

DANMARKS NATIONALBANK

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Danish Government Borrowing and Debt 2016

- Denmark's central government debt amounted to 23 per cent of GDP at the end of 2016. The central government debt thus remained low, and Denmark retained the highest possible credit rating with a stable outlook.
- The central government's financing requirement was met at record-low yields in 2016. The central government issued nominal bonds at an average yield to maturity of 0.1 per cent and an average maturity of 7 years. Demand for Danish government bonds in the auctions was high. In line with the strategy, government bonds totalling kr. 63 billion were issued via auctions and tap sales.
- The central government played an active role in the secondary market to support liquidity in the Danish government bond market, which improved compared with 2015.

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23 per cent of GDP

The Danish Government Debt remained low in 2016

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Record-low yields

The central government's financing requirement was met at record-low yields in 2016

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Improved liquidity

The central government played an active role in the secondary market to support liquidity

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CONTACT

Lars Mayland Nielsen
Head of Monetary
Policy Operations and
Government Debt

lmn@nationalbanken.dk
+45 3363 6712

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Central Government Debt and Interest Costs In 2016

Central government debt remained low

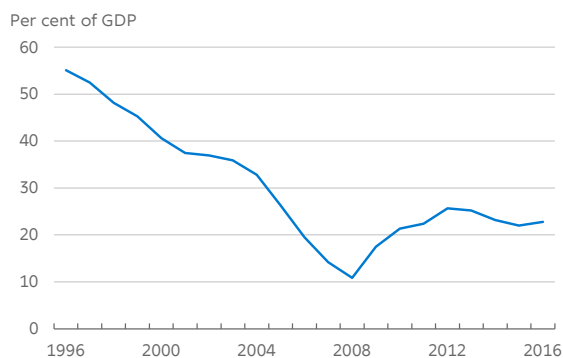
At the end of 2016, the central government debt amounted to kr. 465 billion, corresponding to 23 per cent of GDP, cf. Chart 1. The debt increased slightly relative to 2015 due to the government budget deficit, but remained low by historical comparison and relative to other countries.

At the same time, the rate of interest on a large part of the debt has been locked for many years, and the central government has a considerable liquidity reserve. The low debt level and the robust debt structure contributed to the Danish central government debt retaining the highest possible credit rating (AAA/Aaa) with a stable outlook from the largest international credit rating agencies.

The central government debt is compiled as the nominal value of the central government's domestic and foreign debt less the balance on the central government's account at Danmarks Nationalbank and the assets of the three government funds, cf. Box 1. A part of the debt reflects borrowing on behalf of government-owned companies (on-lending). Adjusted for on-lending, the central government debt amounted to 18 per cent of GDP at the end of 2016.

Central government debt remained low in 2016

Chart 1



Note: Year-end

Interest costs remained more or less unchanged

In 2016, interest costs on the central government debt amounted to kr. 18 billion or 0.9 per cent of GDP, cf. Chart 2. This is equivalent to 2015, when

Public debt measures

Box 1

The central government debt, the EMU debt or the net general government debt is often used when measuring government debt. By all three measures, Denmark's debt is low.

The *central-government debt* is measured as the nominal value of the central government's domestic and foreign debt less the balance on the central government's account at Danmarks Nationalbank and the assets of the three government funds: the Social Pension Fund, The Danish National Innovation Foundation and the Fund for Better Working Environment and Labour Retention. The central government debt is managed by Danmarks Nationalbank on behalf of the Ministry of Finance.

The *EMU debt* comprises the debt of the central, regional and local governments as well as social security funds and is calculated at nominal value. The debt is measured on a gross basis, but the public sector may consolidate the debt with claims on itself. This means that the government securities portfolios of the government funds are subtracted from the EMU debt. On the other hand, the Social Pension Fund's portfolio of other listed bonds and the balance on the central government's account at Danmarks Nationalbank are not subtracted. According to the EU Stability and Growth Pact, the EMU debt must not, as a general rule, exceed 60 per cent of GDP. Denmark meets this target and is well below the limit, cf. www.dst.dk or ec.europa.eu/eurostat.

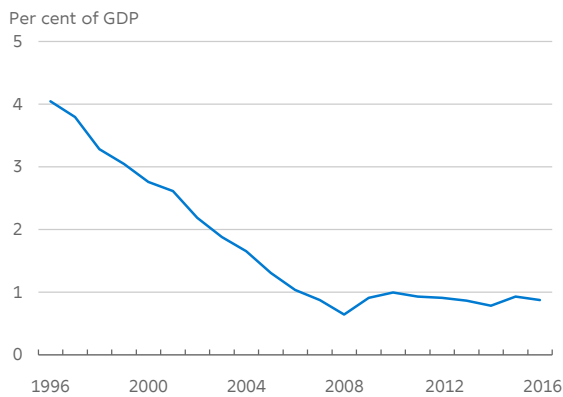
The *net general government debt* comprises all financial assets and liabilities of the central, regional and local governments as well as social security funds. The central government's asset side includes the account at Danmarks Nationalbank, all assets in government funds, on-lending to government-owned companies and the central government's equity portfolio, e.g. shareholdings in DONG Energy A/S, Copenhagen Airports A/S, Post Nord AB and SAS A/S. The net general government debt is calculated at market value and is thus affected by value adjustments of government assets and liabilities. Internationally comparable calculations of net general government debt are made by the IMF, among others.

the debt was slightly lower. Adjusted for interest income on on-lending, interest costs amounted to kr. 16 billion or 0.8 per cent of GDP in 2016.

Low interest rates on new loans helped to reduce interest costs while buy-backs by the central

government in 2016 contributed to higher booked interest costs. When the central government conducts buy-backs of bonds with a coupon rate that exceeds the current market rate, the cost is booked as an interest cost in the year of the buy-back. The cost will be offset by lower booked interest costs in the subsequent years.

Central government interest costs were low Chart 2



Source: Central government accounts. Figures for 2016 are provisional figures from the central government's accounting.

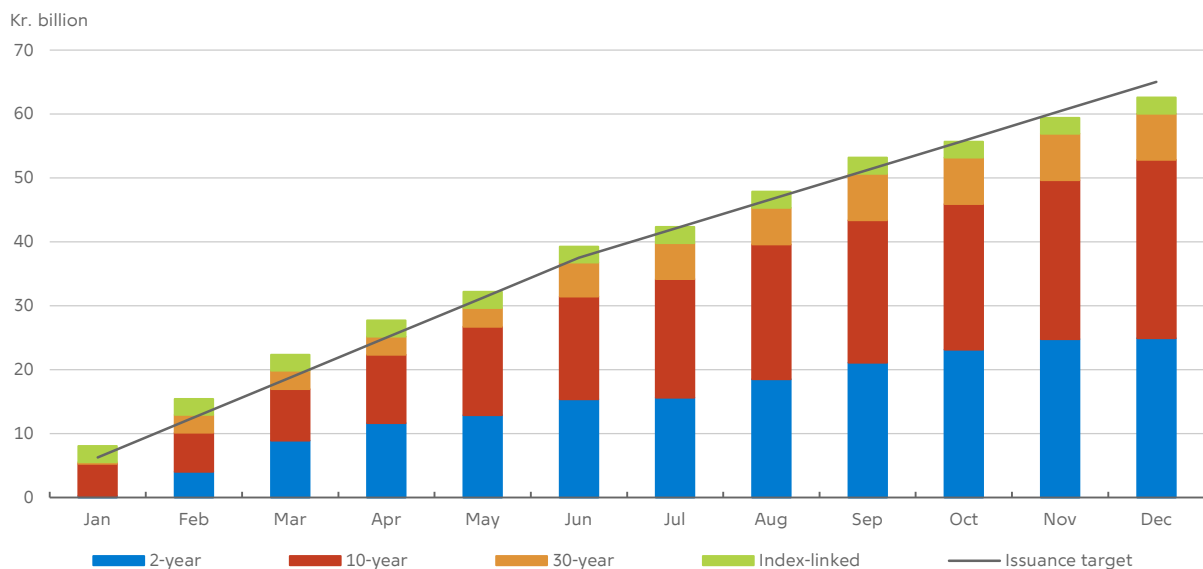
Central Government Borrowing in 2016

Sales of domestic government securities were in accordance with the strategy

Bond issuance by the central government in 2016 via auctions and tap sales amounted to kr. 63 billion at market value, cf. Chart 3. This was in line with the target, which was reduced from kr. 75 billion to kr. 65 billion in June. Demand for the bonds was high, and sales were evenly distributed across the year.

