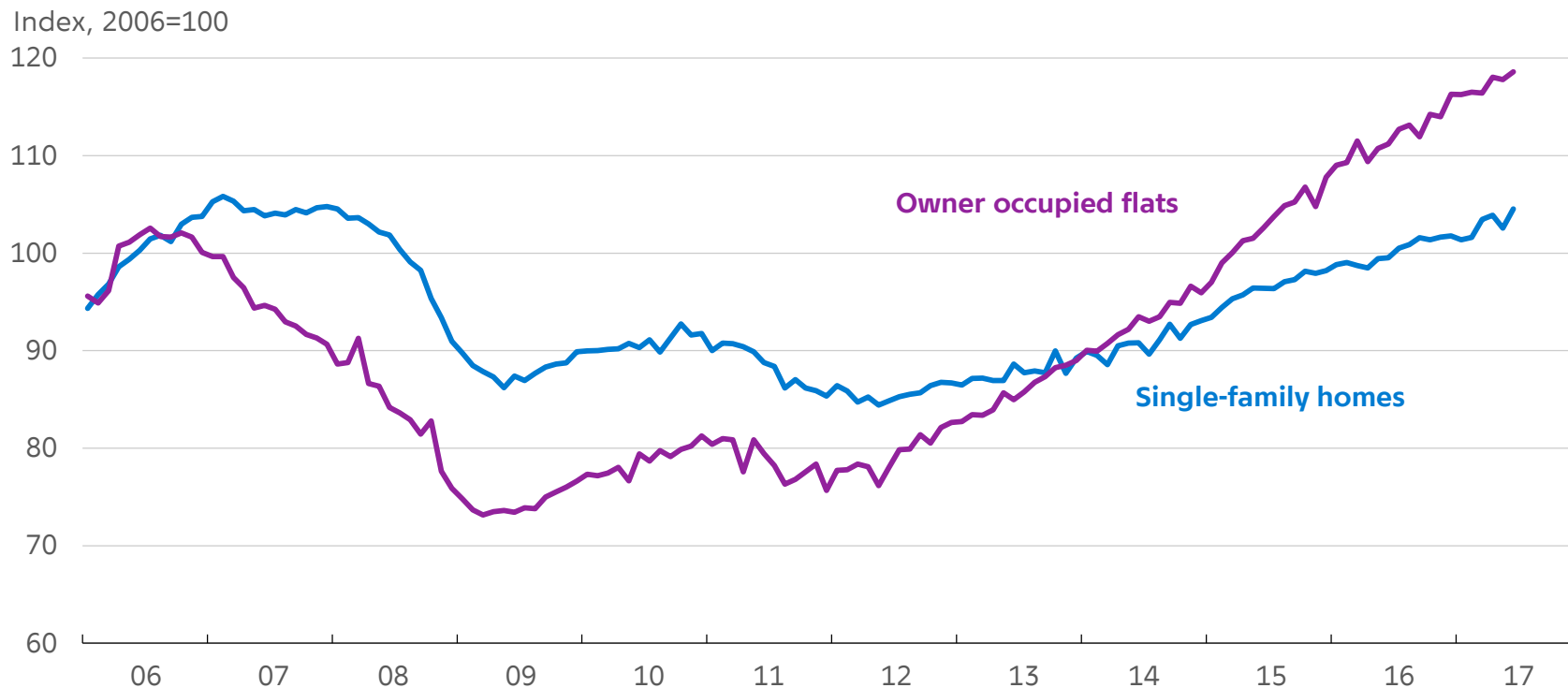
Kr. billion



Note: Bank loans funded by mortgage bonds issued, are placed in the mortgage loan category.

Source: Danmarks Nationalbank.

Rising house prices – but no bubble



Note: Own seasonal adjustment.
Source: Statistics Denmark.

Legal and technical challenges have been addressed

Mortgage: Negative interest rates initially raised a number of technical and legal challenges

- IT systems: Handling a situation where borrowers receive and investors pay interest.
- Tax issues: Borrowers pay tax on interest received; investors can deduct any interest payable.

Borrowers: Benefit from negative interest rates, e.g. by direct disbursement or a reduction of the outstanding debt

Tax: The Danish parliament has furthermore adopted adjustments to a number of laws regarding the tax treatment of negative interest for pension returns and corporate tax

THANK YOU!