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NEW MODEL FOR PROFIT DISTRIBUTION
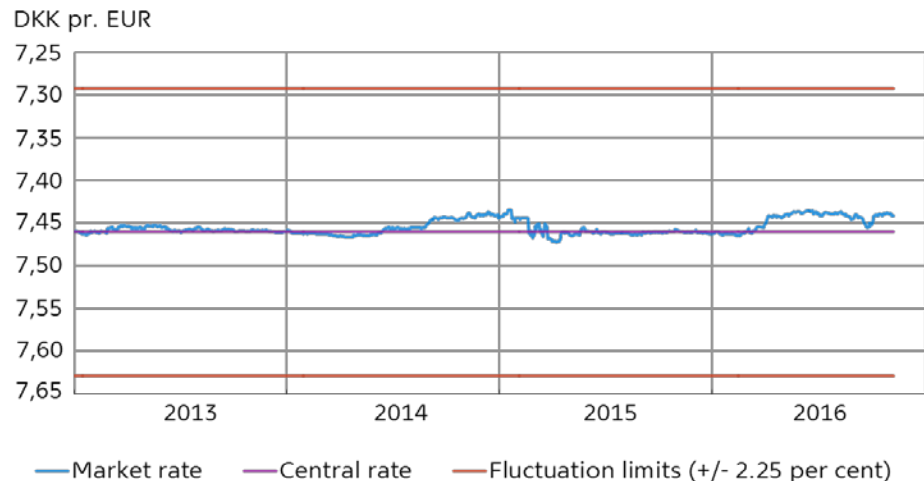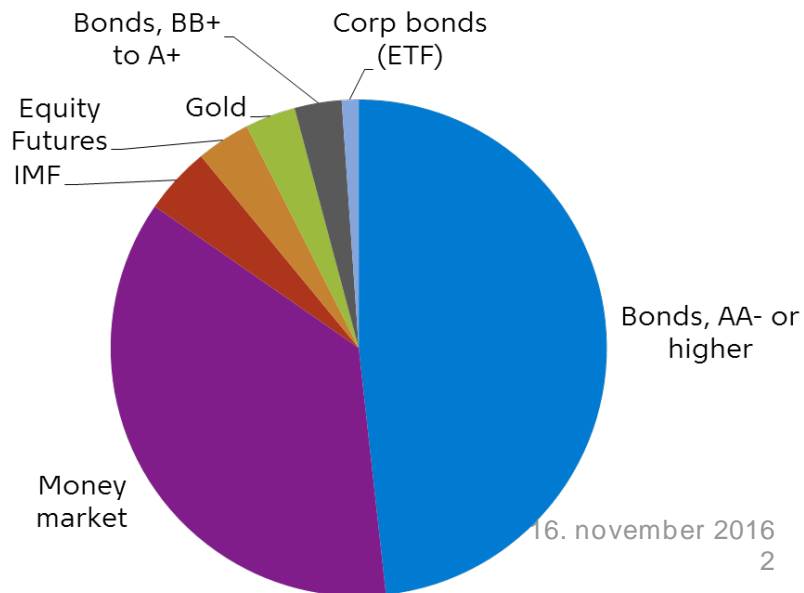
17th November 2016

About Danmarks Nationalbank

- Fixed-exchange-rate policy vis-à-vis the euro

- FX reserves at 60 bn. EUR (67 bn. USD)
  - approx. 20 per cent of GDP
  - Varies due to FX interventions

- Exposure, FX reserve end 2015 $\longrightarrow$

DKK pr. EUR

— Market rate   — Central rate   — Fluctuation limits (+/- 2.25 per cent)

Source: Danmarks Nationalbank.

Bonds, BB+ to A+
Corp bonds (ETF)
Equity
Futures
IMF
Gold
Bonds, AA- or higher
Money market

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About Danmarks Nationalbank II

- Net capital (general reserves)= 10 bn. euro
  - ≈15 pct. of total balance sheet

- All assets are mark-to-market

- Realised and unrealised gains/losses are recognised in the same way

- Do not distinguish between assets for *buy and hold* and for *sale*.