In keeping with the strategy, sales mainly comprised 2-year and 10-year bonds. Sales of 2-year and 10-year nominal bonds totalled just under 85 per cent

Sales of government bonds in 2016 were consistent with the strategy Chart 3



Note: Issuance in 2016 at market value, excluding switches.

of the issuance in 2016 with a relatively equal distribution between the two securities. The remainder was issued in the bond maturing in 2039 and in the inflation-indexed bond. Central government issuance did not include the 5-year maturity segment in which demand was limited.

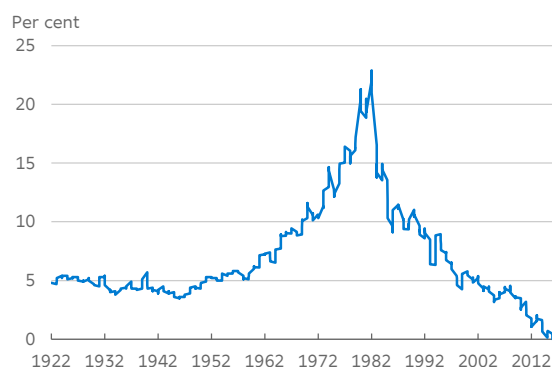
The outstanding volume in the T-bill programme was kr. 27 billion at year-end, which was close to the target of kr. 30 billion. A programme size of around kr. 30 billion is assessed to be the lower limit for retaining investor interest. On average, T-bills were issued at a yield to maturity of -0.6 per cent in 2016. The low yields reflect that demand for T-bills was strong in 2016, particularly from dollar investors. This should be viewed against the background of the prices in the foreign exchange market, which made it attractive to purchase T-bills and concluding currency swaps from kroner to dollars rather than e.g. investing directly in US T-bills.

Central government issuance at record-low yields in 2016

In 2016, the long-term Danish government yields were historically low, cf. Chart 4. On average, the central government sold nominal bonds at a yield to maturity of 0.1 per cent, cf. Table 1, which is an all-time low.

On the whole, Danish government yields mirrored the development in European yields in 2016, falling after the British 'no' in the referendum on EU membership in June. Over the summer, the yield to maturity on the 10-year government security fell to around 0 per cent, and in September the central government issued 10-year bonds at a negative yield for the first time ever. The yields on short-term Danish government securities fell less, thereby narrowing the spread between short-term and long-term government yields. As a result, the central government chose to fix the rate of interest on part of the debt for a prolonged period of time by concluding interest rate swaps. From July to November, the central government concluded interest rate swaps for DKK 6 billion in the 10-year maturity segment where the fixed interest rate is paid by the central government, cf. the section on market risk management. In the wake of the US presidential election in November, long-term yields rose to roughly the same level as prior to the British referendum, while short-term yields remained more or less unchanged, cf. Chart 5.

The long-term Danish government yields were historically low in 2016 Chart 4



Note: Yield to maturity on central government issuance in the 10-year maturity segment.

Source: Abildgren, Kim (2012), Financial structures and the real effects of credit-supply shocks in Denmark 1922-2011, European Review of Economic History, Vol. 16(4), pp. 490-510, and Statistics Denmark.

Central government issuance at very low interest rates in 2016 Table 1

	Sold at market value, kr. billion	Average yield to maturity, per cent	Average remaining time to maturity, years
T-bills	27.2*	- 0.6	0.3
Index-linked bonds:			
0.1 per cent inflation-linked loan 2023	2.5	- 0.3**	7.8
Nominal bonds:			
0.25 per cent bullet loan 2018	24.9	- 0.4	2.4
1.75 per cent bullet loan 2025	27.9	0.4	9.4
4.5 per cent bullet loan 2039	7.3	0.8	23.5
Total, nominal bonds	60.1	0.1	7.3

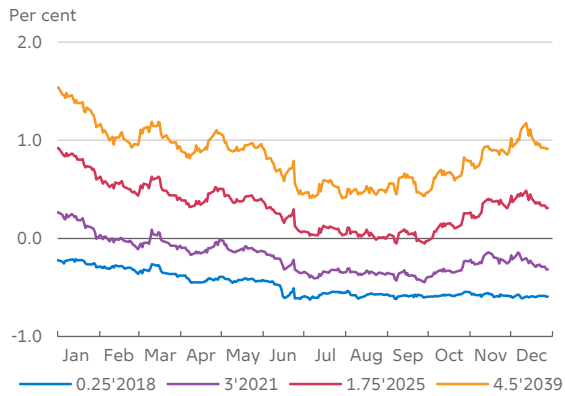
Note: Issuance excluding switches. Yields to maturity have been weighted by market value. Average maturities have been weighted by nominal value.

* Outstanding amount stated as at 30 December 2016.

** Real interest rate.

The 10-year government yield fell to around zero in 2016

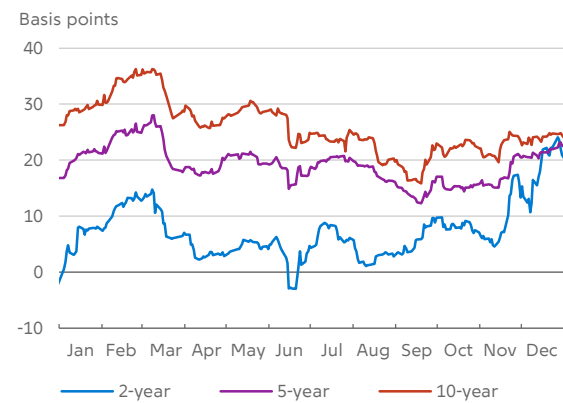
Chart 5



Note: Yields to maturity on Danish government bonds.
 Source: Bloomberg.

The spread between long-term government yields in Denmark and Germany narrowed in 2016

Chart 6



Note: Par yield spreads to Germany across maturity segments.
 Source: Nordea Analytics.

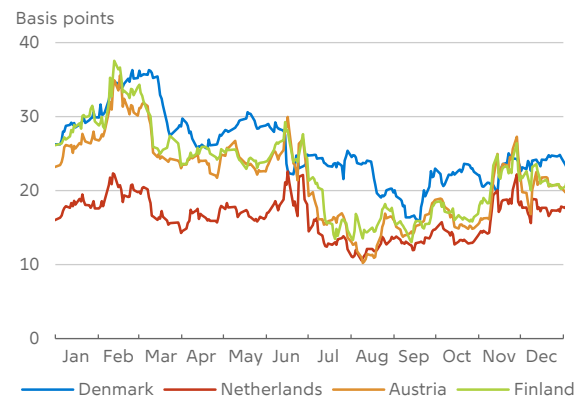
The yield spread to Germany narrowed

The spread between short-term Danish and German government yields was relatively stable at a level of around 5 basis points until the autumn. The short-term yield spread widened in November, when the German yields declined, cf. Chart 6.

In the 10-year maturity segment, the yield spread to Germany narrowed from a level of around 35 basis points in the spring to around 25 basis points in December, cf. Chart 6. This was consistent with developments in a number of comparable countries, cf. Chart 7. The Danish government yield spread is affected by many factors, including demand from Danish pension companies and investment associations for government securities with high duration. The demand is, among other factors, influenced by maturity developments in the Danish mortgage bond market. For most of 2016, the Danish yield spread was higher than that of e.g. Austria or Finland despite Denmark's higher credit rating. This should be seen in the light of the ECB's purchases of government bonds, which exerted downward pressure on euro area yields.

