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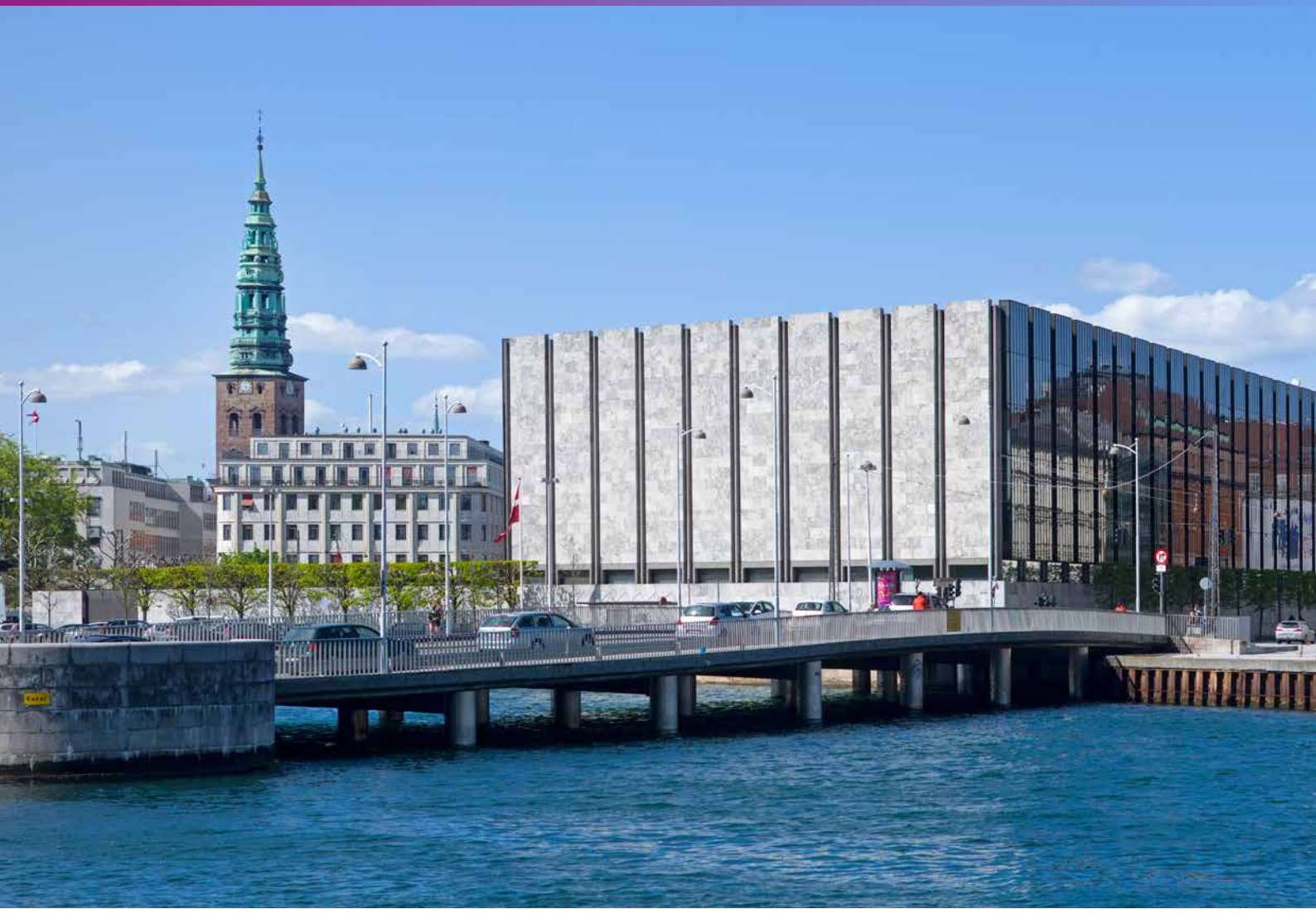
DANISH GOVERNMENT BORROWING AND DEBT

2015



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This publication is based on information available up to 15 February 2016.

Explanation of symbols:
- - Magnitude nil
- 0 Less than one half of unit employed
- • Category not applicable
- na. Numbers not available

Details may not add due to rounding.

ISSN (Online) 1398-3881

CONTENTS

SPECIAL-TOPIC SECTION

APPENDICES

APPENDIX OF TABLES

1

BORROWING AND DEBT IN 2015

2015 was an exceptional year in the European sovereign debt markets where the European Central Bank, ECB, expanded its monetary policy measures by purchasing government bonds. This contributed to unusually low interest rates in the euro area, which also influenced Danish government yields. In Denmark, government debt management policy was highly affected by the pressure against Denmark's fixed exchange rate policy at the beginning of the year. In that connection it was decided to suspend sales of government bonds. This helped to reduce the inflow of foreign exchange by making it less attractive to invest in Danish bonds.

After eight months' suspension of issuance, sales of government bonds were resumed in October. When issuance was resumed, demand for government bonds was high, and after a year in which it was at times difficult to trade Danish government securities, liquidity in the Danish government bond market is now normalising.

Total bond sales in 2015 amounted to kr. 33 billion, compared with a target of kr. 75 billion at the start of the year. Hence, a substantial part of the central government's financing requirement was met by drawing on the central government's account. The average yield to maturity on the bonds issued was a record-low 0.3 per cent.

The Danish central-government debt has the highest possible rating (AAA/Aaa) from the largest international credit rating agencies. The ratings are supported by the low government debt, which fell to 22 per cent of GDP in 2015 as a result of a government budget surplus.

SUSPENSION OF SALES OF GOVERNMENT BONDS

THE FIXED EXCHANGE RATE POLICY HAD A MAJOR IMPACT ON GOVERNMENT DEBT MANAGEMENT POLICY

At the beginning of 2015, when large volumes of foreign exchange began to flow into Denmark, there was strong focus on Denmark's fixed exchange rate policy, following the decision by the Swiss central bank to remove the cap on the Swiss franc against the euro. This led some investors to purchase Danish kroner in the hope of making a profit or avoiding a loss if Denmark's fixed exchange rate policy was abandoned and the krone subsequently appreciated. The ECB's announcement of a substantial expansion of its asset purchase programme, which caused euro area interest rates to fall, may also have contributed to the pressure on the krone.

In order to keep the exchange rate stable, Danmarks Nationalbank intervened in the foreign exchange market for a total of kr. 275 billion in January and February, thereby increasing the foreign exchange reserve considerably, cf. Chart 1.1. In addition, monetary policy interest rates were reduced on several occasions, to a record-low level.

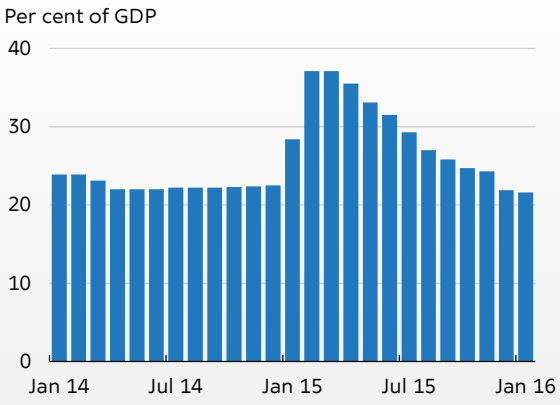
Further measures were required in order to curb the upward pressure on the krone. On Friday, 30 January 2015, the Ministry of Finance, at the recommendation of Danmarks Nationalbank, decided to suspend issuance of government bonds. The suspension led to a strong decline in the yield spread to Germany, which became negative for the long maturity segments too, cf. Chart 1.2, thereby making it more costly to speculate against the krone. At the same time, it was a powerful signal that Danmarks Nationalbank and the Danish government were prepared to do whatever it took to defend the fixed exchange rate policy.

Suspension of issuance was possible because the central government at the start of 2015 had an extraordinarily high cash balance of 11 per cent of GDP on its account, which was more than enough to cover its financing requirement in 2015.

RESUMPTION OF SALES OF GOVERNMENT BONDS IN OCTOBER 2015

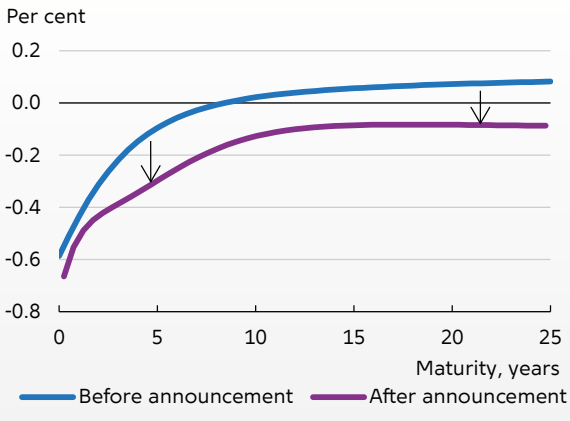
Following the gradual normalisation of the foreign exchange market over the spring and summer, Danmarks Nationalbank found that the extraordinary measures implemented to defend the krone were no longer needed. On 26 August it was announced that issuance of government bonds would be resumed from 1 October 2015. The relatively speedy resumption of government

The foreign exchange reserve Chart 1.1



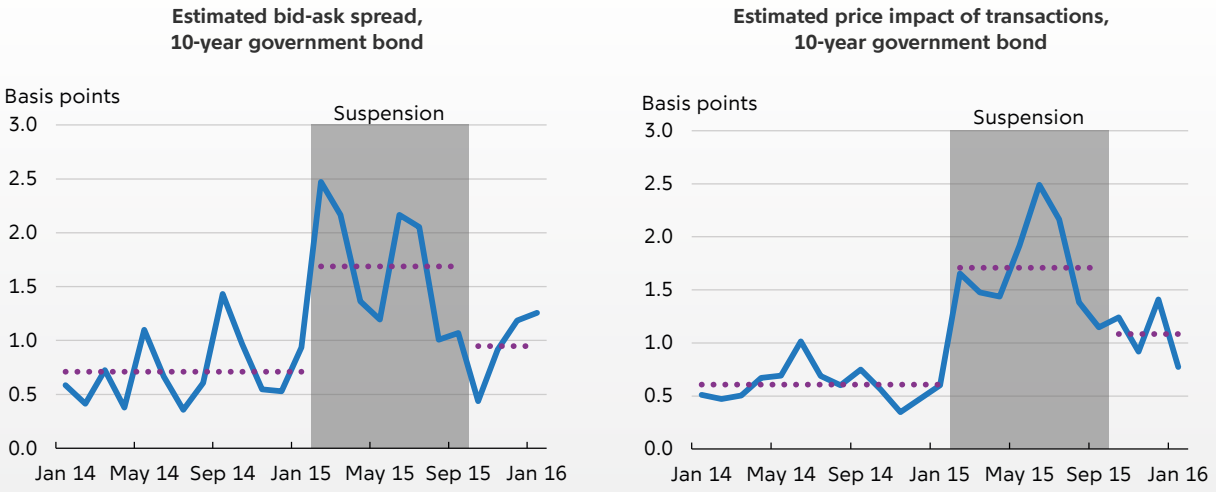
Note: End-month figures. The most recent observation is from January 2016.

Danish yield spreads to Germany Chart 1.2



Note: The announcement of the suspension of issuance took place on Friday, 30 January after the markets had closed. The blue curve indicates the Danish government yield spread to Germany before the announcement, while the purple curve shows the spread after the announcement (Monday, 2 February). The yield spreads are based on zero-coupon rates.
Source: Nordea Analytics.

Estimated bid-ask spread and price impact of transactions Chart 1.3



Note: Data filtering is described in *Danish Government Borrowing and Debt 2014*, Chapter 8. Left-hand chart: Roll's measure of the effective bid-ask spread (measured in yield spread). Right-hand chart: Amihud measure of the price impact of a transaction (measured in yields).
Source: Danish Financial Supervisory Authority and own calculations.

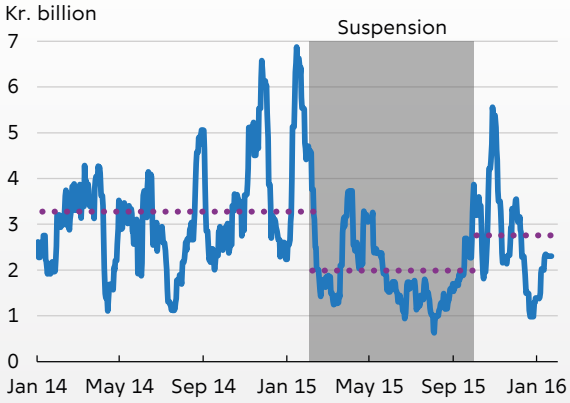
bond sales reduced the risk of a prolonged negative impact on the government bond market and provided greater flexibility, thereby facilitating a calm return to the market.

TRADE IN DANISH GOVERNMENT BONDS WAS AFFECTED BY THE SUSPENSION OF ISSUANCE

LIQUIDITY IN THE GOVERNMENT BOND MARKET FELL WHILE ISSUANCE WAS SUSPENDED

The suspension of issuance in 2015 led to a temporary, but considerable reduction of liquidity in the government bond market. It became more costly for investors to trade government bonds because the bid-ask spread widened, cf. Chart 1.3 (left). Furthermore, it became more difficult to make large transactions. The reason was that banks were more reluctant to offer liquidity as they were no longer able to hedge their positions via the central government's regular issuance and buy-back of bonds. This reduced market depth, which in turn meant that the price impact of transactions was greater, cf. Chart 1.3 (right). Government bonds were still traded during the period when issuance was suspended, but turnover was lower than normally, cf. Chart 1.4.

Daily turnover in government bonds Chart 1.4



Note: Turnover calculated as a 10-day moving average.
Source: Danish Financial Supervisory Authority and own calculations.

MEASURES TO SUPPORT LIQUIDITY WHILE ISSUANCE WAS SUSPENDED

It was important in relation to government debt management policy that trade in government bonds did not come to a complete standstill. Hence, government debt management policy was gradually adjusted to support liquidity in the market as the currency situation permitted this.

An important step was the reintroduction of switch operations, in which the central government issues one bond while at the same time buying back another. This gave the investors an opportunity to relocate large positions without paying large bid-ask spreads.[1] Consequently, interest in switch operations was large in 2015, and switches reached a total volume of kr. 15 billion, cf. Table 1.1.

Another step was to reintroduce mandatory requirements for the primary dealers' price quotation, which had been reduced to 'best effort'[2] when issuance was suspended. In addition, the fee for the securities lending facility was reduced. This facility allows the central government's primary dealers to borrow Danish government securities against collateral.

IMPROVED LIQUIDITY AFTER THE RESUMPTION OF SALES OF GOVERNMENT BONDS

Liquidity improved notably in the period after the resumption of sales of government bonds in October. The costs of trading government bonds fell, and market depth increased. Against this background, trading activity approaches the pre-suspension level. To support liquidity further issuance in 2016 is focused on a few, key maturity segments and switch operations are provided on a regular basis, cf. Chapter 2: *Strategy for 2016*.