- No other reserves than the Net Capital (=no provisions)

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Motivation for changing the profit distribution in 2015

- Maintain the real value of net capital over time

- Former profit distribution based on coupons (not value adjustments) and other interests
  ≠yield to maturity

- Capital gain/loss on new investment strategy (corp. bonds ETF, equity futures etc.) wasn't part of distribution

- A more simple model

- Smooth distributions
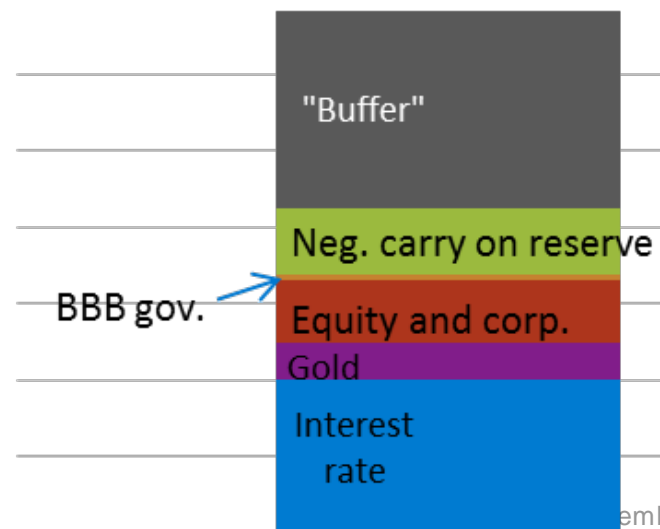
Distribution to central government, m. EUR
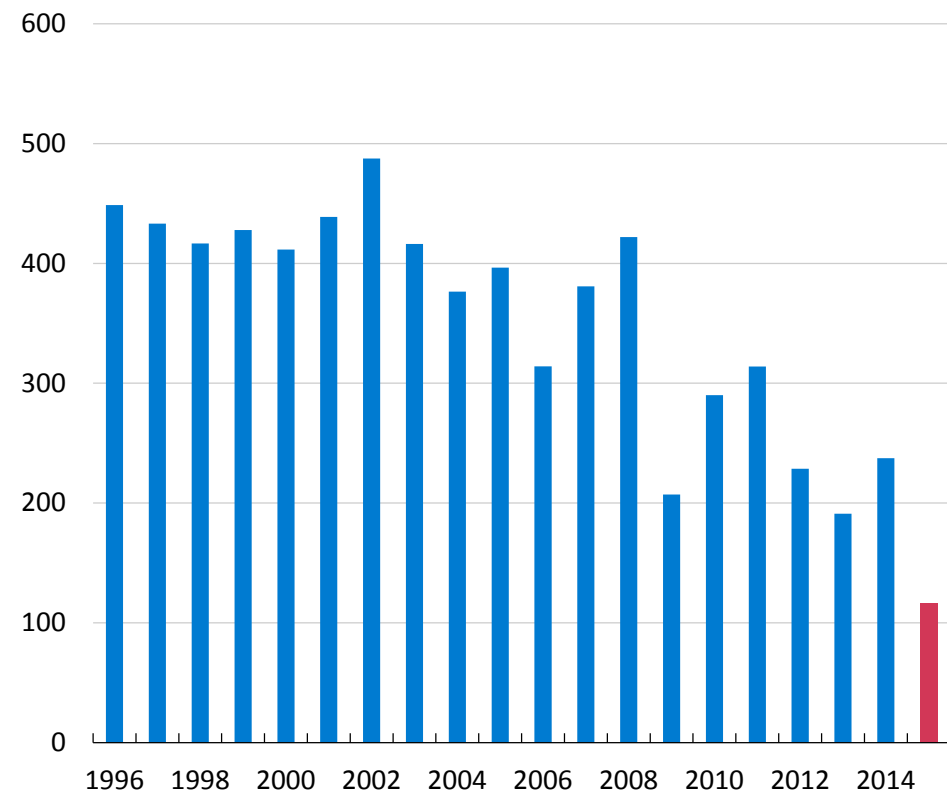
New principles for distribution from 2015

1. Contributions to the result, except gold, will be included in the basis for calculation of the payment to the central government

2. Over time the net capital should grow at the same rate as nominal GDP. Consolidation should match the general trend in the economy.

3. To smooth out payments, the basis for calculation will be the average of the last 5 years' results

Requires that our net capital is "adequate"