The yield spread to Germany mirrored developments in comparable countries

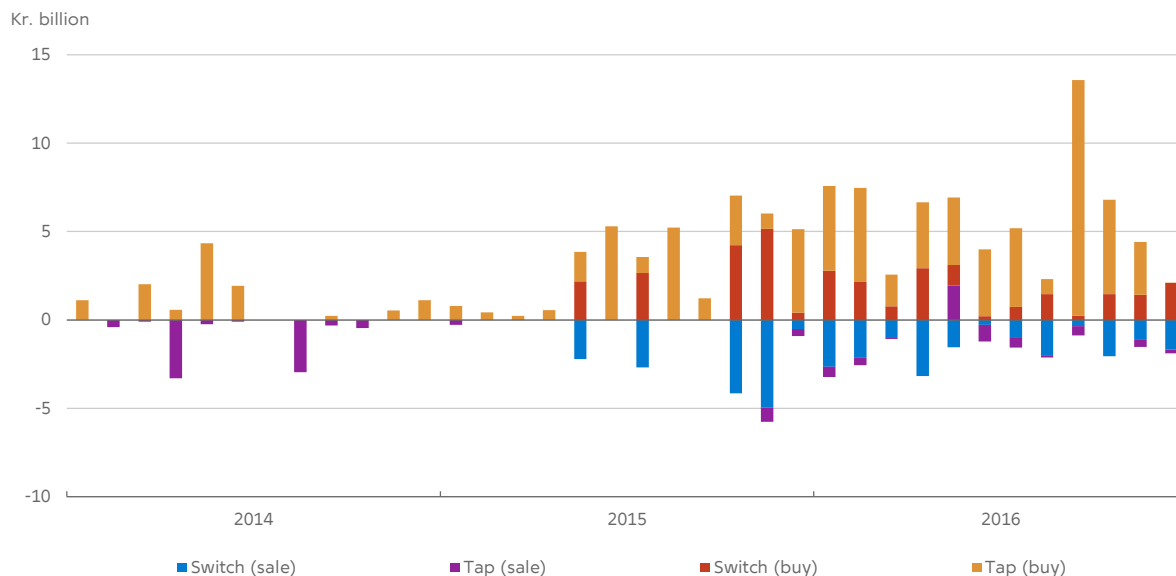
Chart 7



Note: Par yield spreads to Germany in the 10-year maturity segment for selected countries.
 Source: Nordea Analytics.

The central government still played an active role in the secondary market to support liquidity

Chart 8



Note: The central government's activity apart from government bond auctions.
 Source: Danmarks Nationalbank.

The central government played an active role in the market to support liquidity

In 2016, the central government played an active role in the secondary market via buy-backs, switch operations and tap sales, cf. Chart 8, to support liquidity in the market for Danish government securities. Both primary dealers and investors indicate that the central government's activity in the market helped make it easier and cheaper to trade Danish government securities. This reduces the return required by investors and contributes to lower funding costs for the central government.

Regular switch operations were conducted twice a month, allowing primary dealers and investors to switch off-the-run issues to more liquid on-the-run issues without major transaction costs. Sales of government securities in connection with switch operations amounted to kr. 19 billion out of an overall limit of kr. 30 billion, cf. Table 2.

The central government also supported the market via tap sales and buy-backs outside the switch operations. This gave primary dealers an opportunity to purchase and sell securities in smaller volumes to the central government outside the auctions, mak-

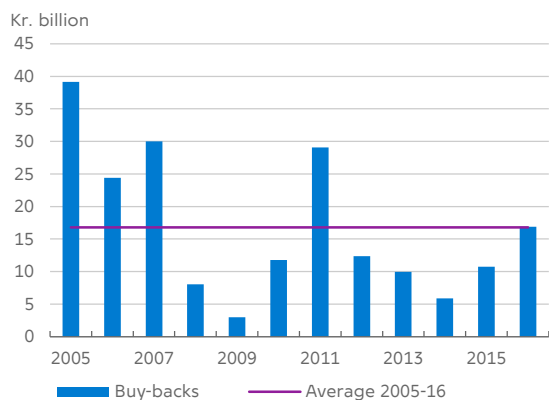
Central government switches in 2016

Table 2

Issuance		Buy-backs	
Series	Sales, kr. million	Series	Buy-backs, kr. million
0.25'2018	12,348	4'2019	9,089
1.75'2025	6,714	1.5'2023	8,279
		7'2024	31
Total	19,063		17,400

Note: Stated at market value.

Buy-backs of bonds maturing in subsequent years were at an average level Chart 9



Note: Buy-backs in the market of bonds maturing in subsequent years, excluding switches. Stated at market value.
 Source: Danmarks Nationalbank.

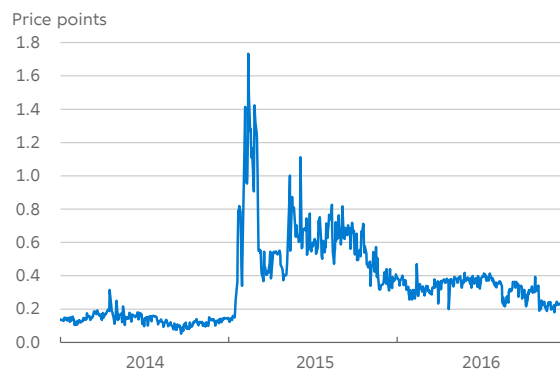
ing it easier for the primary dealers to quote prices on a current basis and act as distribution channels for Danish government bonds. Central government buy-backs of bonds maturing in 2016 also allowed investors to distribute their reinvestments across the year. Buy-backs of securities maturing after the current year bring forward the central government's financing requirement. In 2016, buy-backs of securities maturing after 2016 totalled kr. 17 billion, corresponding to the average in recent years, cf. Chart 9.

In 2016, bonds that were bought back were placed temporarily in the central government's own portfolio, from which some were used in connection with the government funds' purchases and sales of government securities. In December, all bonds in the central government's own portfolio were redeemed, thereby reducing the circulating volume of Danish government bonds correspondingly.

Indications of improved liquidity in the market for Danish government securities

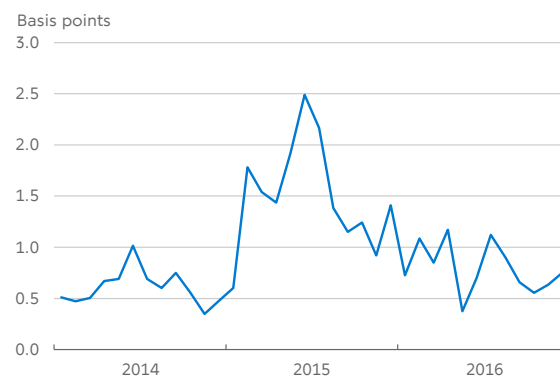
According to a number of indicators, liquidity in the market for Danish government securities improved in 2016 compared with 2015, when issuance of government securities was suspended from January to October. Trading costs in the interdealer market, measured by the bid-ask spread on the

Bid-ask spreads narrowed in 2016 Chart 10



Note: 10-year bid-ask spread.
 Source: MTS Denmark.

Reduction of price sensitivity indicates improved liquidity in 2016 Chart 11



Note: MiFID data. The measure of price sensitivity and data filtering is described in *Danish Government Borrowing and Debt 2013*, Chapter 8.
 Source: Danish Financial Supervisory Authority and own calculations.

electronic trading platform MTS, were reduced in the 2nd half of 2016, cf. Chart 10. Price sensitivity based on actual trades in the overall secondary market fell. This also points to an improvement of liquidity in the market for Danish government securities in 2016, cf. Chart 11.

Despite showing signs of improvement, liquidity remained lower in 2016 than prior to the temporary suspension of issuance, and the central government

will continue to play an active role to support the market, cf. “[Strategy for Danish central government borrowing and risk management in 2017](#)”. Moreover, from 1 April 2017 the central government is introducing enhanced requirements and payments to banks in order to improve liquidity in the market for Danish government bonds, cf. “[Enhanced Requirements and Payments are to strengthen the Danish Government Securities Market](#)”.

Non-residents’ interest in Danish government securities was stable in 2016

Investors in Danish government securities remained broadly distributed across sectors and geographical areas in 2016. With an ownership share of approximately 50 per cent, the Danish insurance and pension sector was the largest investor group, cf. Chart 12. The Danish insurance and pension sector increased its ownership share marginally in 2016 due to a larger portfolio of long-term Danish government securities.

Non-residents’ holdings and ownership shares remained virtually unchanged in 2016 at a level of around kr. 240 billion or 40 per cent of Danish government securities, cf. Chart 13. Non-residents’ ownership shares were still highest in the short-term maturity segments.

The central government did not issue foreign bonds in 2016

In accordance with its strategy, the central government did not issue any foreign bonds in 2016, which saw redemptions on foreign loans of approximately kr. 20 billion. As a result, the central government’s contribution to the foreign exchange reserve was reduced correspondingly.