BORROWING IN 2015

ISSUANCE OF GOVERNMENT BONDS TOTALLING KR. 33 BILLION AT LOW YIELDS

Before the suspension of issuance, government bonds totalling kr. 7 billion were issued in January 2015, cf. Chart 1.5. The resumption of sales of government bonds in October was a success, and demand at the auctions was very high. Sales in the 4th quarter reached kr. 26 billion of a targeted kr. 100 billion for the 4th quarter of 2015 and the whole of 2016, which was announced prior to resumption of sales. Together with issuance in January, this brought the central government's total sales of bonds to kr. 33 billion. Issuance took place at a record-low average yield to maturity of 0.3 per cent, with issuance mainly in the 2- and 10-year papers, cf. Table 1.2. Bond sales before and after the suspension of issuance took place at more or less the same yield level, cf. Chart 1.6.

The outstanding volume in the T-bill programme was kr. 30 billion at year-end, which was in accordance with the target. The average yield to maturity on the T-bills sold was below -0.5 per cent.

A WIDER YIELD SPREAD TO GERMANY

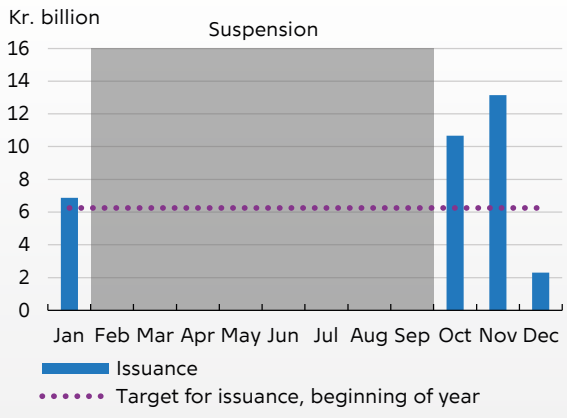
Danish government yields traditionally mirror those of Germany very closely. This reflects the

The central government's switches in 2015 Table 1.1

Issuance		Buy-backs	
Papers	Sales, kr. billion	Papers	Buy-backs, kr. billion
0.25'2018	4.5	4'2019	3.6
1.75'2025	10.0	1.5'2023	11.0
Total	14.5		14.6

Note: Stated at market value.

Sales of government bonds in 2015 Chart 1.5



Note: At the beginning of the year, the target for total bond sales in 2015 was kr. 75 billion. The purple line indicates a technical, equal distribution of this target across all months of the year. Excluding sales in connection with switch operations.

1 Generally, the central government's switch operations take place close to the mid-prices in the secondary market.

2 Price quotation to the best of one's ability without fixed requirements.

Central government issuance in 2015

Table 1.2

	Sold at market value, kr. billion	Average yield to maturity, per cent	Average remaining time to maturity, years
T-bills	29.8*	-0.56	0.32
2.5 per cent bullet loan 2016	2.0	-0.16	1.5
0.25 per cent bullet loan 2018[1]	14.7	-0.18	3.0
1.75 per cent bullet loan 2025	14.2	0.78	10.3
4.5 per cent bullet loan 2039	2.0	1.18	24.5
Total, bonds	33.0	0.32	68

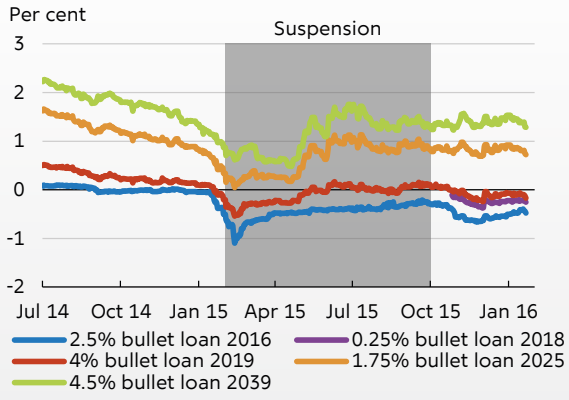
Note: Issuance excluding switches. Yields to maturity have been weighted by market value. Maturities have been weighted by nominal value.
1. This series replaced 2.50 per cent bullet loan 2016 as the 2-year on-the-run issue on 21 October.
* Outstanding volume at end-2015.

fixed exchange rate policy and the fact that Denmark and Germany have both been given the highest possible credit rating by the international rating agencies. Normally, Danish yields are slightly higher than the German ones, as the German government bond market is more liquid than that of Denmark due to its size.

However, in 2015 the yield spread to Germany fluctuated substantially, cf. Chart 1.7. The 10-year government yield spread to Germany fell considerably in the period when foreign exchange was flowing into Denmark at the beginning of the year, but then increased again as market focus on Denmark's fixed exchange rate policy diminished over the spring. Since April, the spread to Germany has gradually widened. Part of the explanation presumable is that liquidity in the Danish government bond market is not yet fully normalized.

Yields to maturity on Danish government bonds

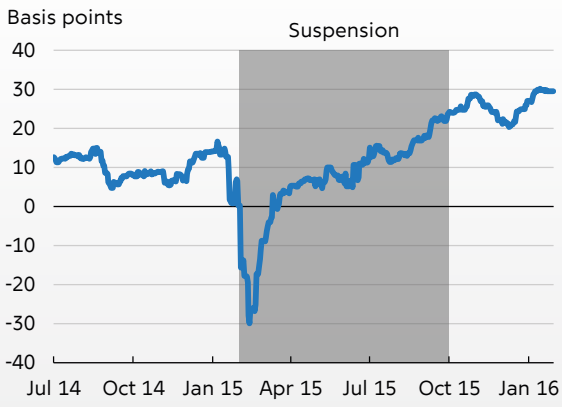
Chart 1.6



Source: Bloomberg and Nordea Analytics.

10-year government yield spread to Germany

Chart 1.7



Note: 10-year par yield spread.
Source: Nordea Analytics.

The widening of the spread should also be seen in the light of the ECB's purchases of government bonds, which are still exerting extraordinary downward pressure on euro area government yields.

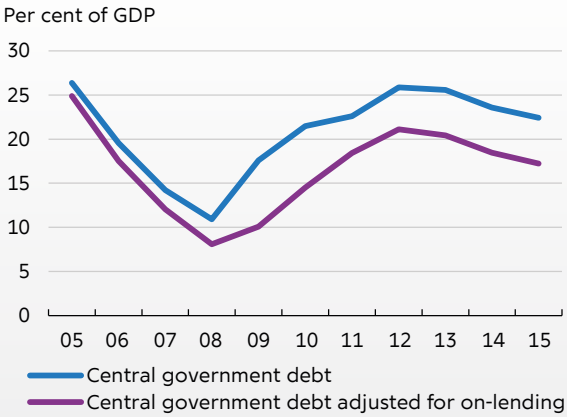
DEBT AND INTEREST COSTS IN 2015

THE CENTRAL-GOVERNMENT DEBT WAS REDUCED FURTHER IN 2015

The Danish government debt has the highest possible rating (AAA/Aaa) from the largest international credit rating agencies, due to, inter alia, the low debt level of kr. 445 billion, corresponding to 22 per cent of GDP. In addition, the debt structure is very robust. The central government has a considerable liquidity reserve, and the rate of interest on a large part of the debt has been fixed for many years.

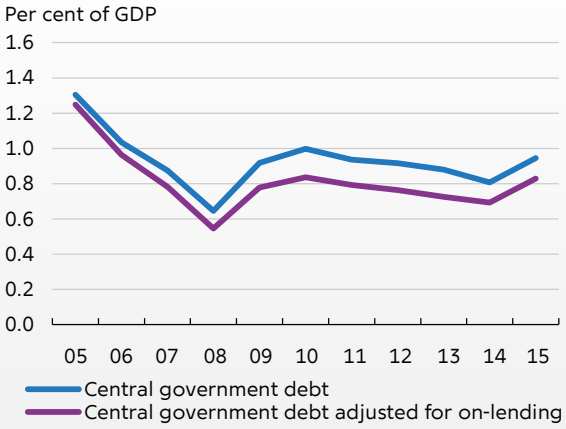
The central government debt decreased further in 2015 as a result of a government budget surplus of 0.7 per cent of GDP. The decline in central government debt as a percentage of GDP over the last three years is in contrast to the debt accumulation seen during the financial crisis, cf. Chart 1.8. Part of the central government debt reflects borrowing on behalf of government-owned companies. Adjusted for such on-lending, the central government debt amounted to 17 per cent of GDP in 2015.

Central-government debt Chart 1.8



Note: At year-end.

The central government's interest costs Chart 1.9



Source: Central government accounts for the years 2005-14. Figures for 2015 are provisional figures from the central government's accounting.

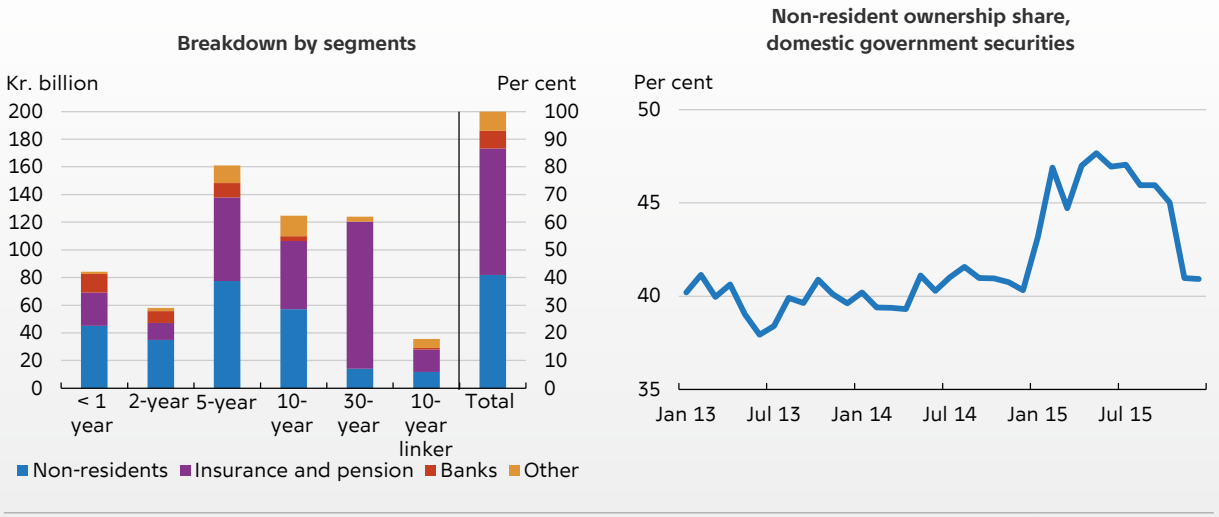
INTEREST COSTS ON CENTRAL GOVERNMENT DEBT

Although the government debt grew from 2008 to 2012, interest costs increased more moderately, cf. Chart 1.9. The reason was the fall in interest rates during this period. In the subsequent years, the interest costs decreased due to shrinking central government debt and a further decline in interest rates. The robust debt structure, however, implies that the fall in interest rates is passed through only slowly to the central government's interest costs.

In 2015, interest expenses on the central government debt was kr. 19 billion, corresponding to 0.9 per cent of GDP. The rise in interest costs in 2015 is primarily a result of large capital losses in connection with the buy-back of own bonds.[3] This will be offset by lower interest costs in the coming years. Adjusted for on-lending, interest costs on the central government debt amounted to 0.8 per cent of GDP in 2015.

3 Capital losses arise when the central government conduct buy-backs of own bonds with a coupon rate which is higher than the current market rate. The capital loss is book-entered as an interest cost for the central government in the year in which the buy-backs take place, which is offset by lower booked interest costs in the coming years. The rise in interest costs in 2015 also reflects that – since 9 February 2015 – the central government's account in Danmarks Nationalbank exceeding kr. 100 billion has accrued interest at the negative certificates of deposit rate.

Ownership distribution of domestic government securities Chart 1.10



Note: The most recent observations are from December 2015.

A WELL-DIVERSIFIED GROUP OF INVESTORS

Investors in Danish government bonds are broadly distributed across geographical areas and segments. The largest groups of investors are the insurance and pension sector and non-residents, cf. Chart 1.10 (left). The insurance and pension sector holds most of the 2039 series, while non-resident investors own large shares of all series with maturities of up to 10 years.

Following large fluctuations over the year, non-resident ownership was 41 per cent at the end of 2015, which is in line with the level in recent years.

During the inflow of foreign exchange at the beginning of 2015, non-resident ownership increased by approximately 5 percentage points, cf. Chart 1.10 (right). In the spring and over the summer, non-resident investors made further purchases of government bonds with a remaining term to maturity of less than 1 year. This should be viewed against the background of prices in the currency swap market, which at times in 2015 made it particularly advantageous to invest in short-term Danish securities and swap to dollar exposure, rather than investing in US T-bills with the same maturity. The large decline in non-resident ownership in November 2015 purely reflects the maturing of the 2015 bond, which at expiration was held mainly by non-resident investors.

2

STRATEGY FOR 2016

The target for issuance of domestic bonds in 2016 is kr. 75 billion. Issuance may take place in all on-the-run issues, but focus is on the build-up of the 2- and 10-year series. As a new initiative, regular switch operations will be held twice a month to further support the build-up of the key on-the-run issues. The issuance strategy for 2016 is designed with a view to further support liquidity in the government bond market.

The central government has a very robust debt profile with high duration, and the level of debt is relatively low. Consequently, higher interest rates will have very little impact on the central government budget. In the current low interest rate environment, it is found to be expedient to maintain a high duration in 2016, even though the central government has the capacity to take on higher interest rate risk. Therefore, the target band for the duration of the central government debt in 2016 is set at 11.5 years ± 1 year.