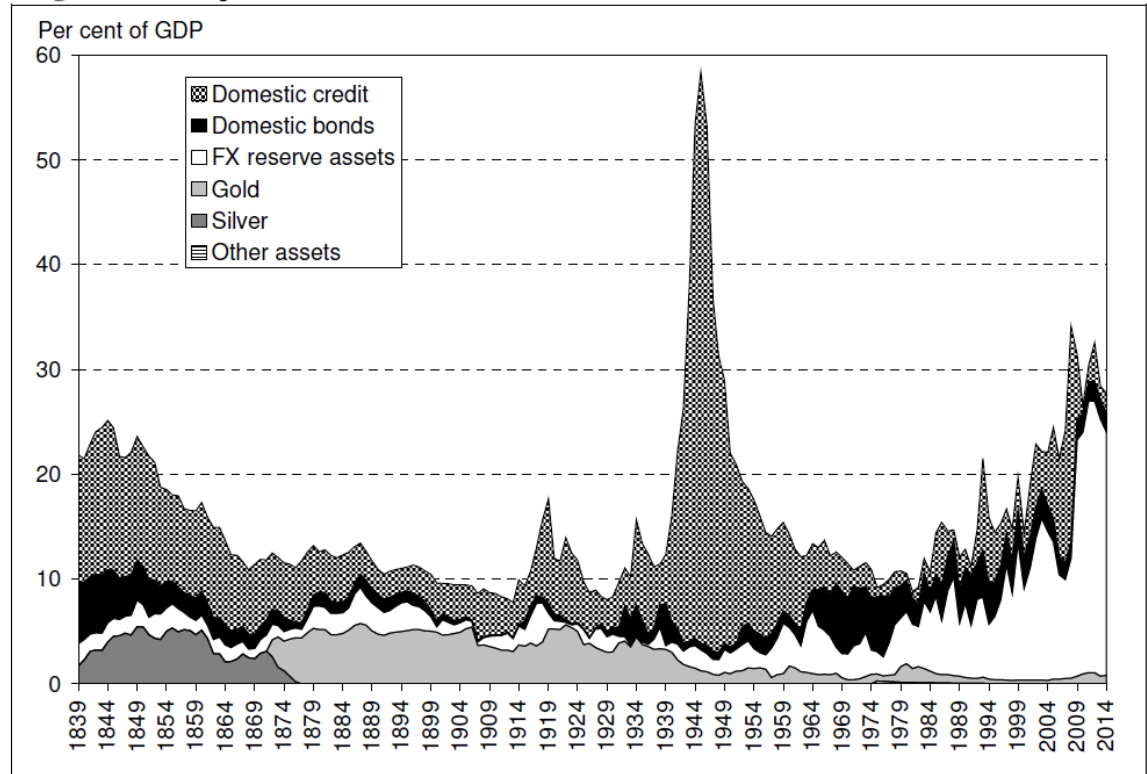# What is an "adequate" level of capital?

- Goal: maintain independency

- One approach is stress testing
  - For example expected shortfall on market risk / capital ratio

- Another approach is assuming worst case scenarios on each risk factor with correlation=1
  - Market/credit risk
  - Shock to core earnings/carry
  - Credit risk event
    - Reserve management
  - Monetary policy (loans/deposits)?

"Buffer"

Neg. carry on reserve

BBB gov.

Equity and corp.

Gold

Interest rate

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Adequate capital

- "Normal" market stress scenario; current capital is adequate

- Extreme scenario;
  - ?