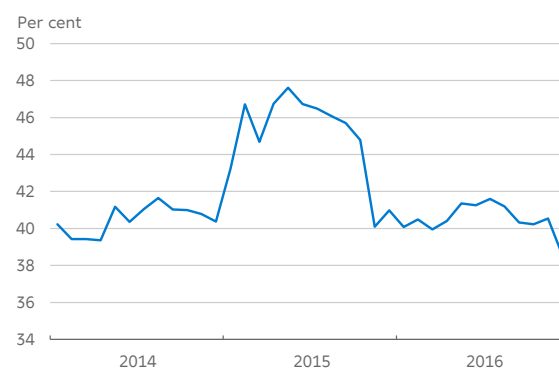
The central government’s Commercial Paper programmes were routinely tested in February and September. The programmes can be used as required to quickly increase the foreign exchange reserve and/or the balance on the central govern-

The pension sector owns around half of the Danish government securities Chart 12



Note: Ownership distribution of domestic government securities end-2016.

The non-resident ownership share of Danish government securities was stable in 2016 Chart 13

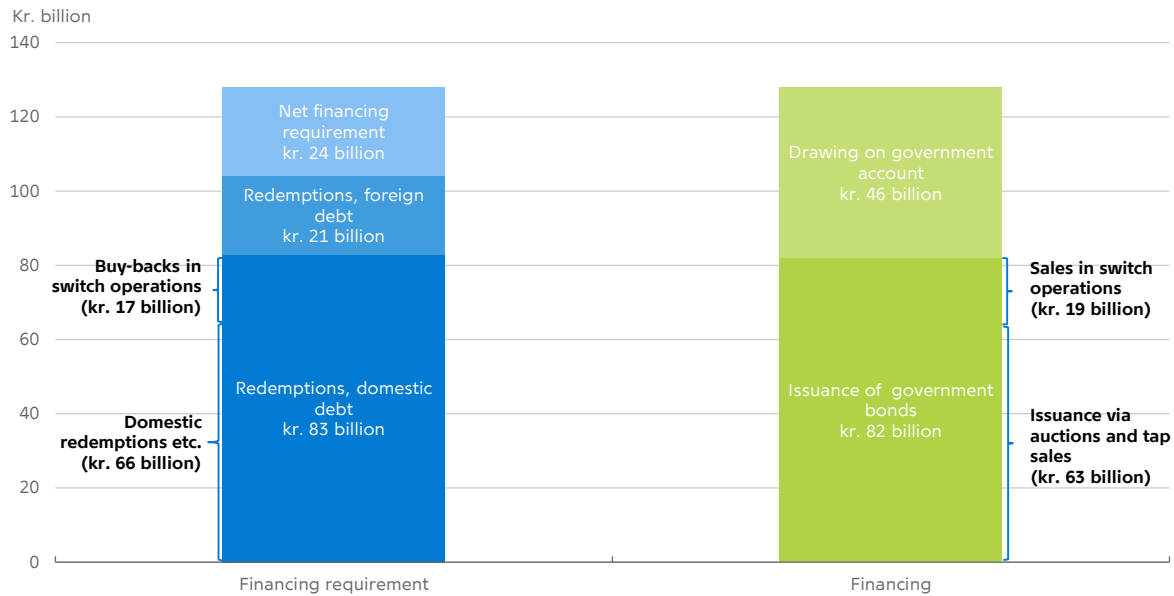


Note: Non-resident ownership share of Danish government securities. The most recent observation is from December 2016.

Source: Danmarks Nationalbank.

The financing requirement in 2016 was met by bond sales and drawing on the central government's account

Chart 14



Note: Redemptions on domestic debt include maturing government bonds, buy-backs, net issuance of T-bills, net purchases for funds, changes in collateral balance and servicing of swaps concluded in connection with on-lending to Danish Ship Finance.
 Source: Danmarks Nationalbank.

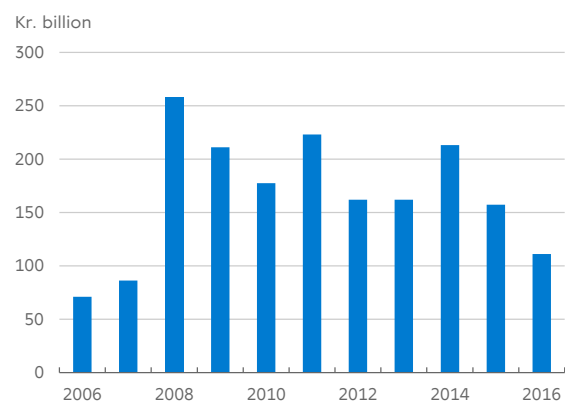
ment's account. Issuance totalled kr. 110 million dollars in securities with maturities of one to three weeks during the tests.

The balance on the central government's account was reduced

The central government's financing requirement consists of the government budget deficit and servicing of domestic and foreign government debt. In 2016, most of the financing requirement was covered by issuing bonds for kr. 82 billion, including kr. 19 billion at switch operations. The remainder was covered by drawing on the central government's account at Danmarks Nationalbank, cf. Chart 14, thereby reducing the balance on the account to kr. 111 billion at the end of the year, cf. Chart 15. This was consistent with the strategy of gradually reducing the balance on the central government's account from its relatively high level during the financial crisis to kr. 75-100 billion.

The balance on the central government's account was reduced in 2016

Chart 15



Market Risk Management

The central government's interest rate risk is the risk of higher interest costs as a result of financing at higher interest rates in the future. The risk depends on the debt composition of short-term and long-term bonds, among other factors. In risk management, the average fixed interest period – or duration – is used as a key measure of the interest rate risk on the debt portfolio. High duration means that the interest rate is locked for a long period of time for a large part of the debt. This limits the probability of sudden hikes in the central government's interest costs.

High duration maintained

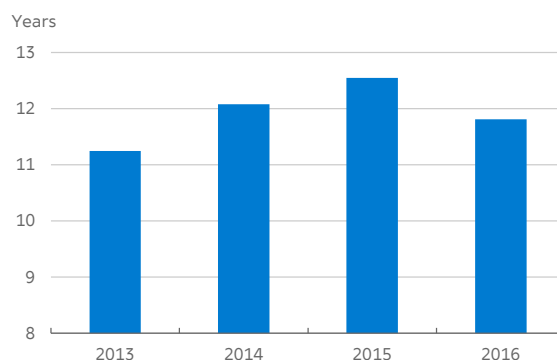
In 2016, the central government maintained a high duration of the central government debt – also by international standards. The average duration of the central government debt in 2016 was 11.8 years, cf. Chart 16. This is in the upper part of the band of 11.5 years +/-1 year set at the beginning of the year.

The central government concluded interest rate swaps in the 2nd half of 2016

The central government concluded interest rate swaps totalling kr. 6 billion in the 2nd half of 2016 in which the central government paid a fixed rate of interest. The background was that the expected cost of maintaining high duration was assessed to be low. Until October, the slope of the Danish government yield curve decreased to a low level compared with recent years, cf. Chart 17. At the same time, the estimated term premium was close to zero.

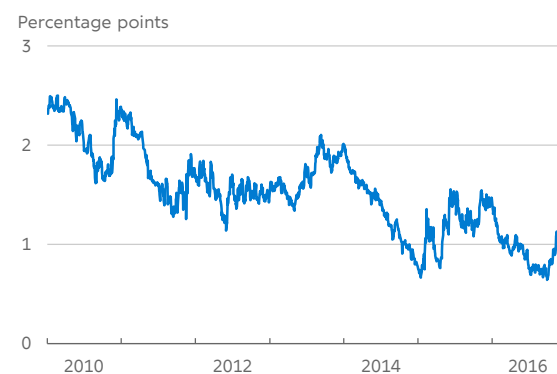
Despite the conclusion of interest rate swaps, the duration decreased slightly in 2016, driven mainly by a reduction in the balance on the central government's account. The duration of the central government debt is calculated on the basis of future cash flows in the form of interest and redemption payments on liabilities less interest and redemptions on assets. The balance on the central government's account constitutes a short-term asset for the central government. In practice, a large balance neutralises the impact of corresponding short-term liabilities.

The duration of the central government debt remained high in 2016 Chart 16



Note: The duration is calculated as an average and at a fixed discount rate of zero.

The slope of the Danish government yield curve decreased until October Chart 17



Note: The spread between the 10-year and the 1-year par yield.
 Source: Nordea Analytics and own calculations.