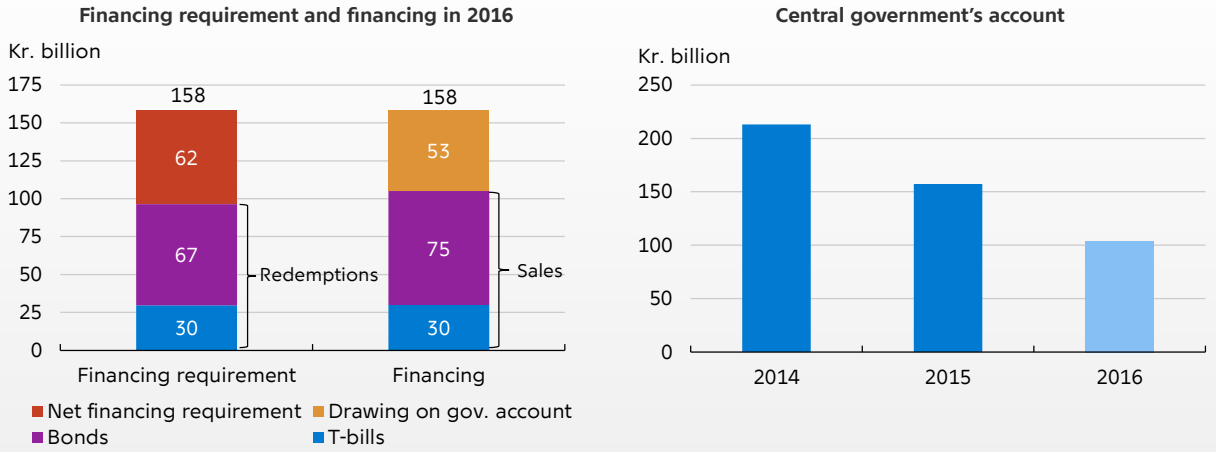
ISSUANCE STRATEGY

DOMESTIC BOND ISSUANCE TARGET OF KR. 75 BILLION IN 2016

In the 4th quarter of 2015, the central government issued bonds for kr. 26 billion of the targeted kr. 100 billion for the 4th quarter of 2015 and the whole of 2016 announced prior to resumption of government bond sales. Despite subsequent improvement of the central government finances, this strategy will be maintained in order to ensure predictability in relation to the issuance policy. Hence, the target for 2016 is kr. 75 billion.

Issuance in 2016 will broadly match redemptions, so the expected government deficit is financed mainly via drawings on the central government's account, cf. Chart 2.1 (left). Since the financial crisis, the balance on the central government's account has been extraordinarily high, but with the suspension of issuance and the expected drawings in 2016, the balance is expect-

The central government's financing requirement and account Chart 2.1



Note: Left-hand chart: "Redemptions cover redemptions of domestic and foreign debt etc. Right-hand chart: Balance on the central government's account at year-end. Estimate for 2016.
Source: Ministry of Finance and own calculations.

ed to have been reduced to around kr. 100 billion by the end of the year, cf. Chart 2.1 (right). In the light of factors such as lower redemptions on the foreign debt, it is currently assessed that a balance in the range of kr. 75-100 billion is a sufficient liquidity reserve.

FOCUS ON 2- AND 10-YEAR SERIES IN 2016

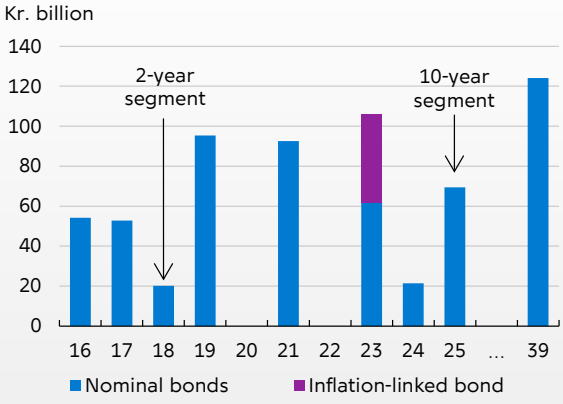
In view of the international tendency for government securities to become less liquid and the expected moderate Danish central government issuance requirement in the coming years, it is deemed expedient to concentrate issuance on a few series in order to build up their volumes faster. Larger bond series are normally characterised by higher trading activity than smaller series. This makes it easier for market participants to buy and sell even large volumes of bonds.

The 2016 issuance strategy focuses on the 10-year nominal on-the-run issue and the build-up of the new 2-year on-the-run issue. The 10-year bond maturing in 2025 is the key benchmark series, and a high share of issuance in the new 2018 bond will contribute to a faster build-up of this series and to a smoothening of the central government's redemption profile, cf. Chart 2.2.

Experience shows that demand for the individual government bond series may fluctuate considerably over the year. Consequently, a broad list of on-the-run issues is maintained, with issuance not only in the 2- and 10-year series, but also in the 5-year, 30-year and inflation-linked segments.

On 1 January 2016, the new 2018 paper replaced the previous 2-year benchmark paper maturing in 2016. Hence the on-the-run issues are identical to the benchmark securities in the 1st half of 2016, cf. Table 2.1.

Redemption profile for domestic bonds Chart 2.2



Note: Calculated as at end-January 2016.

On-the-run issues and benchmark securities, 1st half of 2016 Table 2.1

Maturity segment	Series	Outstanding volume[1], kr. billion
Nominal series		
2-year	0.25 per cent bullet loan 2018	20.2
5-year	3 per cent bullet loan 2021	92.5
10-year	1.75 per cent bullet loan 2025	69.4
30-year	4.5 per cent bullet loan 2039	124.1
Index-linked series		
10-year	0.1 per inflation-linked loan 2023	38.0

1. Outstanding nominal value, end-January 2016. The index-linked bond has been stated at indexed nominal value.

THE OUTSTANDING VOLUME IN THE T-BILL PROGRAMME WILL BE MAINTAINED

The target for the outstanding volume of T-bills at year-end 2016 is kr. 30 billion. Two T-bill auctions will be held every month. New 6-month T-bills will be opened at auctions with value dates on the first banking day in March, June, September and December, respectively.

MORE REGULAR USE OF SWITCH OPERATIONS

In 2016, regular switch operations will be conducted twice a month. Similar to the T-bill and bond auctions, switch operation dates will be announced in a calendar. The bonds offered will be announced one trading day before the switch operation at the latest.

Switches for a total amount of kr. 30 billion may be conducted, measured by the market value of the bonds issued in the operation. Switches are not counted towards the issuance target, but do contribute to further build-up of the on-the-run issues.

BUY-BACKS

The central government may conduct buy-backs in order to smooth its redemption profile or to support the market. In addition, buy-backs may be conducted to meet the investment needs of the government funds. In 2016, the investment needs of the funds are expected to be limited.

Buy-backs take place via auctions or by buying directly in secondary markets (tap). A buy-back auction in the 2016 bond series is held at the end of each month. Regular buy-backs of the 2016 bond series allow investors to receive the redemption payment across the year, instead of only when the bond matures in November.

Central-government foreign debt, Redemption profile Table 2.2

Kr. billion	2016	2017
Euro loans	9.3	
Dollar loans	8.6	8.1
Loans in Swedish kronor	2.2	
Total	20.1	8.1

Note: Including cross-currency swaps linked to the individual loans, but excluding swaps in connection with on-lending in dollars to Danish Ship Finance.

FOREIGN BORROWING

The strategy is not to issue foreign loans in 2016, while foreign loans totalling kr. 20 billion will mature, cf. Table 2.2. This means that the central government's contribution to the foreign exchange reserve will be reduced correspondingly. Issuance may take place in the Commercial Paper programmes.

STRATEGY FOR MANAGEMENT OF THE CENTRAL GOVERNMENT'S INTEREST RATE RISK

ROBUST CENTRAL-GOVERNMENT DEBT WITH A CAPACITY FOR HIGHER RISK

Central-government debt is relatively low and the debt portfolio is very robust with a considerable liquidity buffer and high duration by international standards. This gives a very low exposure to rising interest rates. Over a five-year horizon, only around one third of the government debt, corresponding to 7 per cent of GDP, will be subject to new interest rate fixing, cf. Chart 2.3 (left). Consequently, an interest rate hike of e.g. 3 percentage points across the board in early 2016 would increase the central government's interest costs in 2020 by a approximately 0.2 per cent of GDP. This is around 4 times less than in many comparable countries, underscoring that from a risk perspective there is capacity to reduce the duration from the current high level.

LOW EXPECTED SAVING FROM REDUCING THE DURATION

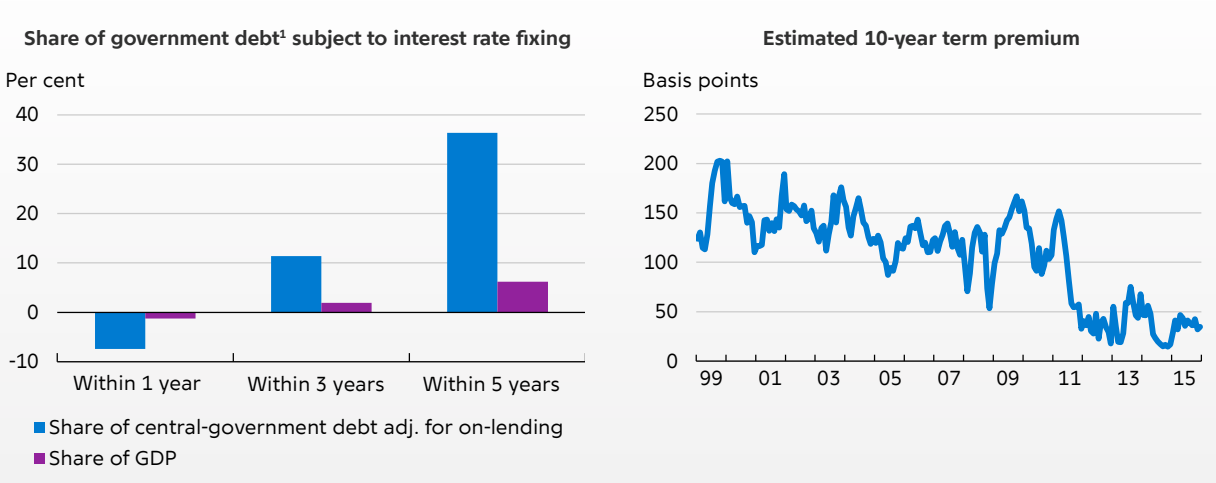
In the current situation, the expected saving from reducing the duration is found to be very low. This assessment is based on, inter alia, estimation of term premia in Danish government bond yields. Term premia express the expected additional cost of locking the rate of interest over many years rather than borrowing on a continuous basis at short-term rates. The estimated term premia are currently very low, cf. Chart 2.3 (right).

At the same time, the distribution of potential gains and losses in connection with a reduction of the duration is asymmetrical. This means that the potential saving to the central government is limited, while there is a risk of considerably higher costs if interest rates rise sharply.

TARGET FOR THE DURATION OF CENTRAL GOVERNMENT DEBT IN 2016

Even though the central government has the capacity to reduce the duration, it is found to be expedient to maintain a robust debt profile in the current low interest rate environment. Hence, the target band for the average duration in 2016 has been set at 11.5 years ± 1 year, calculated without discounting.

Low interest rate risk and low term premia Chart 2.3



Note: The amount of debt and swaps subject to interest rate fixing within 1, 3, and 5 years, respectively, less the central government assets (balance on the central government's account, funds and on-lending). The negative interest rate fixing within the first year primarily reflects that the liquidity buffer exceeds the amount of debt subject to interest rate fixing within the first year. Calculated at end-2015. Right-hand chart: Estimated 10-year term premium based on a shadow rate model.

Source: Own calculations.

[1] Government debt adjusted for on-lending

SPECIAL-TOPIC SECTION

3

MARKET RISK MANAGEMENT IN A LOW INTEREST RATE ENVIRONMENT

Over the last decade, the financial crisis, the European sovereign debt crisis and most recently the pressure on the Danish krone in early 2015 have had a visible effect on the risk profile of Denmark's central government debt. After this turbulent period, the status at the beginning of 2016 is that the debt structure is very robust. The central government has a considerable liquidity reserve, and the rate of interest on a substantial part of the debt has been locked for a long period. Rising interest rates will therefore pass through only slowly to the central government's interest costs. Together with low debt, this implies a very limited impact on the government budget.

Under normal circumstances, high duration can be expected to involve additional costs compared with lower duration, but in the current low interest rate environment, the expected additional costs are considered to be low. Moreover, there is a lower bound to how much further interest rates may fall, whereas interest rate increases are not subject to such a limit. Against this background, the central government maintains a high duration in 2016. The target band for the average duration has been set at 11.5 years ± 1 year, calculated without discounting.

RISK MANAGEMENT DURING AND AFTER THE FINANCIAL CRISIS

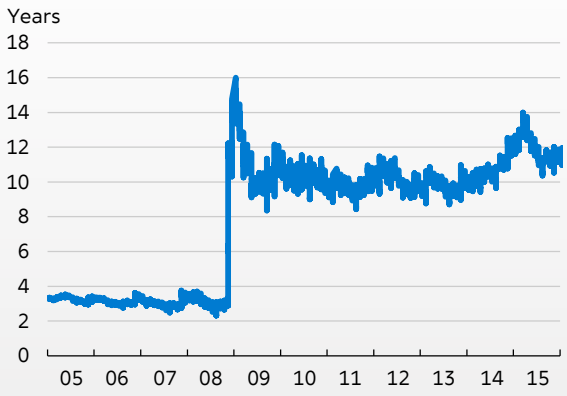
THE CENTRAL GOVERNMENT'S INTEREST RATE RISK AND DEBT DURATION

Risk management of the central government debt supports the overall objective of the government debt management policy: to cover the central government financing requirement at the lowest possible long-term costs, while taking the degree of risk into account. Special focus is on risks related to interest rate developments, since the central government's exchange rate risk and credit risk are very limited.

The exchange rate risk is negligible, since the foreign debt is solely exposed to fluctuations in the exchange rate of the euro, which is the anchor

Duration of central government debt

Chart 3.1



Note: Macaulay duration.

The duration of the central government debt is influenced by the balance on the central government's account

Box 3.1

The balance on the central government's account at Danmarks Nationalbank constitutes a short-term asset. This means that the account has an impact on the cash flows related to the central government debt – and hence on the duration of the central-government debt.

Duration is calculated on the basis of the time profile for interest and redemption payments on the liabilities less interest and redemption on the central government's assets. In practice, a large balance neutralises the impact of corresponding short-term liabilities. This means that longer-term loans have a relatively larger weight, increasing the duration compared with having a lower account.

The balance on the central government's account rose strongly in connection with the financial crisis and has subsequently been kept at a high level. It was deemed appropriate to have a sizeable liquidity buffer in a period of heightened uncertainty about the economic outlook and central government finances. At the same time, the focus on refinancing risk was intensifying – not least in connection with the sovereign debt crisis in several euro area member states.

of Denmark's fixed exchange rate policy. The credit risk on the central government's swaps is also very low due to collateral agreements, cf. Chapter 4, Credit risk management: transition to two-way collateral agreements.

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 combination of short-term and long-term bonds in the debt portfolio, among other factors. In risk management, the average fixed interest period – the 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. As a result, the risk of sudden hikes in the central government's interest costs is low.