Figure 2: Composition of Danmarks Nationalbank's assets 1839-2014

Per cent of GDP

Legend:
- Domestic credit
- Domestic bonds
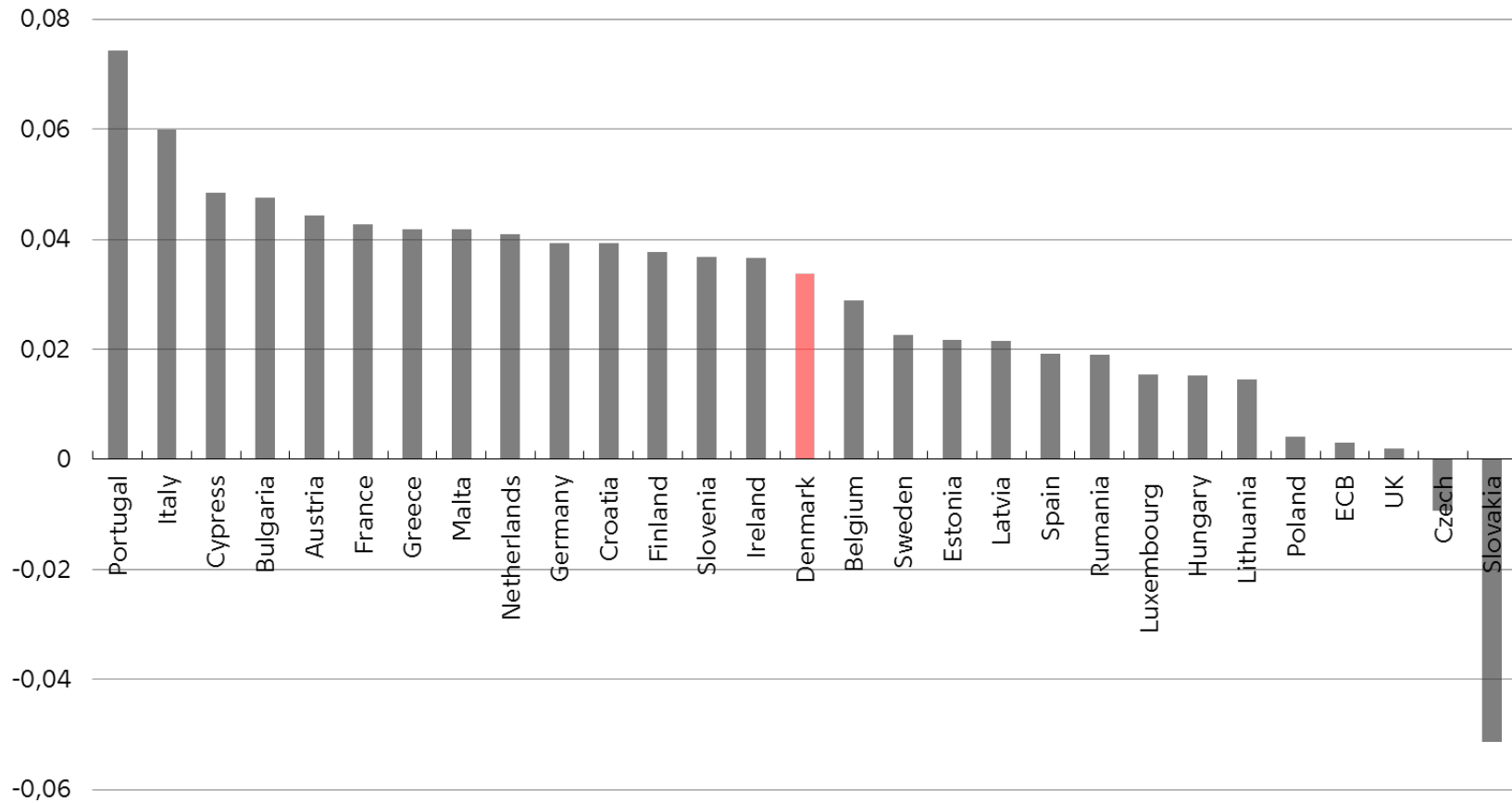- FX reserve assets
- Gold
- Silver
- Other assets

Notes: Current prices.
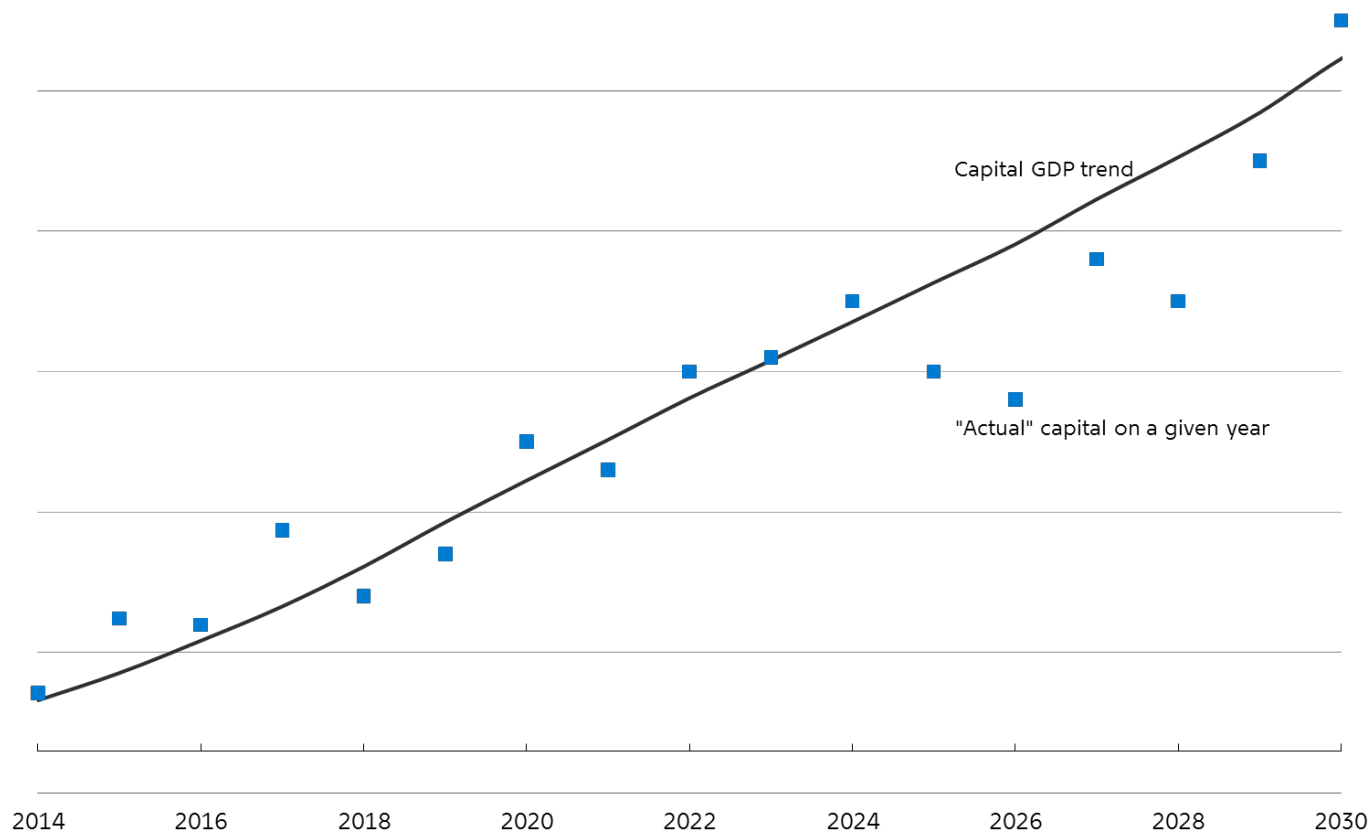Source: For Danmarks Nationalbank balance sheet data: See Appendix. For GDP: See Figure 1.