The central government's choice of interest rate swaps in 2016

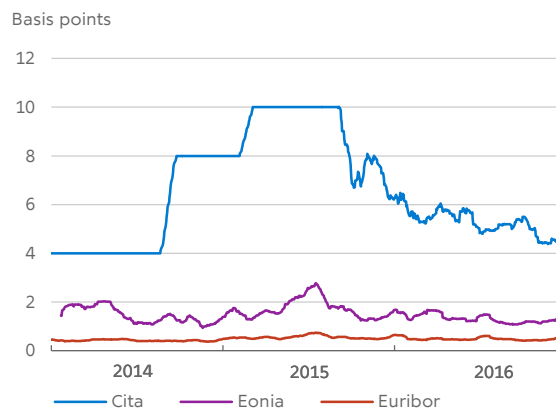
Box 2

The central government uses interest rate swaps to manage the interest rate risk on the debt portfolio. In 2016, the central government concluded interest rate swaps in the 10-year maturity segment in which the central government pays a fixed swap rate and receives the overnight Eonia rate. This means that the central government transferred a small part of its short-term interest rate exposure to a 10-year horizon.

It is in the central government's interest to conclude swaps based on interest rates with a close correlation with Danish government yields. The Cita swap curve represents a good approximation to the Danish government yield curve. However, measured by the bid-ask spread, liquidity in the Cita swap market is lower than in the European money market, cf. the chart.

Consequently, it was assessed to be more relevant for the central government to conclude swaps in euro. Eonia is the European variation of the Cita rate and reflects the overnight credit risk, while the Euribor rate is determined on the basis of uncollateralised loans over, for instance, six months or one year. Fluctuations in Euribor have typically been stronger than in Eonia. Consequently, in 2016, the assessment was that it was more advantageous for the central government to conclude Eonia swaps. Due to the fixed exchange rate policy, the exchange rate risk of concluding swaps in euro is very limited.

Bid-ask spreads in 10-year swap rates



Note: 20-day moving average.
 Source: Bloomberg.

The central government concluded interest rate swaps in which the central government pays a fixed rate of interest and receives the overnight Eonia rate (Eonia swaps), cf. Box 2. The choice of Eonia is due to the European swap market being more liquid than the Danish swap market.

No exposure to uncollateralised money market interest rates

At the end of 2016, the central government was no longer exposed to uncollateralised money market interest rates. Previously, the central government has concluded interest rate swaps at a variable uncollateralised money market interest rate (Cibor/Euribor). In recent years, the central government has reduced this exposure by terminating these interest rate swaps or by concluding opposite swaps. The last of this type of swaps that had not been terminated or in which opposite swaps had not been concluded, expired in January 2017.

The central government's exchange rate and credit risks are limited

The central government's exchange rate and credit risks are limited. The foreign debt is low, and the central government is exposed only to fluctuations in the exchange rate between the Danish krone and the euro against which Denmark pursues a fixed exchange rate policy. The central government hardly has any credit exposure in connection with swaps. The reason is that the counterparties (and the central government) pledge collateral for the market value and that collateral is adjusted on a daily basis, cf. "[Credit Risk Management: Transition to two-way collateral agreements](#)".

Government Funds, On-Lending and Government Guarantees

The assets of three government funds are managed by Danmarks Nationalbank

Danmarks Nationalbank manages the following three government funds on behalf of the central government: the Social Pension Fund, SPF, the Danish National Innovation Foundation and the Fund for Better Working Environment and Labour Retention, cf. Box 3.

The assets of the funds are set off against the total central government debt and are managed on a consolidated basis with other financial assets and liabilities of the central government in the area of government debt.

The Social Pension Fund, SPF, had assets totalling kr. 58 billion, cf. Table 3, stated at nominal value, at the end of 2016. SPF's nominal bond portfolio has been gradually reduced since 1995. In 2016, just under kr. 13 billion was transferred from SPF to the Danish Agency for Labour Market and Recruitment, cf. Table 4. The risk of SPF's assets is assessed separately, but is included in the consolidated risk management of the central government debt. SPF's market risk is managed via a band for the average Macaulay duration over the year. In 2016, the band was 4.0 years +/- 0.5 year. The duration ended at the upper part of the band. In 2017, the band is set at 3.75 years +/- 0.5 year.

At end-2016, the assets of the Danish National Innovation Foundation amounted to kr. 14 billion, stated at nominal value. By agreement with the Ministry of Finance, the assets of the Foundation may be invested in Danish government bonds only. The Foundation's investment strategy aims to achieve an equal distribution on short-, medium- and long-term Danish government bonds. In 2016, the Foundation transferred kr. 400 million to the Ministry of Higher Education and Science.

Government funds

Box 3

The Social Pension Fund, SPF

SPF was established in 1970 by the Social Pension Fund Act, whereby a special pension contribution was introduced. The pension contribution – and thus payments into SPF – ceased in 1982. Since then, the assets of SPF and the interest accrued less pension yield tax have been used for financing pension improvement measures.

SPF is managed by a committee comprising representatives of the Ministry of Finance, the Danish Agency for Labour Market and Recruitment and Danmarks Nationalbank. Day-to-day management of the assets is undertaken by Danmarks Nationalbank. The framework for management of the assets is laid down in the Regulations governing the management of the Social Pension Fund. According to these regulations, the assets of SPF can be invested in Danish listed bonds.

Danish National Innovation Foundation

In March 2014, the Folketing (parliament) entered into an agreement to establish the Danish National Innovation Foundation. The assets of the Advanced Technology Foundation, the Danish Council for Strategic Research and the Danish Council for Technology and Innovation were concentrated in the Foundation.

Fund for Better Working Environment and Labour Retention

The Fund for Better Working Environment and Labour Retention was established in 2007 with a view to supporting measures that prevent physical and mental impairment, work-related accidents and occupational diseases. A total of kr. 3 billion was transferred to the Fund when it was established, and no further capital injections are planned.

The government funds' assets, end-2016

Table 3

Nominal value, kr. billion	SPF	Innovation Fund Denmark	Fund for Better Working Environment and Labour Retention	Share of outstanding, per cent ¹
4 per cent bullet loan 2017	10.8	2.9	-	26
4 per cent bullet loan 2019	16.1	4.0	0.6	25
3 per cent bullet loan 2021	7.4	3.0	-	11
1.5 per cent bullet loan 2023	8.3	2.7	-	22
7 per cent bullet loan 2024	6.3	1.3	-	47
Government bonds, total	48.8	13.9	0.6	
Mortgage bonds etc. ²	7.4	-	-	
Index-linked bonds ³	1.4	-	-	
Balance of account	0.8	0.2	0.1	
Total	58.4	14.1	0.7	

1. Indicates the funds' ownership share of the total outstanding value in the issue.

2. Mortgage, KommuneKredit, Fisheries Bank and Ship Finance bonds.

3. Indexed nominal value.

The government funds' revenue and expenditure in 2016

Table 4

Kr. million	SPF	Innovation Fund Denmark	Fund for Better Working Environment and Labour Retention
Revenue:			
Interest, etc. ¹	3,899	225	-1
Expenditure:			
Transfer to relevant ministry	12,750	400	74
Pension yield tax ²	37	-	-
Net revenue	-8,888	-175	-75

1. Net statement of interest received, interest receivable, and distributed capital losses on buy-backs.

2. Pension yield tax is payable on the return for the preceding year.

At end-2016, the assets of the Fund for Better Working Environment and Labour Retention amounted to kr. 700 million. Under a statutory provision, the assets of the Fund may be invested in Danish government bonds only. In 2016, the Fund transferred assets totalling kr. 74 million to the Danish Agency for Labour Market and Recruitment.

Slightly larger volume of central government loans to government-owned companies

A number of government-owned companies may raise loans directly from the central government, on-lending, cf. Box 4. In 2016, on-lending by the central government amounted to kr. 20 billion nominally, cf. Table 5. Thus, the total volume of on-lending amounted to kr. 108 billion, or about 5 per cent of GDP, representing an increase of kr. 5 billion relative to 2015.

In recent years, government-owned companies have tended to opt for on-lending rather than government-guaranteed borrowing. This reflects that on-lending is usually the less expensive option as the loan is financed by issuing government bonds, which are typically more liquid than government-guaranteed issuances.