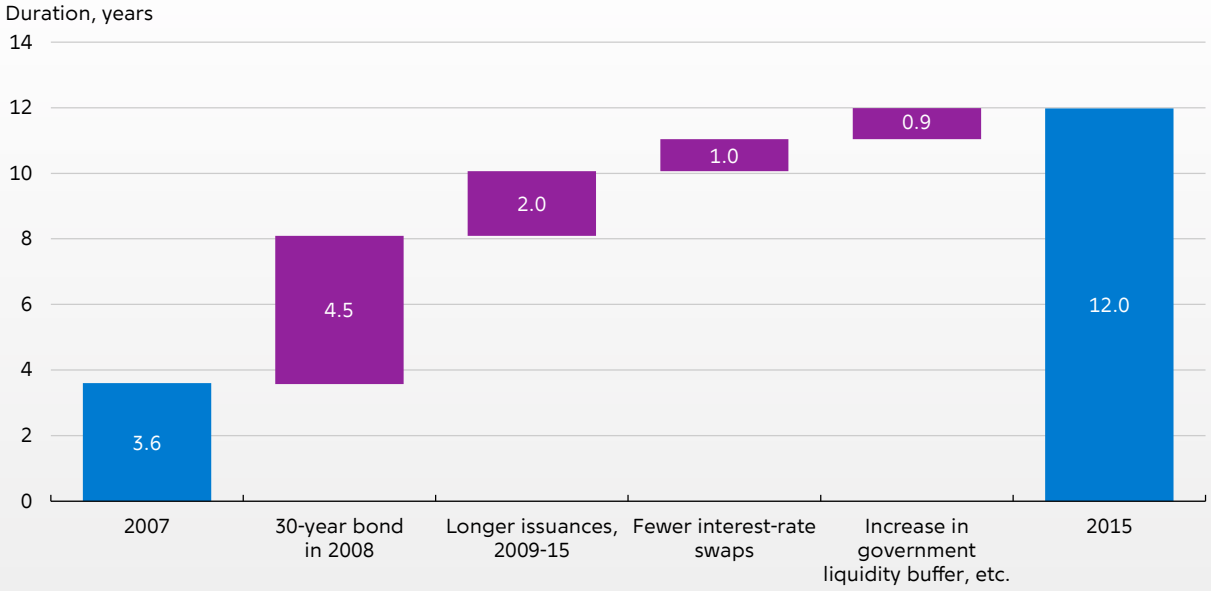
THE FINANCIAL CRISIS LED TO CONSIDERABLY HIGHER DURATION

The duration was stable at around 3 years for a long period prior to the financial crisis, cf. Chart 3.1. Issuance was concentrated in the 2-, 5- and 10-year maturity segments, resulting in a duration of around 5 years for the bond portfolio. The duration of the central government debt was then reduced to 3 years by concluding interest rate swaps.

The duration soared at the end of 2008, cf. Chart 3.1. The main driver of the surge was the extraordinary issuance in a new 30-year government bond of almost kr. 90 billion in connection with the financial turmoil at the end of 2008.[1] A markedly higher balance on the central government's account also contributed to the rise in duration, cf. Box 3.1. In the following period with high budget risk, the high duration contributed to a lower refinancing amount and more stable interest costs on the government's budget. Conversely, the high duration implied a slower pass-through to the central government's interest costs from the following decrease in interest rates.

1 The financial turmoil led to increased demand for a long-term Danish government bond – especially from Danish insurance and pension companies, which had a natural interest in hedging their long-term commitments in kroner. The long-term government bond thus contributed to supporting the central government's access to the capital markets, and in the short term it contributed to bolstering demand for kroner to the extent that the pension companies sold other European bonds in order to buy the Danish government bond, cf. *Danish government borrowing and debt, 2008*.

Decomposition of the change in government debt duration from 2007 to 2015 Chart 3.2



Note: Duration has been calculated without discounting. Calculated at year-end.

HIGH DURATION MAINTAINED

At end-2015 the duration was 12 years. Apart from the extraordinary issuance of 30-year bonds in 2008, the increase in duration since 2007 was also caused by increased long-term issuances and a reduced swap portfolio, cf. Chart 3.2.

The period 2008-12 was characterised by rising debt and increased budget risks resulting from central-government lending and guarantees to the financial sector, among other factors. In this light it was found to be expedient to maintain a low refinancing risk and interest rate risk by overweighting the issuance of long-term bonds and to maintain a high balance on the account. Since 2012, the maintenance of a high duration tends more to reflect the assessment that the expected saving from reducing the duration was low. No new interest rate swaps were concluded to reduce the duration in that period, resulting in a marked reduction of the central government portfolio of interest rate swaps. At end-2015, less than 5 per cent of the central government debt had been swapped to a variable rate, while half of the debt had been swapped to a variable rate in 2007.

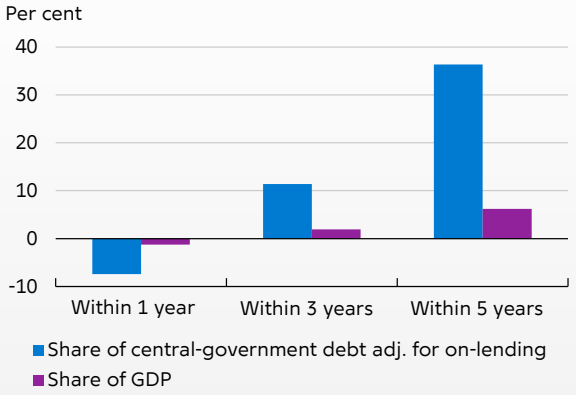
In recent years, other EU member states have also focused on increasing the duration of their debt portfolios. This reflects that some countries have sought more robustness in the light of rising debt, as well as the shared perception among many countries that the additional costs linked to high duration are low.

LOW DEBT IMPLIES SUBSTANTIAL RISK CAPACITY

After a turbulent period since the financial crisis, several factors indicate that the central government now has the capacity to assume greater interest rate risk: Debt is relatively low, the central government has a considerable liquidity reserve, and the debt portfolio is very robust with high duration. In addition, interest rate increases will typically coincide with an economic recovery, higher inflation, and an improved budget balance. Such circumstances make higher interest costs easier to manage.

An assessment of duration is not the only way to ascertain the robustness of the debt portfolio. Duration is an average concept, which does not take into account that the substantial outstanding amount in the 30-year bond distorts the redemption profile. Consequently, the interest rate risk is also assessed on the basis of a more faceted

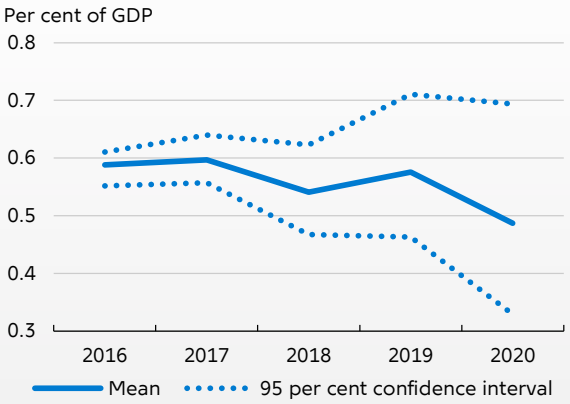
Share of government debt[1] subject to interest rate fixing Chart 3.3



Note: The amount of debt and swaps subject to interest rate fixing within 1, 3, and 5 years, respectively, less the central government assets (balance on the central government's account, funds and on-lending). The negative interest rate fixing within the first year primarily reflects that the liquidity buffer exceeds the amount of debt subject to interest rate fixing within the first year. Calculated at end-2015.

1. Government debt adjusted for on-lending

Simulated development in central government interest costs Chart 3.4



Note: Distribution of future net interest costs based on a technical debt projection and 50,000 simulated interest rate scenarios from a shadow rate model, which is based on Danish government bond yields since 1999, cf. Box 3.2.

Source: Ministry of Finance and own calculations.

picture of the distribution over time of the interest rate exposure relating to the government debt portfolio.

SLOW INTEREST RATE PASS-THROUGH

Interest rate fixing is a supplementary risk measure indicating the share of central government debt for which new interest rates must be fixed within a given time horizon. This measure also indicates that Denmark's central government debt is robust with very limited exposure to interest rate increases.

Over one year, an equal rise in all interest rates will actually *reduce* the central government's net interest costs, because higher interest income on the central government's assets will more than offset the higher interest costs on the liabilities, cf. Chart 3.3. The reason is the immediate pass-through to the interest rate on the substantial balance on the central government's account.

Over time, a larger share of the debt is subject to refinancing, but even over a five-year horizon, only around a third of the government debt will be subject to interest rate fixing. This is a lower share than in comparable countries, where higher interest rates will typically have an impact on around half of the debt within five years.

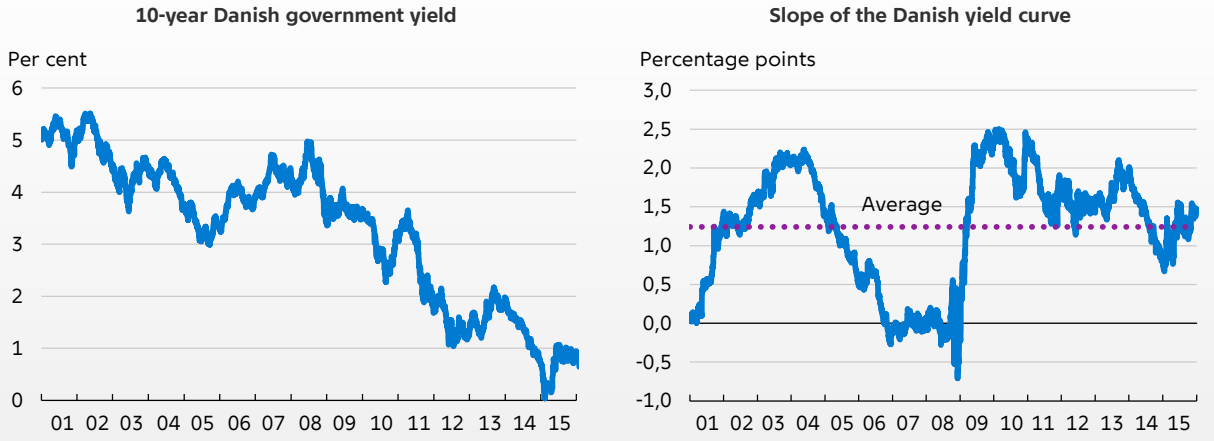
Besides its robust composition, the government debt is also relatively low as a percentage of GDP. As a result, the debt that is subject to interest rate fixing within the next five years only amounts to around 7 per cent of GDP. Consequently, a permanent interest rate hike of e.g. 3 percentage points across the board in early 2016 would increase the central government's interest costs in 2020 by a mere 0.2 per cent or so of GDP. This is around four times less than in many comparable countries.

SIMULATED INTEREST COSTS REMAIN LOW

The central government's future interest costs are determined by developments in both Danish government yields and the other items on the government budget. A Cost-at-Risk model is used to illustrate the risk associated with the uncertainty about interest rate developments. This model is based on simulated interest rate scenarios from an interest rate model and a technical projection of the central government financing requirement. In the mean scenario, interest costs[2] decline from 0.6 per cent of GDP in 2016 to 0.5 per cent of GDP in

2 Interest costs on central government debt adjusted for on-lending.

Danish government yields Chart 3.5



Note: Left-hand chart: 10-year par yield. Right-hand chart: The slope is defined as the difference between a 10-year and a 1-year par yield.
Source: Nordea Analytics.

2020, cf. Chart 3.4, despite the deficit outlook for government finances. The effect from the expected deficits for the coming years are offset by a gradual impact of the low level of interest rates on a larger share of the government debt. Since a positive rate of economic growth is expected, interest costs as a ratio of GDP are declining slightly. Even if future interest rates are at the upper end of the simulated distribution, the central government's interest costs will remain low until 2020 under the given assumptions of developments in the other government budget items.

STRATEGY FOR MARKET RISK MANAGEMENT IN 2016

THE TARGET FOR DURATION OF CENTRAL-GOVERNMENT DEBT IN 2016 IS 11.5 YEARS

In the current situation, the expected saving from reducing duration is found to be limited. Against this backdrop, it is not found to be expedient to reduce duration in 2016 by concluding interest rate swaps.[3] This means that the central government maintains a high duration in 2016. The target band for average duration has been set at 11.5 years ± 1 year, calculated without discounting.

ISSUANCE IN A LOW INTEREST RATE ENVIRONMENT

Long-term interest rates are currently at a very low level, cf. Chart 3.5 (left). Despite the low long-term interest rates, the immediate saving from reducing duration, expressed as the slope of the yield curve, is close to the average for the last 15 years, cf. Chart 3.5 (right). However, the objective is to ensure the lowest possible *long-term* costs. This assessment requires estimation of term premia. Term premia express the additional cost of locking the rate of interest over many years rather than refinancing on a continuous basis via short-term loans.

TERM PREMIA ESTIMATED USING AN INTEREST RATE MODEL

Term premia cannot be observed directly, but can be estimated using an interest rate model. The special circumstances of the current situation are the unusually low interest rates and the asymmetrical distribution of future interest rate developments. This is taken into account in the model

3 Given the very robust government debt, it would not be expedient either to *increase* duration by concluding interest rate swaps in which the central government pays a fixed rate of interest, as there is not deemed to be any need for further robustness in relation to the debt portfolio.

Shadow rate model for projection of interest rates in the current environment

Box 3.2

Term premia for Danish government bond yields are estimated using model-based interest rate projections, which are based on the development in Danish government bond yields since 1999. So far, the projections have been made using a 3-factor arbitrage-free Nelson-Siegel (AFNS) term structure model. But the low interest rate environment presents certain issues when it comes to projecting interest rates using an AFNS model.

Firstly, the AFNS model ignores the lower bound for short-term interest rates. For example, in some scenarios short-term interest rates are projected as low as -7 per cent. Such interest rate paths do not seem plausible, given investors' option to hold cash rather than investing in assets with very negative returns.[1]

Secondly, the AFNS model is unable to capture the low volatility at the short end of the term structure for long periods in recent years. Technically, the reason is that the variance of interest rate projections in the AFNS model is constant over time, meaning that it does not reflect the current low interest rate environment. The AFNS model thus generates a very broad distribution of future interest rates, compared with e.g. the low implied volatility for swaptions and the low realised volatility for short-term government yields which have characterised the low interest rate period.