"Adequate" level of capital – a central bank comparison
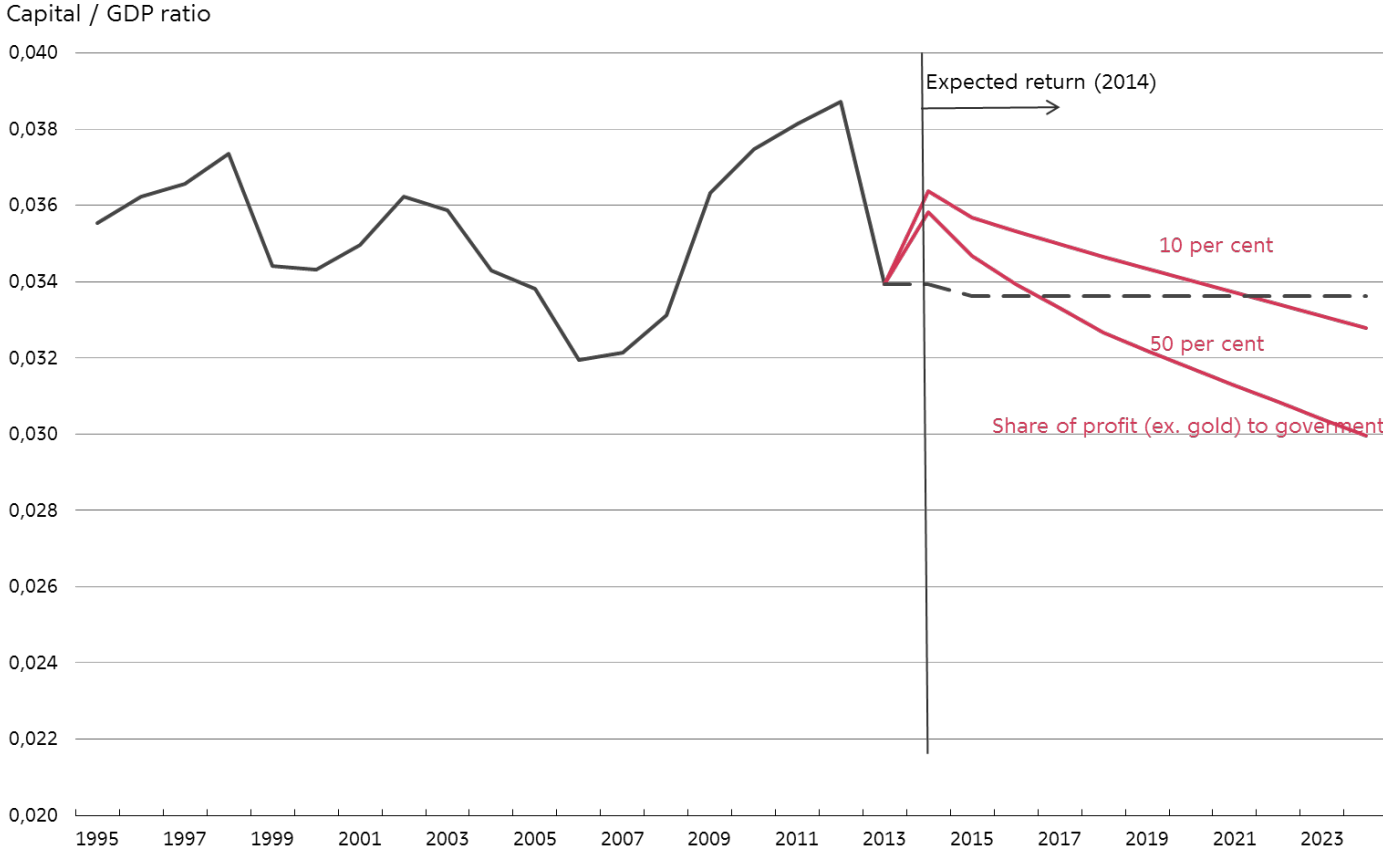
Net capital /GDP ratio, 2013