On-lending

Box 4

On-lending means that loans are raised directly from the central government. The loan proceeds are paid from the central government's account, and the resulting financing requirement is met via the central government's current issuance of bonds. The companies pay interest and redemptions to the central government. The terms and conditions basically mirror those of government bonds. This entails that the coupon rate, interest payment dates and redemption dates of on-lending correspond to the characteristics of an existing government bond. When a company requests on-lending, the price of the loan is fixed based on the market price of the corresponding government bond. As a main rule, the companies pay annual commission of 0.15 per cent of the total loan value to the government.

On-lending derives from the political intention of supporting selected projects through cheaper funding. Due to the central government's high credit rating, on-lending – like government-guaranteed loans – gives the company access to cheaper funding than if it had to raise the loan itself. Funding through on-lending is usually less expensive for the company than issuance of government-guaranteed bonds, because liquidity is considerably higher in the central government's bond series. The company saves the liquidity premium that would otherwise be required by investors in the form of higher interest rates.

On-lending increases the central government debt because it increases the central government's borrowing or reduces the balance on the central government's account, while the asset in the form of the loan from the central government to the company is not offset.

On-lending in 2016

Table 5

Kr. billion, nominal value	Portfolio end-2015	Borrowing in 2016	Redemptions in 2016	Portfolio end-2016
Infrastructure				
Energinet.dk	18.2	2.7	-	20.9
The Great Belt Bridge	16.1	0.6	1.1	15.7
CPH City and Port Development	15.5	2.4	3.1	14.8
Øresund Landworks	10.1	2.3	2.1	10.3
The Metro Company	10.1	7.5	2.6	15.0
Femern A/S	2.0	1.7	1.3	2.4
Femern Landworks	0.7	0.8	0.2	1.3
Sund & Bælt Holding	0.4	0.1	-	0.5
Greater Copenhagen Light Rail	0.1	-	-	0.1
Fjord Link Frederikssund	-	0.5	-	0.5
Other				
EKF (Danish Export Credit Agency)	15.8	1.3	2.1	14.9
Danish Ship Finance	5.9	-	1.5	4.5
The Financial Stability Company	0.8	-	0.8	-
DR (Danish Broadcasting Corporation)	3.1	-	-	3.1
Loan to Ireland	3.0	-	-	3.0
SSI (Statens Serum Institut)	0.4	-	-	0.4
Total	102.3	19.9	14.7	107.6

Note: Since the Danish North Sea Fund has no on-lending in 2016 it is not included in the table. On-lending to Danish Ship Finance is calculated without the hedge portfolio, and the sum of transactions during the year does not equal the change in the portfolio due to changes in the exchange rate between dollar and kroner. The difference is reflected in a similar change in the value of the central government's hedge portfolio.

New company gained access to on-lending in 2016

Legal documents on the funding of Fjord Link Frederikssund was adopted by the Finance Committee, giving the company access to on-lending totalling kr. 0.8 billion in 2016 for the construction of a new road link across Roskilde Fjord. The documents also authorised the company to use financial contracts, including interest rate swaps under government-guaranteed framework agreements.

The Financial Stability Company's remaining portfolio of on-lending expired in November 2016,

after which time the company no longer had any outstanding on-lending.

In 2016, the portfolio of on-lending still included a bilateral loan to Ireland of 400 million euro, equivalent to around kr. 3 billion, granted to Ireland in 2010. Ireland received the loan in 2012-13 in four disbursements. Each disbursement has an original maturity of 7.5 years at a rate of interest corresponding to 3-month Euribor + 1 percentage point.

Fewer government loan guarantees

At the end of 2016, Danmarks Nationalbank administered government loan guarantees of kr. 25 billion, equivalent to 1 per cent of GDP, cf. Table 6. This represents a reduction of around kr. 3 billion relative to 2015. The largest guarantees have been issued to Øresundsbro Konsortiet and the Great Belt Bridge. Guarantees to these two companies account for most of the loan guarantees. The Danish and Swedish governments have joint and several liability for the debt of Øresundsbro Konsortiet.

The central government also issues guarantees not administered by Danmarks Nationalbank. These guarantees have primarily been given to international organisations, export credits and social housing. In 2015, the central government had issued guarantees amounting to kr. 318 billion, or 16 per cent GDP.¹

Structure of Government Debt Management

The objective and key principles of the government debt policy and the tasks and structure of the management of the central government debt were unchanged in 2016. The objective, tasks and structure are described at www.governmentdebt.dk under "About government debt management".

1 Based on the governments accounts 2015.

Loan guarantees administered by Danmarks Nationalbank on behalf of the government

Table 6

End-2016	Kr. million	Per cent of GDP
The Great Belt Bridge	6,239	0.3
Øresund Landworks	517	0.0
Femern Landworks	39	0.0
Femern	36	0.0
Sund og Bælt Holding	4	0.0
Øresundsbro Konsortiet	14,202	0.7
DSB (Danish State Railways)	3,117	0.2
DR (Danish Broadcasting Corporation)	796	0.0
Total	24,950	1.2

Note: The figures include guaranteed swaps. Loans raised by Øresundsbro Konsortiet are guaranteed by the Danish and Swedish governments subject to joint and several liability.

Danish government borrowing and debt 2016

- 1 CENTRAL-GOVERNMENT DEBT, YEAR-END 2006-16
- 2 CENTRAL-GOVERNMENT'S FINANCING REQUIREMENT, 2006-16
- 3 INTEREST PAYMENTS ON CENTRAL-GOVERNMENT DEBT, 2013-16
- 4 ISSUANCE OF CENTRAL-GOVERNMENT SECURITIES IN 2016
- 5 CENTRAL-GOVERNMENT DEBT AS OF END-2016
- 6 CENTRAL-GOVERNMENT INTEREST-RATE SWAPS: TRANSACTIONS IN 2015 AND PORTFOLIO AS OF END-2016
- 7 ON-LENDING AND GOVERNMENT GUARANTEES ADMINISTERED BY DANMARKS NATIONALBANK, 2012-16

Central-government debt, year-end 2006-16 (continues next page)

Table 1

Kr. million	2006	2007	2008	2009	2010
A. Loan					
<i>Domestic debt</i>					
- Fixed-rate bonds, nominal	428,796	403,039	451,394	505,973	556,900
- Inflation-linked bonds ¹	-	-	-	-	-
- Fisheries Bank bonds	-	-	-	995	887
- Lottery bonds	200	200	200	100	-
- Treasury notes	-	-	-	-	-
- Treasury bills	42,660	19,660	-	-	25,460
- Index-linked loans and loan package ²	379	277	-	-	-
- Currency swaps from kroner to euro (net) ³	-12,755	-13,262	-11,662	-8,197	2,974
- Currency swaps from kroner to dollars	-4,862	-7,873	-10,423	-10,956	-9,808
Domestic debt, total	454,418	402,040	429,509	487,921	576,413
<i>Foreign debt⁴</i>					
- in dollars	4,583	6,844	9,947	10,218	9,901
- in euro	75,219	61,738	123,126	129,351	104,811
- in other currencies and multi-currency	21	20	19	19	18
Foreign debt, total	79,823	68,642	133,092	139,588	114,731
Domestic and foreign debt, total	534,241	470,682	562,600	627,509	691,144
B. Collateral related to swaps ⁵	-	-	-	-	-
C. Government deposits with the central bank ⁶	-70,958	-86,333	-258,131	-210,932	-177,282
The Social Pension Fund, The Fund for Better Working Environment and Labour Retention and The Danish National Innovation Fund					
D. Working Environment and Labour Retention and The Danish National Innovation Fund					
- Government securities	-125,111	-128,547	-98,604	-77,720	-75,511
- Other securities	-9,535	-8,686	-9,643	-37,376	-52,075
The three funds, nominal value, total	-134,646	137,223	-108,247	-115,096	-127,587
Central-government debt, total (A+B+C+D)	328,637	247,116	196,222	301,481	386,275
Central-government debt, per cent of GDP	19.5	14.2	10.9	17.5	21.3

Note: A positive sign indicates a liability, a negative sign an asset.

1. Inflation-linked bonds are compiled as indexed value at end-year.

2. Loans transferred from the Mortgage Bank of the Kingdom of Denmark.

3. Currency swaps from kroner to euro less currency swaps from euro to kroner.

4. Foreign loans are compiled after end-exposure.

5. Cash-collateral for the market value of the swap portfolio. A positive number means the counterparties net have posted collateral.