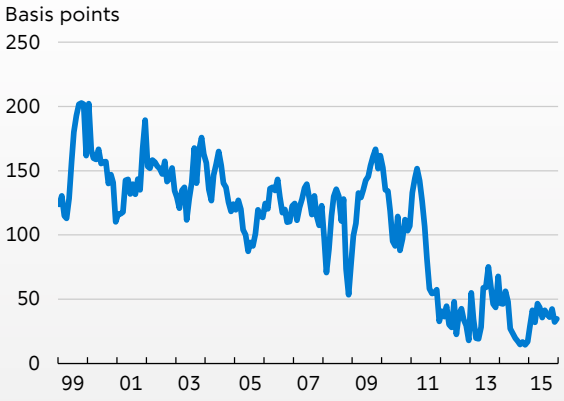
In academia the two issues are addressed by introducing a lower bound for the short-term model interest rate, resulting in a shadow rate model.[2] An implementation of the shadow rate model on Danish government bond yields is described in Christensen, Nysteen, and Pedersen (2016). [3] The choice of the lower bound level is, however, uncertain, as emphasised e.g. by developments throughout 2015, when interest rates fell to negative levels not previously seen. In the current implementation of the model, the lower bound has been set at -1 per cent, corresponding to the lowest observed 3-month interest rate at month-end. The shadow rate model with a fixed lower bound is challenged by the decreasing Danish yields, and the resulting interest rate projections are not improved in the same way as observed in other markets. In spite of the challenges the shadow rate model is preferred over classical AFNS models as the former accounts for the asymmetric distribution of future interest rates which characterises the low interest rate environment.

1. Conversion to cash is not without costs, as storage, transport and insurance must be paid for. Besides, transactions over large geographical distances are cumbersome. The attractiveness of going from bank deposits or securities to cash depends on the size of these costs and on the expected period of negative interest rates.
2. See e.g. L. Krippner, A tractable framework for zero lower bound Gaussian term structure models, *Discussion Paper Series*, Reserve Bank of New Zealand, 2013.
3. Christensen, Nysteen, and Pedersen, Modelling Danish government bond yields in a low-rate environment, *Danmarks Nationalbank Working Papers*, 2016.

used to estimate interest rate developments, cf. Box 3.2. On the basis of a large number of simulated scenarios, the model estimates a mean path for short-term interest rates over the coming years. The model projections show a small expected annual saving at the end of 2015 from rolling over very short-term bonds over the next 10 years relative to issuance of a 10-year bond today. Term premia are assessed continuously over the year, and according to the model they have been low in the low interest rate environment seen in recent years, cf. Chart 3.6. The perception of currently low term premia is not a particular Danish phenomenon. It is supported by studies based on euro swap rates and US government yields.[4]

Estimated 10-year term premium

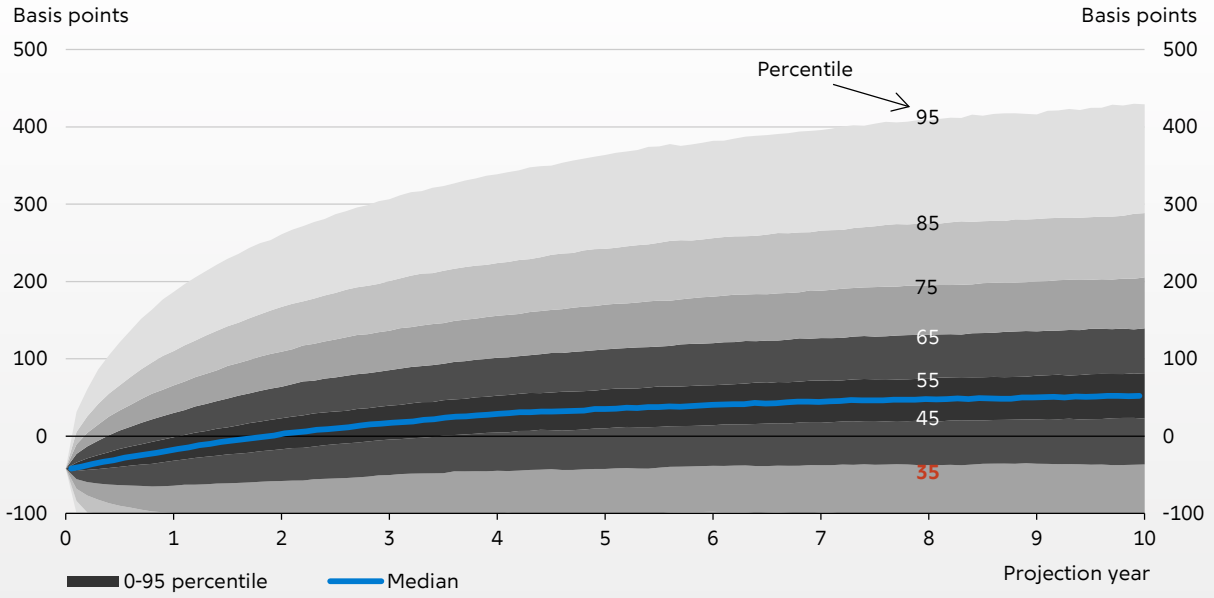
Chart 3.6



Note: The term premium is defined as the difference between a 10-year zero coupon yield and the geometric average of short-term yield projections over the next 10 years.
Source: RIO and own calculations.

4 According to the estimation of Adrian, Crump and Moench from the Federal Reserve Bank of New York, the term premium on a 10-year US government bond is zero at end-2015. Lemke and Vladu, A Shadow-Rate Term Structure Model for the Euro Area, conference paper, ECB, 2014, estimate the term premium on a 10-year EONIA swap rate to have been negative throughout most of 2012 and onwards.

Asymmetrical distribution of very short-term model future interest rates Chart 3.7



Note: The empirical counterpart of the very short-term model interest rate is an overnight interest rate. The distribution is based on 50,000 simulated interest rate paths with a lower bound for the short-term interest rate of -1 per cent, cf. Box 3.2.

ASYMMETRICAL DISTRIBUTION OF FUTURE INTEREST RATES

As a consequence of the low term premia, the central government pays a limited premium for maintaining a robust portfolio composition with high duration. In addition, there is a limit to how much further short-term interest rates can fall. However, since no similar limit applies to potential interest rate increases, the distribution of future interest rates is asymmetrical, cf. Chart 3.7. As regards the strategic trade-off between cost and risk, the asymmetrical distribution of future interest rates implies that the potential saving to the central government is limited, while there is a risk of considerably higher costs if interest rates rise sharply.

CENTRAL BANK PURCHASES PUSH LONG-TERM INTEREST RATES DOWNWARDS

The low term premia should also be viewed in the light of the perception among investors that the probability of interest rate increases in the euro area is limited in the current interest rate environment. This is due to expectations of modest economic growth and relatively low inflation for a prolonged period, cf. Box 3.3.

To this should be added the ECB's purchases of government bonds. The increased demand for bonds is pushing up prices and reducing longer-term interest rates. This will prompt some investors to shift towards shorter maturities, but certain investors have a natural preference for selected maturity segments. This applies to e.g. insurance and pension companies, which need to hedge their long-term liabilities by means of long-term assets. That is why they – to a certain degree – refrain from investing in shorter-term bonds instead. The result is a flatter term structure and lower term premia.[5]

5 The fall in interest rates at the long end reflects expectations of low monetary policy interest rates for a prolonged period (the signalling effect) and lower term premia (the portfolio balance effect). According to studies, the portfolio balance effect can explain the main part of the fall in long-term interest rates in the market for US and UK government bonds, see e.g. Gagnon et al., Large-scale asset purchases by the Federal Reserve: Did they work, *FRBNY Economic Policy Review*, May 2011, and Joyce et al., The Financial Market Impact of Quantitative Easing, *International Journal of Central Banking*, September 2011.

Low expected inflation means low interest rate risk

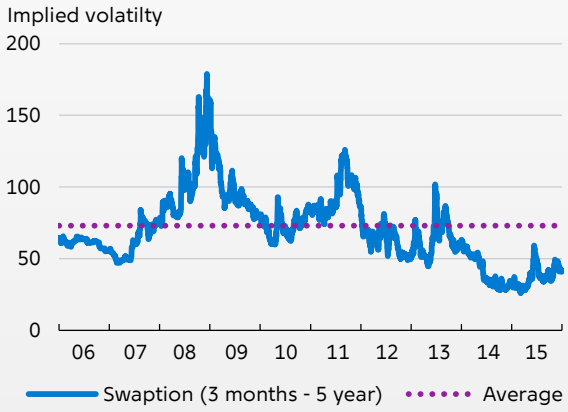
Box 3.3

The primary risk associated with investing in long-term Danish government bonds is capital losses in the event of interest rate increases. This risk is reflected in the term premium. If there is a high degree of uncertainty among market participants about the future path of interest rates, they will typically demand a considerable premium on investment in long-term assets, resulting in high term premia.

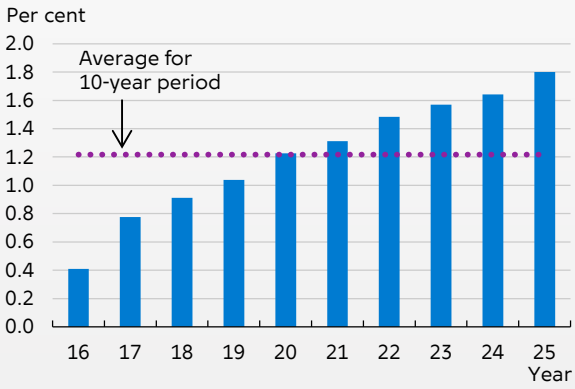
At present, the interest rate risk is assessed to be low among market participants. This is reflected e.g. in the low costs of buying the right to conclude a 5-year interest rate swap in three months at a price known in advance, cf. the chart (left). One explanation of the low level of perceived interest rate risk is that inflation expectations in the coming years are very low, cf. the chart (right).[1] A low level of inflation reduces the risk of monetary policy tightening and hence higher interest rates.

Market-based perception of interest rate risk and inflation expectations

Uncertainty about future interest rate paths



Market-based indicator for inflation expectations



Note: Left-hand chart: Implied volatility on swaptions where the buyer has an option to conclude a 5-year euro interest rate swap in three months at a rate of interest known beforehand (typically the current market rate). High implied volatility thus entails expensive options and vice versa. The broken line is the average for the period.
Right-hand chart: Implied inflation expectations for the next 10 years based on inflation-linked swaps linked to HICP excluding tobacco for the euro area.

Source: Bloomberg and own calculations.

1. Inflation expectations have not been adjusted for the inflation risk premium, which may be either positive or negative.

4

CREDIT RISK MANAGEMENT: TRANSITION TO TWO-WAY COLLATERAL AGREEMENTS

The central government has used swaps in its management of interest rate and exchange rate risks on the debt portfolio since 1983. The credit risk on the swap portfolio has been reduced continuously as a result of improved risk management. The introduction of one-way collateral agreements in 1999 meant that the banks had to pledge collateral to the central government for part of the market value of the swap portfolio.

In 2015 the central government completed negotiations with the swap counterparties on a new basis of agreement with two-way collateral, meaning that the central government will also pledge collateral to the banks when the market value is positive for them. This transition mainly reflects that higher financing costs have made it more expensive for the banks not to receive collateral. The transition from one-way to two-way collateral agreements will thus enable the central government to obtain better terms in swap agreements. The two-way collateral agreements entail, that both parties are to pledge collateral in Danish kroner on a daily basis for the full market value of the swap agreements. This has reduced the central government's credit exposure to almost zero.

Overall, the transition to two-way collateral agreements has resulted in better swap prices, lower credit exposure and fewer operational costs and risks for the central government.

THE CENTRAL GOVERNMENT'S USE OF SWAPS

The central government has used swaps for more than 30 years. Two swap types are used: interest rate and currency swaps. An interest rate swap is an agreement to exchange interest payments, e.g. by receiving fixed interest payments in return for paying variable interest. The central government uses interest rate swaps to adjust the interest rate risk profile of the debt portfolio so that issuance policy can focus more on other objectives, including building up large, liquid bond series and keeping refinancing risk at a low level. Currency swaps are used in connection with the central

government's foreign borrowing. Foreign debt is raised in order to maintain the foreign exchange reserve and is exposed to euro only. Currency swaps give the central government more flexibility in its foreign borrowing.[1] Today the central government uses only plain vanilla interest rate and currency swaps.

The terms of the central government's swaps ensure that when a swap is transacted, its market value is zero, but over time it may become either positive or negative for the central government or the counterparty (bank), depending on the development in interest and exchange rates. The central government typically receives a fixed interest rate and pays a variable interest rate in its interest rate swaps. The fall in interest rates in recent years has increased the value of the fixed interest payments in the central government's interest rate swaps. As a result, the market value of the central government's interest rate swaps is positive.

A swap with a positive market value is an asset for the central government. This entails that the counterparty must compensate the central government if the swap is cancelled, since in that case the central government will lose the value of the outstanding cash flows in the swap. A positive market value thus means that the central government has a credit risk on the counterparty bank. The credit risk depends on the credit exposure to the bank, corresponding to the market value of the swap less any collateral, and on the probability of the bank failing to meet its payment obligations. The central government has suffered no losses on the swap portfolio since the first swaps were concluded in 1983.

HOW IS THE CENTRAL GOVERNMENT'S CREDIT RISK MANAGED?

Until the mid-1990s, the central government contained its credit risk by following relatively simple guidelines, in accordance with the market standard. The focus was on ensuring that a counter party had a sufficiently high credit standard at the time of transacting the swap, and on diversifying the swap agreements across a large number of banks. This contributed to lowering the credit risk on the central government's total swap portfolio by reducing the probability of loss while also diversifying the credit exposure. In 1994 the central government established a system that set limits to the credit exposure to the individual banks.[2] At the same time, a requirement was introduced for a rating trigger in all new transactions, which made it possible to terminate swaps if the bank's rating fell below a certain level. This ensured a high credit quality of the banks throughout the lifetime of the swap.

The late 1990s saw growing international interest in further reducing credit exposure on swaps. As a result, the central government in 1999 introduced a requirement for pledging of collateral to the central government for part of the market value of the swap portfolio. Chart 4.1 shows the development in the central government's credit risk management.

PLEDGING OF COLLATERAL TO THE CENTRAL GOVERNMENT REDUCES ITS CREDIT EXPOSURE

Around the turn of the millennium, the market standard for sovereigns with a high credit rating was to transact swaps with a one-way Credit Support Annex[3], CSA, while most other market participants used two-way CSAs. The one-way CSA entailed pledging of collateral to the central government when the market value was positive for the central government, while the central government did not pledge collateral when it was positive for the bank.

Under the one-way CSAs, the banks were to pledge collateral if the market value exceeded a threshold value that would depend on the bank's rating. The lower the rating, the lower the threshold value would be. As a result, the credit exposure to a bank would fall if the bank's credit quality declined and the probability of loss was assessed to be higher.