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Capital growth target at nominal GDP

Net capital - an illustration

Capital GDP trend

"Actual" capital on a given year

2014   2016   2018   2020   2022   2024   2026   2028   2030

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Target on capital / GDP ratio

Smoothing distributions

Share of total number of simulations

No distribution to central government

Distribution to central government, bn. DKK
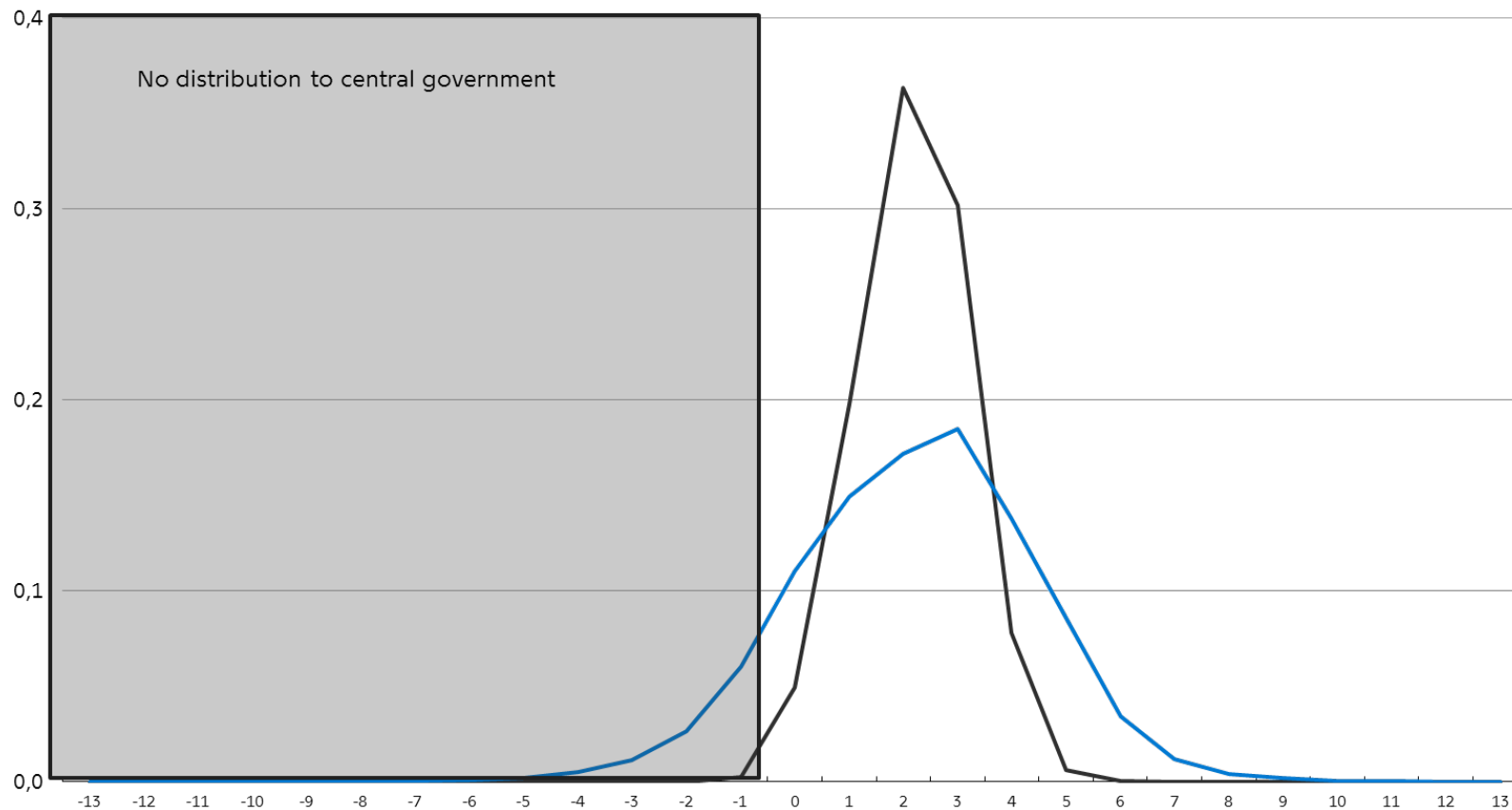
5 y moving average profit
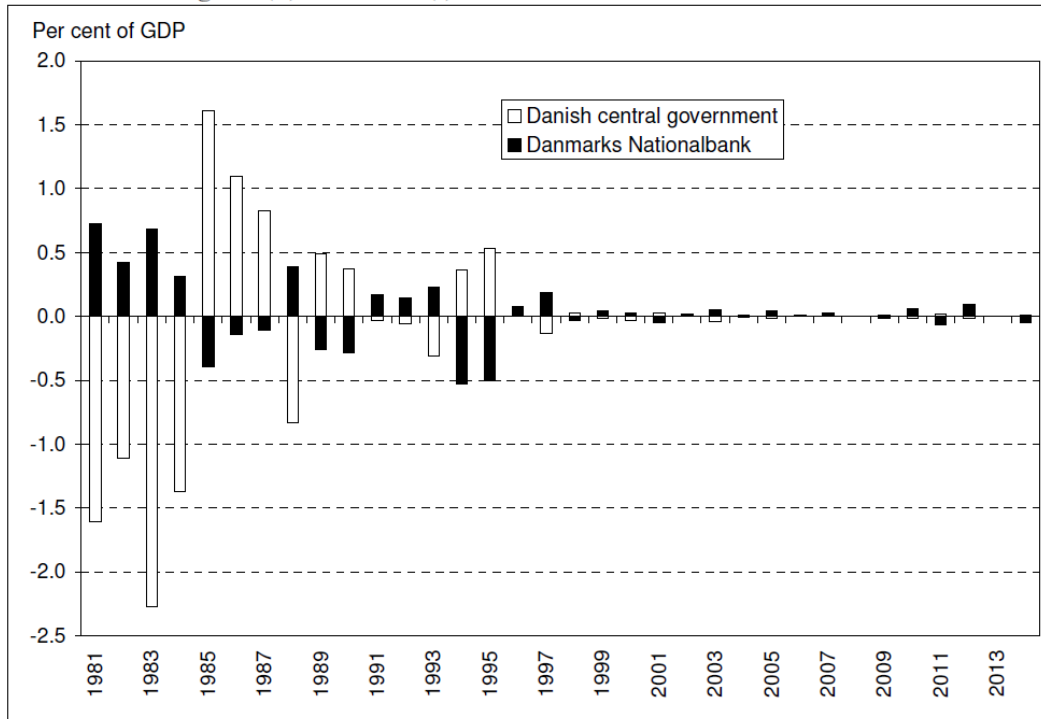Annual profit