6. Deposits include deposits of the government funds. For 2016, government deposit are measured as in Danmarks Nationalbank's balance sheet.

Central-government debt, year-end 2006-16 (continued)

Table 1

Kr. million	2011	2012	2013	2014	2015	2016
A. Loan						
<i>Domestic debt</i>						
- Fixed-rate bonds, nominal	606,627	620,695	615,907	637,617	584,356	572,020
- Inflation-linked bonds ¹	-	10,207	23,251	35,531	35,667	38,193
- Fisheries Bank bonds	786	684	594	507	424	343
- Lottery bonds	-	-	-	-	-	-
- Treasury notes	-	-	-	-	-	-
- Treasury bills	44,200	44,940	32,300	29,800	29,840	27,180
- Index-linked loans and loan package ²	-	-	-	-	-	-
- Currency swaps from kroner to euro (net) ³	2,974	-1,490	-1,490	-	-	-
- Currency swaps from kroner to dollars	-8,660	-7,512	-6,364	-5,215	-4,067	-2,942
Domestic debt, total	645,927	667,524	664,198	698,240	646,220	634,794
<i>Foreign debt⁴</i>						
- in dollars	8,957	7,662	6,219	5,778	5,047	3,795
- in euro	102,861	82,338	69,689	53,207	28,223	8,044
- in other currencies and multi-currency	-	-	-	-	-	-
Foreign debt, total	111,818	90,000	75,908	58,986	33,270	11,839
Domestic and foreign debt, total	757,745	757,524	740,106	757,225	679,490	646,633
B. Collateral related to swaps⁵	-	-	3,596	3,804	2,859	1,610
C. Government deposits with the central bank⁶	-223,100	-161,991	-161,953	-213,099	-157,376	-110,928
D. Working Environment and Labour Retention and The Danish National Innovation Fund						
- Government securities	-69,351	-70,859	-65,550	-64,825	-62,399	-63,233
- Other securities	-51,393	-37,902	-32,352	-25,259	-17,172	-8,834
The three funds, nominal value, total	-120,744	-108,761	-94,902	-90,084	-79,571	-72,067
Central-government debt, total (A+B+C+D)	413,901	486,771	486,848	457,846	445,402	465,249
Central-government debt, per cent of GDP	22.4	25.7	25.2	23.2	22.0	22.8

Note: A positive sign indicates a liability, a negative sign an asset.

1. Inflation-linked bonds are compiled as indexed value at end-year.

2. Loans transferred from the Mortgage Bank of the Kingdom of Denmark.

3. Currency swaps from kroner to euro less currency swaps from euro to kroner.

4. Foreign loans are compiled after end-exposure.

5. Cash-collateral for the market value of the swap portfolio. A positive number means the counterparties net have posted collateral.

6. Deposits include deposits of the government funds. For 2016, government deposit are measured as in Danmarks Nationalbank's balance sheet.

Central government's financing requirement 2006-16

Table 2

Kr. billion	2006	2007	2008	2009	2010
Current, investment and lending budget	98.6	106.2	72.3	-29.8	-88.7
On-lending of government loans	-12.4	-8.5	-13.5	-82.0	1.1
Distributed capital losses on issue and due interest ¹	-0.9	0.4	0.3	-1.3	-1.2
Other capital items ²	5.0	-15.3	-10.7	3.1	-4.9
Net cash balance	90.2	82.8	48.3	-110.0	-93.7
Net financing requirement (=-Net cash balance)	-90.2	-82.8	-48.3	110.0	93.7
Redemption on long-term domestic government debt ³	75.6	51.8	37.7	61.2	62.5
Redemption on T-bills ⁴	60.1	42.7	19.7	0.0	0.0
Domestic financing requirement ⁵	45.5	11.6	8.7	171.2	156.2
Redemption on long-term foreign government debt ⁶	10.5	10.4	19.4	17.9	36.5
Redemption on Commercial Paper ⁴	0.0	0.0	0.0	60.3	5.1
Financing requirement	56.0	22.1	28.0	249.4	197.8

continued

Table 2

Kr. billion	2011	2012	2013	2014	2015	2016
Current, investment and lending budget	-33.1	-75.7	5.8	6,7	28.4	na.
On-lending of government loans	2.9	-7.7	-9.5	24,2	-8.7	na.
Distributed capital losses on issue and due interest ¹	-1.7	-2.5	-1.7	-1,8	1.6	na.
Other capital items ²	1.7	4.3	4.2	-6,6	-8.1	na.
Net cash balance	-30.2	-81.6	-1.2	22.6	13.1	24.0
Net financing requirement (=-Net cash balance)	30.2	81.6	1.2	-22.6	-13.1	-24.0
Redemption on long-term domestic government debt ³	63.8	60.2	55.1	54.2	88.2	72.9
Redemption on T-bills ⁴	25.5	44.2	44.9	32.3	29.8	29.8
Domestic financing requirement ⁵	119.5	186.0	100.1	63.9	104.9	126.7
Redemption on long-term foreign government debt ⁶	33.2	32.5	22.1	26.8	22.8	21.5
Redemption on Commercial Paper ⁴	4.6	2.5	2.8	2.5	3.7	0.0
Financing requirement	157.2	221.0	125.0	93.2	131.3	148.2

Source: Central Government Accounts. 2016 are based on Danmarks Nationalbank's end-year specification, which may differ from accounting figures.

1. Including capital losses on buy-backs.
2. Including e.g. movements in the central government's holdings, cf. Budget Outlook from the Ministry of Finance.
3. Including net purchases of bonds from the Government funds administered by Government Debt Management.
4. Corresponds to the outstanding amount at the end of the year before.
5. Deviations from actual domestic financing requirement are possible due to inter alia foreign re-lending.
6. Including net payments on cross-currency swaps.

Interest payments on central-government debt

Table 3

Kr. billion	2013	2014	2015	2016
Domestic debt	20.6	19.2	21.6	21.5
Foreign debt	-0.3	-1.0	-0.2	0.1
Central government's account at Danmarks Nationalbank	0.0	0.0	0.6	0.3
Government funds	-3.6	-2.8	-3.2	-4.1
Central-government debt	16.7	15.5	18.8	17.8
Central-government debt, per cent of GDP	0.9	0.8	0.9	0.9
On-lending	-2.9	-2.5	-2.5	-2.1
Central-government debt, adjusted for on-lending	13.8	13.0	16.4	15.7
Central-government debt, adjusted for on-lending, per cent of GDP	0.7	0.7	0.8	0.8

Note: A positive sign denotes interest costs. A negative sign denotes interest income.

Source: Central Government Accounts. Figures for 2016 are provisional figures from the central government's accounting.

Issuance of domestic central-government securities, 2016

Table 4

ISIN code	Coupon, per cent	Name	Opened	Redemption date	Issuance, kr. million, nominal	Issuance, kr. million, market value
Government bonds						
DK0009923484	0.25	Bullet loan 2018	21 Oct 2015 -	15 Nov 2018	36,625	37,239
DK0009922916	0.1	Index-linked 2023	24 May 2012 -	15 Nov 2023	2,340	2,511
DK0009923138	1.75	Bullet loan 2025	20 May 2014 -	15 Nov 2025	30,830	34,631
DK0009922320	4.5	Bullet loan 2039	11 Nov 2008 -	15 Nov 2039	4,055	7,251
T-bills						
DK0009815672	0	T-bill 2016 I	28 Aug 2015 -	1 Mar 2016	1,480	1,481
DK0009815755	0	T-bill 2016 II	27 Nov 2015 -	1 Jun 2016	15,060	15,080
DK0009815839	0	T-bill 2016 III	26 Feb 2016 -	1 Sep 2016	19,300	19,336
DK0009815912	0	T-bill 2016 IV	30 May 2016 -	1 Dec 2016	25,220	25,280
DK0009816050	0	T-bill 2017 I	30 Aug 2016 -	1 Mar 2017	24,360	24,419
DK0009816134	0	T-bill 2017 II	29 Nov 2016 -	1 Jun 2017	2,820	2,830

Note: The issuance at nominal value excludes indexation, while issuance at market value includes indexation at the time of issuance. Issuances related to switch operations are included.