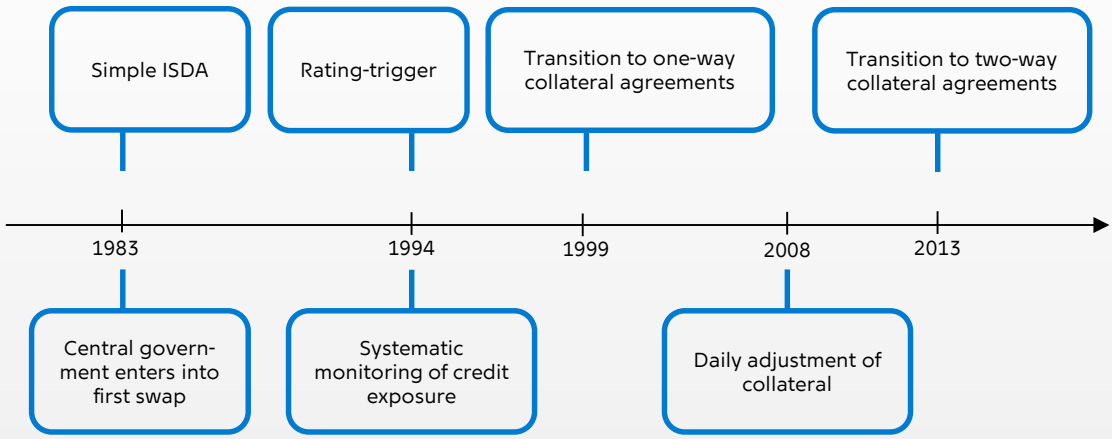
The banks pledged collateral to the Danish central government by means of bonds of high credit

1 For example, a loan can be raised in dollars combined with a currency swap converting the exposure to euro. This enables the central government to expand and diversify its group of investors, while at times also entailing lower financing costs compared with raising euro-denominated loans.

2 Cf. *Danish Government Borrowing and Debt 1994*, Chapter 7. Available in Danish only.

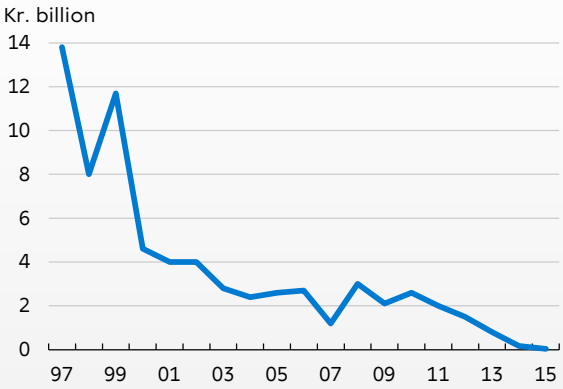
3 The Credit Support Annex regulates the terms of collateralisation of swap agreements.

Central government's credit risk management over time Chart 4.1



Note: ISDA = International Swaps and Derivatives Association Inc. When entering into a swap, the legal conditions are determined in an ISDA agreement, which is the overall framework for international over-the-counter derivatives.

Government credit exposure since 1997 Chart 4.2



Note: Market value of outstanding swaps less collateral received from banks. Calculated excluding currency swaps with Danmarks Nationalbank. Before 2007, the credit exposure is calculated as the market value minus pledged collateral plus a calculated potential credit exposure, which compensates for the possible increase in the market value of the swap portfolio over a horizon of one month.

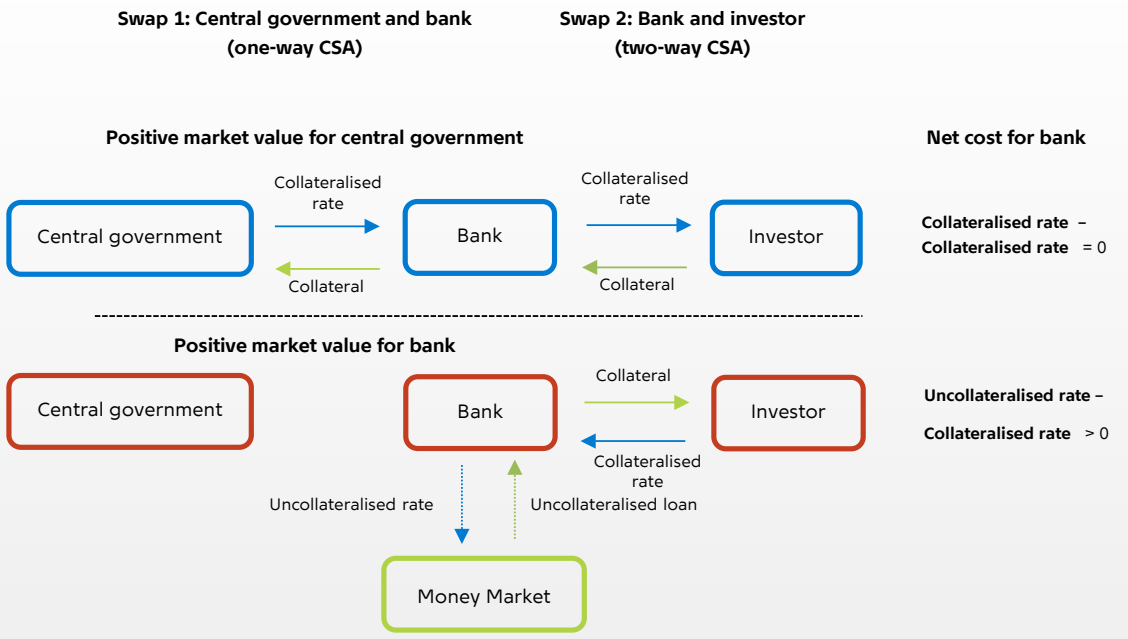
quality, initially on a monthly basis.[4] Since 2008 collateral has been adjusted on a daily basis. The introduction of one-way CSAs contributed to considerably reducing the central government's credit exposure after 1999, cf. Chart 4.2. Since 2009, the decrease also reflects a reduction of the central government's swap portfolio.

HIGHER COSTS OF ONE-WAY CSA

One-way CSAs are still widespread among European debt management offices. However, since the financial crisis several sovereigns have moved towards two-way CSAs or clearing via a central counterparty, CCP. One reason is that it has become more expensive for the banks to finance the lack of collateral in one-way CSAs if they hedge swap transactions. Moreover, banks have increased their focus on credit risk in swap agreements, among other.

4 The calculation of collateral took into account the possibility of the market value rising over the month.

Exchange and remuneration of collateral in a swap agreement Chart 4.3



Note: The green arrows denote exchange of collateral, while the blue arrows denote remuneration of the collateral. Uncollateralised money market interest rates are typically closely linked to Euribor or Cibor, while collateralised money market interest rates are typically Eonia or the Tomorrow/Next rate.

LACK OF COLLATERAL IMPLIES HIGHER FINANCING COSTS FOR BANKS

Chart 4.3 illustrates how not receiving collateral under a swap agreement may entail higher costs for banks. When the central government transacts a swap with a bank (swap 1), the bank will typically hedge the exposure by transacting a corresponding, but opposite, swap with an investor (swap 2). The agreement between the bank and the investor is generally with two-way CSA.

If the market value is positive for the central government, the bank may pledge the collateral received from the investor as collateral to the central government. Conversely, if the market value is positive for the bank, the central government does not have to pledge collateral under one-way CSAs. This means that it is up to the bank to raise the collateral it needs to pledge to the investor. The price is typically closely linked to an uncollateralised money market interest rate, while the bank only receives a collateralised interest rate as remuneration for pledging collateral to the investor. Hence, the cost of one-way collateral can be approximated by the spread between uncollateralised and collateralised money market interest rates.

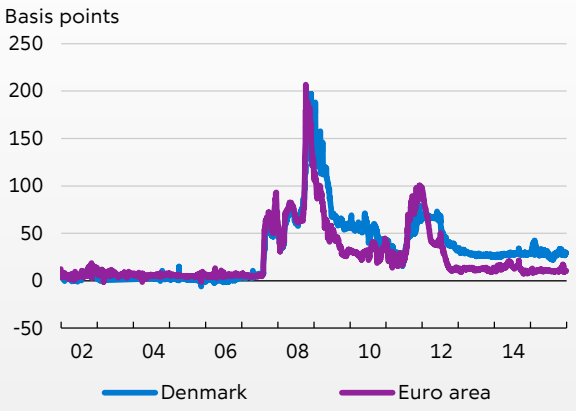
Before the financial crisis, the spread between uncollateralised and collateralised money market interest rates was at a very low level both in Denmark and in the euro area, but it has widened since then, cf. Chart 4.4. This has increased the banks' costs of transacting swaps without receiving collateral. The banks seek compensation for this cost by increasing the costs of transacting swaps under one-way CSAs. The size of the compensation demanded varies over time. According to the banks' estimate, their expected net cost of not receiving collateral in a 10-year interest rate swap in euro has varied between 2 and 10 basis points in recent years. For an interest rate swap with a principal of 100 million euro, this corresponds to an increase in the central government's interest costs of 20,000-100,000 euro per year.

Short-term Danish government yields are normally close to the interest rate received on the collateral. So, typically, pledging of collateral does not entail any costs for the central government – as it does for the banks.

INCREASED FOCUS ON CREDIT RISK

Since the financial crisis, the banks have increased their focus on credit risk, including exposures to

Spread between uncollateralised and collateralised money market interest rates Chart 4.4



Note: Uncollateralised interest rates are Cibor and Euribor, while collateralised interest rates are Cita and Eonia swap rates. All interest rates are 3-month interest rates.
Source: Bloomberg.

sovereigns. In one-way CSAs, banks are exposed to the entire market value of the swap when it is positive for the bank. This means that the bank risks a loss if the central government defaults on its payments obligations. To a larger extent than seen before, banks are seeking compensation for this credit risk by making it more expensive to transact swaps under one-way CSAs. This should be seen in light of the European sovereign debt crisis, which saw a significant rise in the price of hedging sovereign default through credit default swaps (CDS).[5]

TRANSITION TO TWO-WAY CSA

In 2013, the central government commenced negotiations with existing counterparties on new two-way CSAs, with the aim of obtaining better swap terms.[6] In connection with the transition, it was decided also to renegotiate other parts of the basis of agreement with a view to further reducing the credit risk on swaps, among other aims. Moreover, system upgrades have enabled the swap parties to internalise the collateralisation without involving a tri-party in the future. Overall, the transition has resulted in better swap prices, lower credit exposure and fewer operational costs and risks for the central government.

RENEGOTIATION OF THE BASIS OF AGREEMENT

The terms of the central government's swap agreements are determined by ISDA agreements and agreements under the Credit Support Annex. The ISDA master agreement is the overall framework for international over-the-counter derivatives, while the Credit Support Annex regulates collateralisation.

Standardised agreements have been concluded with a view to providing a simple administrative setup and a level playing field for the banks. The banks had a great variety of approaches to the basis of agreement, which resulted in a prolonged process for some banks. Typical issues in the negotiations were pledging of collateral in kroner rather than euro and continued application of a one-way rating trigger.[7]

Agreements have been concluded with 13 banks, and the central government will use these agreements for swaps in the future, cf. Table 4.1. Existing swaps with the banks have been transferred to the new basis of agreement.

The highlights of the central government's new and previous basis of agreement are summarised in Table 4.2. The most important changes are outlined below.

Reduction of threshold value and minimum transfer amount (MTA)

In order to reduce the central government's credit risk, the threshold value – which in the one-way CSAs depended on the bank's rating – was lowered to zero. A threshold value of zero is the market standard in two-way CSAs, entailing pledging

5 Cf. *Danish Government Borrowing and Debt 2012*, Chapter 11.

6 The central government could also have opted for CCP clearing of its interest rate swaps. However, at that time, the central government could not obtain the same netting gains, since CCP clearing of currency swaps was not possible, cf. Korsgaard, Central Counterparties in the Derivatives Markets, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2010. At the same time, the terms of sovereign membership were subject to uncertainty.

7 Several underlying factors applied in the few cases where the central government and a bank failed to reach agreement. The key factors were as follows: 1) Collateral in kroner: Some banks have chosen to focus only on major currencies, e.g. US dollars and euro. 2) Cross default clause: A few banks demanded two-way cross default clauses. 3) Rating trigger: A few banks would not accept a rating trigger in connection with full collateralisation.

Swap counterparties with two-way collateral

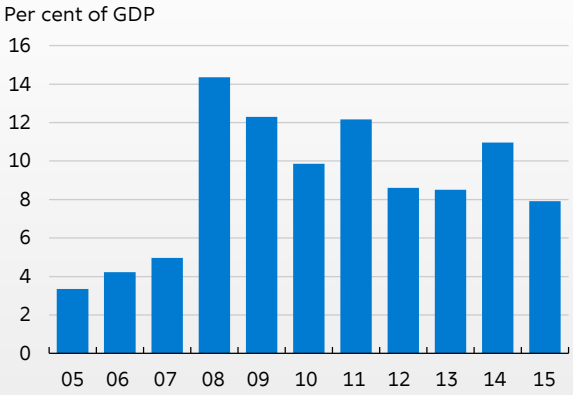
Table 4.1

Counterparty	
Bank of Nova Scotia	JP Morgan
Barclays	Morgan Stanley
BNP Paribas	Natixis
Citibank	Nordea
Crédit Agricole	Royal Bank of Scotland
Danske Bank	Société Générale
HSBC	

Note: One-way collateral will continue to apply to swaps transacted with Goldman Sachs and Deutsche Bank. The central government has a small number of outstandings with these counterparties, which will expire in the near future.

Balance on the central government's account at year-end

Chart 4.5



Highlights of the central government's new and previous basis of agreement

Table 4.2

	Previous basis of agreement: ISDA with one-way CSA	New basis of agreement: ISDA with two-way CSA
ISDA version	1992	2002
Applicable law	US/English law	English law
Rating trigger[1]	A-/A3	BBB-/Baa3
Cross default clause[2]	Yes	Yes
Netting	Yes	Yes
Credit Support Annex		
Collateralisation	One-way	Two-way
Collateral type	High-rated bonds in various currencies	Cash deposits in DKK
Remuneration	None	Tomorrow/Next rate
Threshold value	Kr. 0-500 million depending on rating	Kr. 0
Minimum transfer amount, MTA	Up to kr. 10 million	Kr. 0.5 million
Margin call frequency	Daily	Daily

1. The rating trigger enables the central government to terminate a swap agreement if the counterparty's rating falls below the level stated.
2. A cross default clause enables the central government to terminate swaps in the event of a bank's failure to meet its payment obligations to a third party. The central government's ISDA agreements have a one-way cross default clause, i.e. only the central government is allowed to terminate swaps with a bank

of collateral for the full market value of the swap portfolio.[8] Moreover, the MTA was reduced to kr. 0.5 million. This amount indicates how much the market value of the swap agreement may change without transfer of collateral.

These changes entail that the credit risk on each counterparty is very limited. However, having a wide range of swap counterparties is still deemed to be expedient, as this intensifies competition in the pricing of swaps. In addition, if a large volume of swaps have been transacted with a failing counterparty, the central government must negotiate a large number of contracts with new counterparties. This may take time, and the market value may fluctuate in the period until new swaps have been transacted. This entails a risk that the collateral pledged by the failing counterparty is not fully adequate. The associated risk is, however, abated by the central government's use of simple, and standardized (plain vanilla) interest rate and currency swaps only.