Appendix

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FX reserve
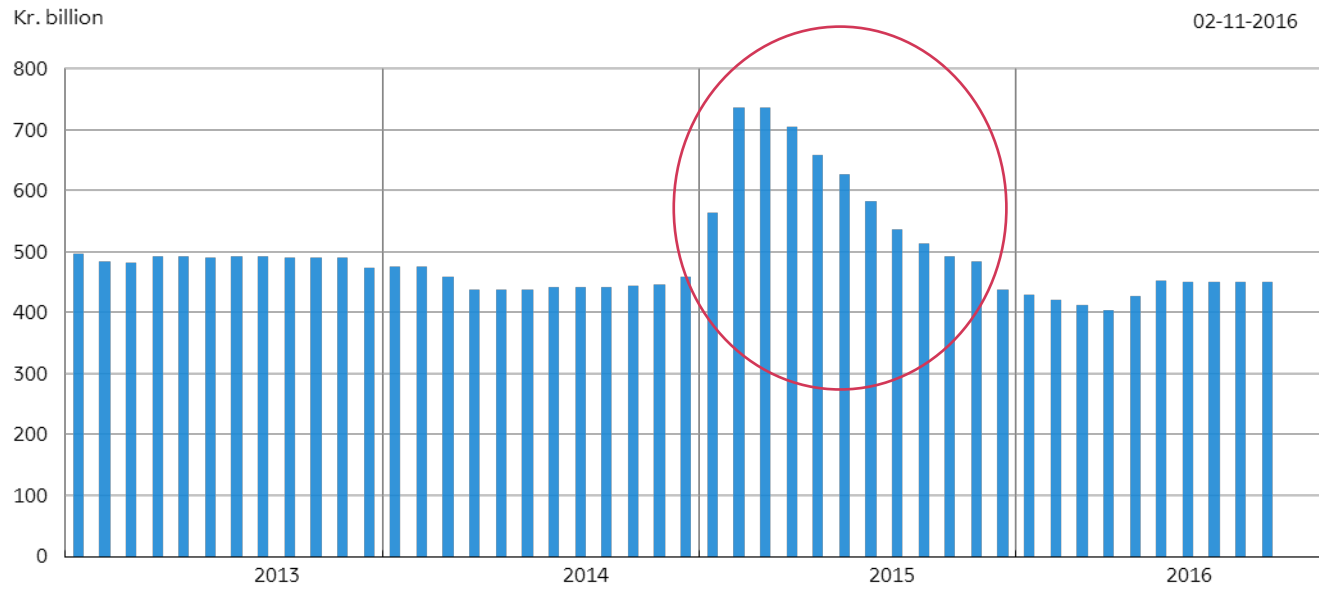
# After the fixed rate regime – small exchange rate gain/loss