Central-government domestic debt as of end-2016

Table 5.1

Kr. million, nominal value	Outstanding amount end-2015	Issuance 2016	Redemptions 2016	Outstanding amount end-2016	Redemption date	ISIN code
Government bonds, fixed interest rate						
<i>Bullet loans</i>						
2.5 per cent bullet loan 2016	54,250	-	54,250	-	15 Nov 2016	DK0009922759
4 per cent bullet loan 2017	52,870	-	118	52.753	15 Nov 2017	DK0009921942
0.25 per cent bullet loan 2018	18,970	36,625	-	55.595	15 Nov 2018	DK0009923484
4 per cent bullet loan 2019	95,300	-	11.470	83.830	15 Nov 2019	DK0009922403
3 per cent bullet loan 2021	92,495	-	-	92.495	15 Nov 2021	DK0009922676
1,5 per cent bullet loan 2023	61,880	-	12.710	49.170	15 Nov 2023	DK0009923054
7 per cent bullet loan 2024	21,386	-	5.294	16.092	10 Nov 2024	DK0009918138
1.75 per cent bullet loan 2025	63,235	30,830	-	94.065	15 Nov 2025	DK0009923138
4.5 per cent bullet loan 2039	123,960	4,055	-	128.015	15 Nov 2039	DK0009922320
<i>Inflation-linked bonds</i>						
0.1 per cent inflation-linked 2023 ¹	35,667	2.526	-	38.193	15 Nov 2023	DK0009922916
<i>Amortised loans</i>						
4 per cent amortised loan 2017	10	-	5	5	15 Jun 2017 ²	DK0009902728
<i>Perpetual</i>						
5 per cent Dansk-Islandsk Fond 1918	1	-	-	1	Perpetual	•
Government bonds, fixed interest rate, total	620,023	74,036	83,846	610,213		
<i>T-bills</i>						
T-bill 2016 I	27,400	1,480	28,880	-	1 Mar 2016	DK0009815672
T-bill 2016 II	2,440	15,060	17,500	-	1 Jun 2016	DK0009815755
T-bill 2016 III	-	19,300	19,300	-	1 Sep 2016	DK0009815839
T-bill 2016 IV	-	25,220	25,220	-	1 Dec 2016	DK0009815912
T-bill 2017 I	-	24,360	-	24,360	1 Mar 2017	DK0009816050
T-bill 2017 II	-	2,820	-	2,820	1 Jun 2017	DK0009816134
T-bills total	29,840	88,240	90,900	27,180		
<i>Fisheries Bank of Denmark Bonds</i>						
6 per cent 2016	1	-	1	-	1 May 2016	DK0009604035
7 per cent 2016	3	-	3	-	1 May 2016	DK0009603656
5 per cent 2019	203	-	53	150	1 Nov 2019	DK0009604621
5 per cent 2025	217	-	23	194	1 Nov 2025	DK0009604894
Fisheries Bank Bond, total	424	-	81	343		
Domestic government securities, total	650,287	162,276	174,827	637,736		
Swaps from kroner to dollar	-4,067	-	-1,125	-2,942		
Central-government domestic debt, total	646,220	162,276	173,702	634,794		

1. Issuance in the inflation-linked bond includes the index revaluation. Outstanding amount in the inflation-linked bond is measured at indexed nominal value at year-end.

2. May be redeemed by the central government with three month's notice.

Central-government foreign debt as of end-2016

Table 5.2

ISIN code/loan no ¹	Coupon, per cent	Name	Redemption date	Nominal value, kr. million ²
Loan				
XS1046173529	0.875	2014/17 dollar loan	20 Mar 2017	10,579.2
1741	0.875	2014/17 swap from dollar		-10,579.2
•	0.417	2014/17 swap to euro		8,044.2
Loan, total				8,044.2
Other foreign debt		Currency swap in dollar ³		3,795.3
Foreign debt, total				11,839.4

1. ISIN codes are used for loans, and loan numbers are used for swaps.

2. The outstanding amount as of 31 December 2016 is calculated to kroner on the basis of the following exchange rates as of 30 December 2016: euro = 743.44 and dollar = 705.28

3. The government's currency swaps in dollar are all concluded to hedge on-lending in dollar to Danish Ship Finance.

Concluded interest-rate swaps, 2016

Table 6.1

Issued	Redemption date	Government pays	Currency	Principal amount, kr. million
14 Jul 2016	14 Jul 2026	Fixed rate	Euro	186
15 Jul 2016	15 Jul 2026	Fixed rate	Euro	186
8 Aug 2016	8 Aug 2026	Fixed rate	Euro	186
10 Aug 2016	10 Aug 2026	Fixed rate	Euro	372
11 Aug 2016	11 Aug 2026	Fixed rate	Euro	372
12 Aug 2016	12 Aug 2026	Fixed rate	Euro	372
16 Aug 2016	16 Aug 2026	Fixed rate	Euro	372
23 Aug 2016	23 Aug 2026	Fixed rate	Euro	372
30 Aug 2016	30 Aug 2026	Fixed rate	Euro	186
30 Aug 2016	30 Aug 2026	Fixed rate	Euro	372
9 Sep 2016	9 Sep 2026	Fixed rate	Euro	372
27 Sep 2016	27 Sep 2026	Fixed rate	Euro	372
28 Sep 2016	28 Sep 2026	Fixed rate	Euro	372
28 Sep 2016	28 Sep 2026	Fixed rate	Euro	372
29 Sep 2016	29 Sep 2025	Fixed rate	Euro	372
29 Sep 2016	29 Sep 2026	Fixed rate	Euro	372
30 Sep 2016	30 Sep 2025	Fixed rate	Euro	372
4 Nov 2016	4 Nov 2025	Fixed rate	Euro	372

Note: On all concluded interest-rate swaps in 2016 the central government pays a fixed rate and receives the overnight Eonia rate.

Central-government portfolio swaps as of end-2016

Table 6.2

Expiry year	Euro interest-rate swaps	
	Net exposure, million euro	Net exposure, kr. million ¹
2017	175	1,301
2018	-	-
2019	-	-
2020	-	-
2021	-	-
2022	-	-
2023	-	-
2024	-	-
2025	-150	-1,115
2026	-650	-4,832
Interest rate swaps, total	-625	-4,647

Note: Net exposure is calculated as the difference in principal between interest-rate swaps in which the central government receives a fixed rate and interest-rate swaps in which the central government pays a fixed interest rate.

¹. Converted to kroner on the basis of the following exchange rate as of 30 December 2016: euro = 743.44.

On-lending and government guarantees administered by Danmarks Nationalbank, 2012-16

Table 7

Kr. million	2012	2013	2014	2015	2016
On-lending					
CPH City & Port Development	11,575	11,775	11,775	15,500	14,800
Danish Ship Finance	8,863	7,304	6,748	5,902	4,534
DR (Danish Broadcasting Corporation)	3,522	3,322	3,241	3,140	3,140
EKF (Danish Export Credit Agency)	10,453	14,839	16,670	15,810	14,933
Energinet.dk	11,875	12,572	16,319	18,216	20,924
Femern	800	1,100	1,550	1,950	2,350
Femern Landworks	200	400	500	725	1,325
Fjord Link Frederiksund					530
Greater Copenhagen Light Rail				100	100
SSI (Statens Serum Institut)	387	387	387	387	387
Sund og Bælt Holding	350	450	400	400	500
The Danish North Sea Fund	-	-	-	-	-
The Financial Stability Company	13,532	12,862	5,328	800	-
The Great Belt Bridge	13,365	13,765	15,711	16,143	15,696
The Metro Company	2,940	5,240	7,090	10,140	15,035
Øresund Landworks	8,712	9,762	10,262	10,062	10,342
Ireland	1,492	2,984	2,977	2,985	2,974
Iceland	1,485	1,485	-	-	-
Total	89,551	98,247	98,959	102,260	107,569
Guarantees					
DR (Danish Broadcasting Corporation)	876	856	836	816	796
Femern	-	-	-	-	36
Femern Landworks	-	-	-	-	39
Fjord Link Frederiksund					-
Sund og Bælt Holding	31	23	21	28	4
The Danish State Railways	5,889	6,223	5,404	4,632	3,117
The Great Belt Bridge	12,993	11,249	8,905	7,176	6,239
The Øresund Bridge	18,183	16,425	15,905	15,011	14,202
Øresund Landworks	2,556	1,630	515	456	517
Total	40,528	36,406	31,586	28,120	24,950

Note: Guarantees are inclusive of guaranteed swaps.