Cash deposit of kroner as collateral

Under the new CSAs, collateral is pledged and received in Danish kroner. The background is that cash deposits today constitute by far the most frequently used asset to pledge as collateral in the international swap markets.[9] The central government has a large liquidity reserve that can be used for collateral purposes, cf. Chart 4.5. Moreover, cash collateral makes it simple to determine the value of the collateral pledged or received.

The central government's receipt of cash deposits as collateral increases the EMU debt, as opposed to the previous agreements under which the central government only accepted bonds as collateral. The reason is that receipt of cash is regarded as a loan according to Eurostat, while cash pledged as collateral is not offset in the EMU debt. Due to Denmark's low EMU debt it is assessed to be unproblematic. The central government debt is not affected by the receipt of collateral.

Possibility of negative interest rates on collateral

For cash deposits pledged as collateral, the overnight interest rate is the market standard. For Danish kroner, the relevant interest rate is the Danish Tomorrow/Next (T/N) rate.

It is explicitly stated in the central government's new basis of agreement that no zero lower bound applies to interest rates. The reason is that a zero lower bound may give the banks an incentive to transfer more collateral than necessary if a negative interest rate applies to their alternative options for placement of liquid funds.

The Danish T/N rate has been negative in several periods since 2012. Initially, this caused problems for some banks, whose systems were not yet ready to handle negative interest rates. As negative interest rates spread to the euro area, this problem was remedied.

Rating trigger reduced to BBB-/Baa3

The rating trigger is reduced from A-/A3 to BBB-/Baa3 in the new basis of agreement. The rating trigger allows the central government to terminate a swap agreement if the bank's rating falls below BBB-/Baa3. This enables the central government to avoid the legal and operational risks associated with failure.

The reduction of the trigger level reflects easing, in the wake of the financial crisis, of the central government's requirements for banks' credit rating when concluding new swaps.[10]

INTERNALISATION OF THE COLLATERALISATION PROCESS

In connection with the transition to two-way collateral, the collateralisation process was internalised between the swap parties without the involvement of a tri-party agent. A particular background factor is that cash collateral and system upgrades have reduced the costs of own collateral management.[11] At the same time, continued efficiency

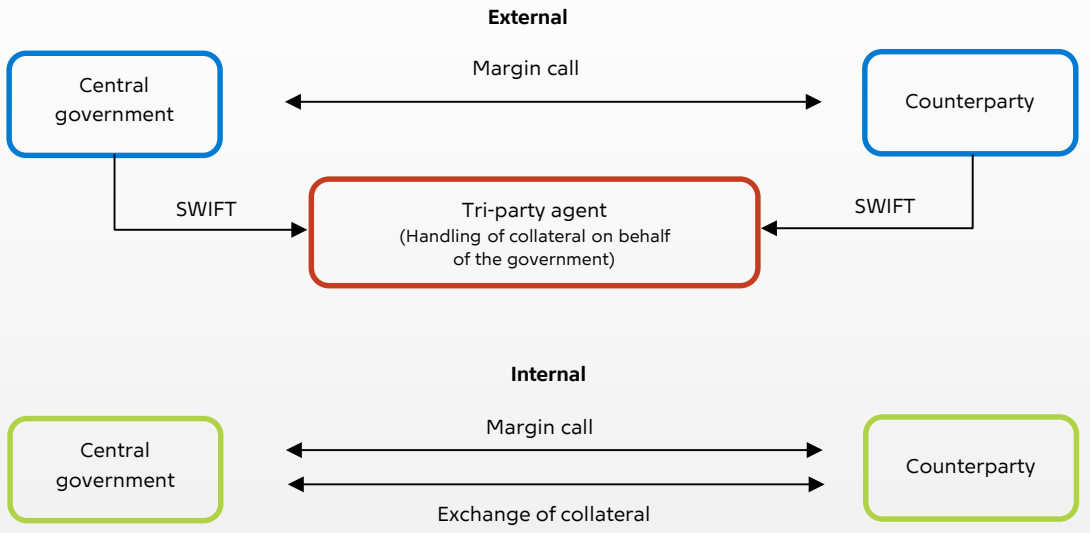
8 The role of margin requirements and haircuts in procyclicality, *CFGS papers No. 36*, BIS, 2010.

9 ISDA Margin Survey 2015.

10 Since the onset of the financial crisis, the central government's counterparties were downgraded by the rating agencies. As a result, fewer banks met the central government's credit rating requirement for concluding new swaps. In order to be able to diversify the swap agreements on a sufficient number of counterparties, the credit rating requirements for counterparties were eased.

11 According to the ISDA Margin Survey 2015, 87 per cent of the respondent banks had internalised their collateralisation processes.

Illustration of internal and external collateralisation process Chart 4.6



Note: SWIFT stands for Society for Worldwide Interbank Financial Telecommunication, an international financial network used for sending and receiving payment instructions.

improvements have contributed to reducing the operational risk.

The collateralisation process can be divided into four main steps:

1. Calculation of credit exposure and netting[12]
2. Margin call
3. Reconciliation with counterparty
4. Settlement of collateral

Since the central government's introduction of CSAs in 1999, credit exposures and netting have been calculated in custom-developed systems, and margin calls have taken place via e-mail. Since 2008, the frequency has been gradually increased from monthly to daily statements. Under the previous basis of agreement, with high-rated bonds as collateral, the central government used tri-party agents for administration of the collateral, cf. Chart 4.6.

Collateralisation using bonds makes heavy demands on systems, requiring registration and daily calculation of the market value of many different bonds, ongoing verification of bonds, current switching of securities and coupon payments relating to the pledged collateral.

The new basis of agreement with collateralisation via cash deposits entails a considerably simpler collateralisation process in a system-related and settlement perspective, compared with collateralisation via bonds. The vast majority of settlement processes have been automated in a new portfolio management system. Most margin calls are structured in an electronic messaging system, which has streamlined the process considerably and reduced the operational risk. The aim is a fully automated collateralisation process in future.

12 Netting: Netting of gains and losses on transacted swaps. Netting allows inclusion of all transacted swaps in the overall claim in the event of a bank's failure.

APPENDICES

ASSETS IN THE GOVERNMENT FUNDS

Danmarks Nationalbank administers the assets of the Social Pension Fund, SPF, Innovation Fund Denmark and the Fund for Better Working Environment and Labour Retention on behalf of the central government. The assets of the government funds are included in the total central government debt and are managed on a consolidated basis with other financial assets and liabilities in the central-government debt portfolio.

THE SOCIAL PENSION FUND

SPF was established in 1970 by the Social Pension Fund Act, whereby a special pension contribution was introduced. The pension contributions – 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*.[1] According to these regulations, the assets of SPF can be invested in Danish listed bonds. The assets are managed on a consolidated basis with other central government financial assets and liabilities under the central-government debt area.

The risk on SPF's assets is assessed separately, but is included in the consolidated risk management of the total central government debt. The

1 The Regulations are available at www.governmentdebt.dk

The government funds' revenue and expenditure in 2015 Table A1.1

Kr. million	SPF	Innovation Fund Denmark	Fund for Better Working Environment and Labour Retention
Revenue:			
Interest etc.[1]	2.787	383	27
Expenditure:			
Transfer to relevant ministry	12.290	400	273
Pension yield tax[2]	-517	-	-
Net revenue	-10.019	-17	-246

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.

market risk of SPF is managed via a band for the average Macaulay duration for the year. In 2015, the average duration was within the band of 4.5 years +/- 0.5 year that was specified in the beginning of the year. In 2015, there was a continued focus on matching ingoing and outgoing payments of the SPF, which is expected to come to an end in 2022. This focus implies a target for the average duration of the SPF in 2016 at 4.0 years +/- 0.5 year.

Since 1995, the asset portfolio of SPF stated at nominal value has gradually declined as a result of yearly transfers to the Ministry, as stipulated in the annual Finance Act, exceeding interest income on SPF's bond portfolio. In 2015, kr. 12 billion was transferred from SPF to the Danish Agency for Labour Market and Recruitment. The net expenditure amounted to kr. 10 billion, cf. Table A1.1.

At end-2015, the assets of SPF totalled almost kr. 66 billion, cf. Table A1.2.

INNOVATION FUND DENMARK

In March 2014, the Folketing (the Danish parliament) passed a law to establish Innovation Fund Denmark by uniting the Advanced Technology Foundation, the Danish Council for Strategic Research and the Danish Council for Technology and Innovation.

By agreement with the Danish Ministry of Finance, the assets of the Fund may be invested in Danish government bonds only. The investment strategy for Innovation Fund Denmark is to aim for an equal distribution on short-, medium- and long-term Danish government bonds.

In 2015, Innovation Fund Denmark transferred assets roughly equivalent to the interest income, cf. Table A1.1. At end-2015, the assets of the Fund totalled kr. 14 billion, cf. Table A1.2.

THE 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 to 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. It is a statutory provision that the assets of the Fund for Better Working Environment and Labour Retention may be invested in Danish government bonds only.

At end-2015, the assets of the fund totalled kr. 0.8 billion, cf. Table A1.2.

The government funds' assets, end-2015

Table A1.2

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	3.0	-	26
4 per cent bullet loan 2019	12.6	3.9	-	17
3 per cent bullet loan 2021	7.4	3.0	-	11
1.5 per cent bullet loan 2023	6.6	2.6		15
7 per cent bullet loan 2024	11.3	1.3	-	59
Government bonds, total	48.6	13.8	-	
Mortgage bonds etc.[2]	17.2	-	-	
Balance of account	0.0	0.2	0.8	
Total	65.8	14.0	0.8	

1. Indicates the funds' ownership share of the total outstanding value in the issue.
2. Mortgage, Kommunekredit, Fisheries Bank and Ship Finance bonds. Indexed nominal value.

ON-LENDING AND GOVERNMENT GUARANTEES

On-lending and government guarantees arise from a political wish to support certain government projects. On behalf of the central government, Danmarks Nationalbank administers a portfolio of on-lending and guarantees that amounted to approximately 7 per cent of GDP at end-2015. Government on-lending and guarantees contribute to better borrowing terms for the government-owned companies due to the central government's high credit rating.

BACKGROUND FOR ON-LENDING AND GUARANTEES

A number of government-owned companies may raise loans directly from the central government, on-lending, or raise government-guaranteed loans, cf. Table A2.1.

On-lending and government loan guarantees derive from political wish to support certain projects. Due to the central government's high credit rating, on-lending and government-guaranteed loans give the companies access to cheaper funding than loans without guarantees. The majority of the loans are issued to government-owned companies involved in large infrastructure project.

The framework for the companies' borrowing is laid down by law. As a main rule, the companies that may raise government-guaranteed loans or have access to on-lending pay an annual commission of 0.15 per cent of the loan value to the government.

ON-LENDING

On-lending means that loans are raised directly from the central government. The loan proceeds

Companies with access to on-lending or guarantees Table A2.1

	On-lending	Government-guaranteed loans
Infrastructure		
Energinet.dk	X	
The Great Belt Bridge	X	X
CPH City and Port Development	X	
Øresund Landworks	X	X
The Metro Company	X	
Femern	X	X
Femern Landworks	X	X
Sund & Bælt Holding	X	X
Øresundsbro Konsortiet		X
DSB (The Danish State Railways)		X
Greater Copenhagen Light Rail	X	
Other		
EKF (Danish Export Credit Agency)	X	
Danish Ship Finance[1]	X	
The Financial Stability Company	X	
DR (Danish Brodcasting Corporation)[2]	X	X
SSI (Statens Serum Institut)	X	
The Danish North Sea Fund	X	

Note: X indicates that the company has access. The table includes companies whose loan guarantee is administered by Danmarks Nationalbank on behalf of the government.

1. Danish Ship Finance is a part of the on-lending portfolio, but cannot raise new loans.
2. DR has outstanding government-guaranteed loans, but cannot raise new loans with a government guarantee.

are paid from the central government's account, and the resulting financing requirement is met via current issuance in existing government bonds.[1] This ensures that the government does not incur any significant market risk in connection with on-lending.

The companies pay interest and redemptions to the central government. The terms and conditions mirror those for domestic government bonds, so that coupon rates, interest-payments dates and redemption dates for on-lending correspond to the characteristics of existing government bonds. When a company requests on-lending, the price of the loan is fixed so that it matches the current market price of the corresponding government bond.

ON-LENDING IN 2015

On-lending by the central government in 2015 amounted to kr. 17.4 billion, cf. Table A2.2. On-lending was granted mostly in the first part of the year and in November when existing on-lending expired. The outstanding volume of on-lending rose by kr. 3.3 billion in 2015 to kr. 102.3 billion, corresponding to 23 per cent of central-government debt. The increase was mainly attributable to the Metro Company's borrowing

1 As a main rule, the on-lending list includes government bonds in the 2- to 10-year maturity segments. In addition, companies with special requirements have access to the 30-year bond and the inflation-linked bond.

On-lending in 2015

Table A2.2

Kr. billion, nominal value	Portfolio end-2014	Borrowing in 2015	Redemptions in 2015	Portfolio end-2015
Infrastructure				
Energinet.dk	16.3	3.0	1.1	18.2
The Great Belt Bridge	15.7	2.4	2.0	16.1
CPH City and Port Development	11.8	4.6	0.8	15.5
Øresund Landworks	10.3	1.3	1.5	10.1
The Metro Company	7.1	3.9	0.8	10.1
Femern	1.6	0.7	0.3	2.0
Femern Landworks	0.5	0.5	0.3	0.7
Sund & Bælt Holding	0.4	0.1	0.1	0.4
Greater Copenhagen Light Rail	-	0.1	-	0.1
Other				
EKF (Danish Export Credit Agency)	16.7	0.8	1.7	15.8
Danish Ship Finance[1]	6.7	-	1.4	5.9
The Financial Stability Company	5.3	-	4.5	0.8
DR (Danish Brodcasting Corporation)	3.2	0.1	0.2	3.1
Loan to Ireland	3.0	-	-	3.0
SSI (Statens Serum Institut)	0.4	-	-	0.4
Total	99.0	17.4	14.7	102.3

Note: Since the Danish Nort Sea Fund has no on-lending in 2015 it is not included in the table.

1. 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 US dollar and DKK. The difference is reflected in a similar change in the value of the central government's hegde portfolio.

for expansion of the Copenhagen Metro and infrastructure projects in CPH City and Port Development and Energinet.dk. Conversely, the Financial Stability Company made redemptions in 2015 for kr. 4.5 billion.

The portfolio also includes a bilateral loan to Ireland of 400 million euro or approximately kr. 3 billion.

GOVERNMENT GUARANTEES

For loans with government guarantee, the central government guarantees payment of interest and redemptions on a loan raised by a government-owned company. Given the central government's credit rating, a government guarantee enables the company to raise loans in the private market at lower interest rates than would have been the case for loans without government guarantee.