Figure 7: The Danish central government's and Danmarks Nationalbank's exchange-rate gains (+) and losses (-) 1981-2014

Source: For Danmarks Nationalbank's exchange-rate gains/losses: See Appendix.. For GDP: See Figure 1. For the central government's exchange-rate gains/losses: Author's calculations based on Abildgren *et al.* (2010); Finansministeriet, *Statens lântagning og gæld*, various issues; Danmarks Nationalbank, *Danish Government Borrowing and Debt*, various issues; and Danmarks Nationalbank's website.

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Core earning declined

Figure 8: Danmarks Nationalbank's core earnings and earnings from assuming additional risk 1839-2014
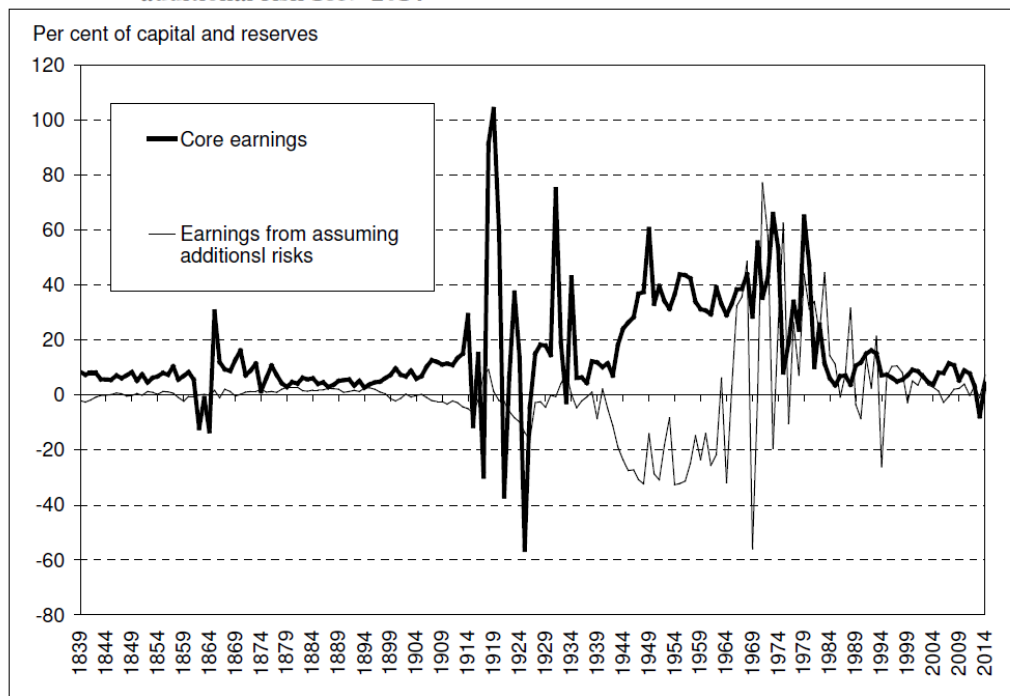
Notes: See text. Calculations based on averages of balance sheet figures beginning and end of year and annual averages of interest rates.

Source: For Danmarks Nationalbanks earnings and balance sheet items, see Appendix. For sources on interest rates: Homer and Sylla (1996); Mitchell (1988); Mordhorst (1968), Danmarks Nationalbank, *Report and Accounts*, various issues; Danmarks Nationalbank's website; St. Louis Fed's Federal Reserve Economic Data (FRED) Database; and OECD, *Main Economic Indicators*, various issues.