The interest rate on government-guaranteed loans will normally be higher than that on the central government's own issuance even though the credit risk is the same for the investor. This reflects that investors typically demand compensation for the lower liquidity in the companies' issuance compared with government issuance.

GUARANTEES IN 2015

At end-2015, Danmarks Nationalbank administered government loan guarantees for approx-

Loan guarantees administered by Danmarks Nationalbank of behalf of the government Table A2.3

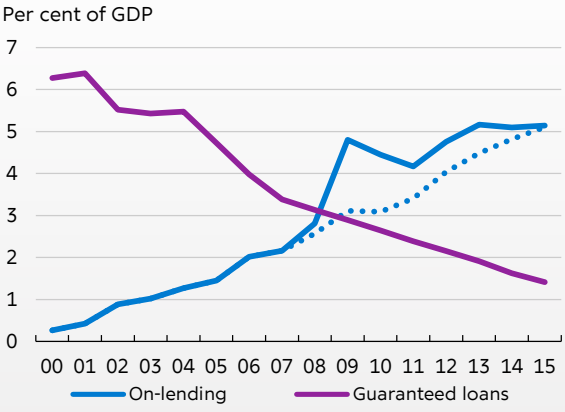
End-2015	Kr. billion	Per cent of GDP
The Great Belt Bridge	7.2	0.4
Øresund Landworks	0.5	0.0
Sund & Bælt Holding	0.0	0.0
Øresundsbro Konsortiet	15.0	0.8
DSB (The Danish State Railways)	4.6	0.2
DR (Danish Brodcasting Corporation)	0.8	0.0
Total	28.1	1.4

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.

imately kr. 28 billion corresponding to just over 1 per cent of GDP, cf. Table A2.3. That is a reduction of around kr. 3.5 billion compared to the preceding year. The largest guarantees have been issued to Øresundsbro Konsortiet and the Great Belt Bridge. Guarantees to these two companies account for the majority 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. They amounted to 16 per cent of GDP at end-2014 and thus account for most of the total loan guarantees. These guarantees have primarily been given to international organizations, export credits, and social housing.

On-lending and government loan guarantees Chart A2.1



Anm.: On-lending and guarantees administered by Danmarks Nationalbank. The dotted line is less on-lending to the Financial Stability Company.

COMPARISON OF GOVERNMENT LOAN GUARANTEES AND ON-LENDING

In Denmark, new government-owned companies have primarily gained access to on-lending rather than government guarantees in recent years. In addition, companies that already had access to both on-lending and guarantees have increasingly resorted to on-lending. This has gradually shifted the liabilities towards on-lending over the past 10 years, cf. Chart A2.1. The increase in the share of on-lending primarily reflects that on-lending usually is the less expensive option as the loan is financed by issuing government bonds, which are considerably more liquid than equivalent government-guaranteed issues.

Overall, on-lending and government-guaranteed loans have constituted a virtually unchanged share of GDP since 2000, except for the temporary increase in on-lending during the financial crisis.

MAIN PRINCIPLES OF THE MANAGEMENT OF GOVERNMENT DEBT

The management of the government debt, as well as related tasks, is carried out by Government Debt Management at Danmarks Nationalbank on behalf of the Ministry of Finance. The Minister of Finance holds the overall and political responsibility for central government borrowing and debt, including relations with the Folketing (Danish parliament).

OBJECTIVES

The overall objective of the government debt policy is to cover the central government financing requirement at the lowest possible long-term borrowing costs, while taking the degree of risk into account. Furthermore, the aim is to facilitate the central government's access to the financial markets in the longer term and to support a well-functioning domestic financial market. The objectives of Denmark's government debt management policy are in accordance with international standards.[1]

The government debt management policy focuses on a transparent and flexible issuance policy which supports trade in Danish government bonds. Management of the Danish government debt is focused on maintaining a low refinancing risk by meeting the financing requirement well in advance, ensuring a large investor base and holding substantial liquidity reserves.

STRUCTURE OF GOVERNMENT DEBT MANAGEMENT

The Minister of Finance is authorised by law to raise government loans, cf. Box A3.1, and has the overall and political responsibility for central gov-

1 Revised Guidelines for Public Debt Management, World Bank and IMF, 2014.

Act on the authority to raise loans on behalf of the central government Box A3.1

Under the Danish Constitution, debt can be issued by the central government on a statutory basis only. The statutory basis for central government borrowing is set out in the *Act on the authority to raise loans on behalf of the central government*[1], which authorises the Minister of Finance to raise loans on behalf of the central government for a maximum of kr. 2,000 billion. This amount is the upper limit for domestic and foreign gross debt. In connection with current debt management, the Minister of Finance is also authorised to enter into swap agreements and other financial transactions. The central government's costs of borrowing, i.e. interest costs and capital losses on issues and buy-backs, must be appropriated under the annual finance acts.

1. Act no. 1079 of 22 December 1993 as amended, see www.governmentdebt.dk

ernment borrowing and debt, including relations with the Folketing (Danish parliament).

In most countries, the government debt is managed by the Ministry of Finance or a designated government debt management office. In Denmark, these tasks are undertaken by Danmarks Nationalbank on behalf of the Ministry of Finance. Tasks and organisation correspond to those of government debt management offices in other countries. The distribution of responsibilities is specified in the *Agreement on the division of work in the area of government debt between Danmarks Nationalbank and the Ministry of Finance*.[2]

As part of the management of central government borrowing and debt, Government Debt Management administers on-lending and government guarantees and the assets of the three government funds: the Social Pension Fund, SPF, Innovation Fund Denmark[3] and the Fund for Better Working Environment and Labour Retention. The framework for management of the assets of SPF is laid down in the *Regulations governing the management of the Social Pension Fund*.[4] Tasks concerning the management of the assets of Innovation Fund Denmark and the Fund for Better Working Environment and Labour Retention as well as the tasks related to on-lending and government guarantees are laid down in separate agreements.

The functions of Government Debt Management are divided into front, middle and back offices, cf. Chart A3.1. Separation of functions and clear procedures reduce operational risks and ensure a clear distribution of responsibilities. This facilitates internal control. The placement of the tasks at Danmarks Nationalbank makes it easier to monitor interaction between government debt policy, monetary policy and financial stability. This is consistent with the IMF's recommendations (Stockholm principles).[5]

The middle office formulates the government debt policy and prepares proposals for borrowing strategies and risk management. The middle office also lays down guidelines for the front office with regard to issuances, buy-backs and swap transactions in accordance with the agreed strategies. Moreover, the middle office lays down the framework for the individual auctions and undertakes the overall administration of foreign borrowing, on-lending and government guarantees and participates on the SPF Board and in the financing group for social housing.

The front office is responsible for the operational element of the government debt policy within the framework of the monthly guidelines. This comprises issuance of government securities, including holding of auctions, buy-backs, securities lending and swap transactions. It also determines market terms for on-lending.

The back office settles payments concerning central government debt, including servicing of debt and swaps. Government Debt Accounting

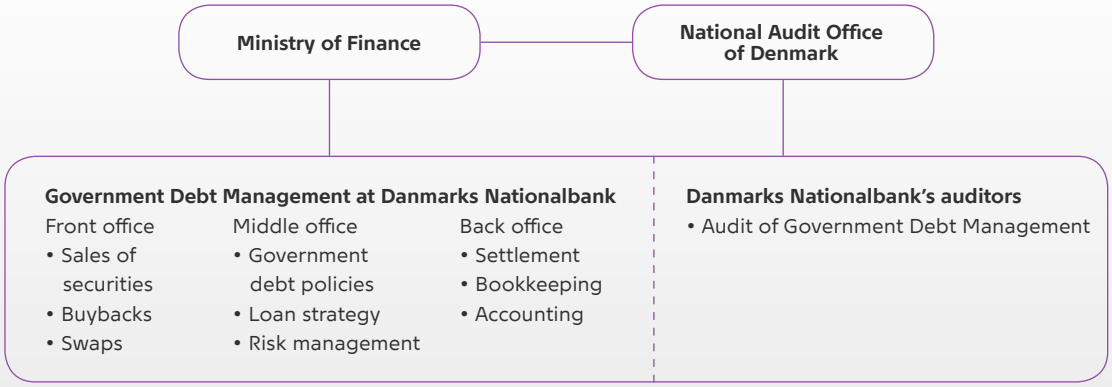
2 The agreement is available at www.governmentdebt.dk

3 On 1 April 2014, the Advanced Technology Foundation, the Danish Council for Strategic Research and the Danish Council for Technology and Innovation were merged into Innovation Fund Denmark.

4 The Regulations are available at www.governmentdebt.dk.

5 Guiding Principles for Managing Sovereign Risk and High Levels of Public Debt, IMF, 2013.

Functions in relation to government debt management Chart A3.1



prepares the central government accounts together with the Ministry of Finance.

The government debt area is audited by Danmarks Nationalbank's auditors on behalf of Rigsrevisionen (the national audit office of Denmark). Danmarks Nationalbank's auditors ascertain that the government debt accounts give a true and fair view, i.e. that they are without significant errors and omissions. In addition, Rigsrevisionen may assess whether the government debt is managed in an appropriate way. The results of its investigations are published at www.rigsrevisionen.dk.

RESPONSIBILITIES OF GOVERNMENT DEBT MANAGEMENT

Government Debt Management at Danmarks Nationalbank must ensure that the objectives of government debt policy are met. This is achieved by carrying out the tasks specified in the *Agreement on the division of work in the area of government debt between Danmarks Nationalbank and the Ministry of Finance*. Government Debt Management undertakes the following responsibilities:

PREPARATION OF ISSUANCE STRATEGY AND ISSUANCE OF GOVERNMENT SECURITIES

- Preparation of issuance strategy on the basis of the government budget forecast from the Ministry of Finance.
- Issuance of domestic government securities to cover the central government's domestic financing requirement.
- Issuance of foreign government securities in order to maintain an adequate foreign exchange reserve.
- Supporting a well-functioning market for domestic government securities, e.g. through agreements with primary dealers in Danish government securities for ongoing price quotation (market making).
- Managing the central government's account in order to ensure a robust liquidity buffer.

RISK MANAGEMENT

- Analysis and management of relevant risks on the central government debt portfolio, including interest rate and refinancing risk. In the management of interest rate and refinancing risk, focus is on the consolidated portfolio of the central government's financial assets and liabilities.
- Conclusion of swaps and use of other financial instruments and management of credit risk on such instruments.

MANAGEMENT OF GOVERNMENT FUNDS, ON-LENDING AND GOVERNMENT GUARANTEES

- Management of the assets of the three government funds.
- Management of government guarantees and on-lending to government-owned companies.
- Management of special lending, e.g. bilateral loans to other sovereign states.

ADVISORY SERVICES AND INTERNATIONAL COOPERATION

- Advising the Ministry of Finance concerning the central government's other financial risks, e.g. interest rate risk in relation to the financing of social housing.
- Advising ministries and agencies on financial regulation of importance to the government securities market.
- Advising other government debt management offices.
- Participation in international cooperation in the area of government debt management, including in the OECD, the IMF, the World Bank and the EU.

CONTACTS WITH CREDIT RATING AGENCIES AND INVESTORS

- Contacts with credit rating agencies concerning the central government's credit rating.
- Information to investors on the government debt policy and financial and economic conditions.

STRATEGY AND FUNDING RULES FOR THE GOVERNMENT'S DOMESTIC AND FOREIGN BORROWING

DETERMINATION OF STRATEGY

The strategy for management of central government borrowing is agreed at quarterly meetings between the Ministry of Finance and Danmarks Nationalbank on the basis of a strategy proposal from Government Debt Management at Danmarks Nationalbank. The Ministry of Finance authorises Danmarks Nationalbank to implement the agreed strategy.

At the meeting in December, the strategy for the following year is determined. At the subsequent quarterly meetings, Government Debt Management reports on the implementation of the strategy, and any adjustments of the overall strategy for the year are adopted.

The government debt strategy is announced to the market immediately after the meetings in June and December. The strategy is assessed on an ongoing basis in order to ensure the best possible fulfilment of the objectives, and to ensure that Danish government debt policy complies with international standards formulated by the OECD, the IMF and the World Bank.

The strategy for the management of the central government debt is organised within the framework of the domestic and the foreign funding rules.

DOMESTIC AND FOREIGN FUNDING RULES

The Danish government and Danmarks Nationalbank have agreed on funding rules for the distribution and volume of the central government's domestic and foreign borrowing. The funding rules describe the framework for central government borrowing, laying down the overall principles warranted by the government debt policy. There are two sets of funding rules: domestic and foreign. Together they support the separation of fiscal and monetary policy.

Domestic funding rule

Under the domestic funding rule, the central government borrows in kroner to cover its financing requirement resulting from the current budget deficit and redemptions on the domestic debt.

The central government may continue to issue government securities even though the financing requirement for the year has been met. This contributes to prefunding of the borrowing requirement for the following year. The option of prefunding gives the central government greater flexibility in its issuance strategy, which supports the government debt policy objective of covering the central government financing requirement at the lowest possible long-term borrowing costs, while taking the degree of risk into account. For example, prefunding can be based on a wish to strengthen the central government's liquidity buffer, thereby reducing the exposure to shocks to future financing requirements.

Under the EU Treaty, the central government's account at Danmarks Nationalbank must never show a deficit.[6]

6 Cf. Article 123 of the EU Treaty.

Foreign funding rule

The central government raises loans in foreign currency in order to maintain the foreign exchange reserve. The foreign funding rule determines that, as a general rule, the central government raises foreign loans equivalent to the redemptions on the foreign government debt. If the foreign exchange reserve is smaller than what is deemed appropriate, it may be necessary for the central government – with the exchange rate policy in mind – to raise loans abroad in order to strengthen the foreign exchange reserve. Conversely, it is possible to reduce the foreign government debt if the foreign exchange reserve is greater than what is deemed appropriate.

Even when the size of the foreign exchange reserve does not make foreign borrowing necessary, it may be expedient continuously to be present in the market since a need to borrow considerable amounts in foreign currency may arise at short notice. This is because it can be costly and time-consuming to restore contacts with foreign banks and investors. As borrowing in foreign currency is included directly in the foreign exchange reserve, domestic liquidity is not affected by foreign borrowing.

The central government primarily issues foreign debt in the form of bonds. In addition, the government may raise short-term foreign loans via its Commercial Paper, CP, programmes. This contributes to the central government's liquidity reserves and facilitates quick build-up of the foreign exchange reserve.

FURTHER INFORMATION ON THE CENTRAL GOVERNMENT DEBT

An important element of government debt policy is to give market participants and the public information on the central government borrowing strategy and borrowing requirement, as well as information of a more general nature on the framework for government debt management.

Information about government debt and Government Debt Management is available at www.governmentdebt.dk. In addition, information is regularly published via other sources.

APPENDIX OF TABLES

TABLES

Central-Government Debt, year-end 2005-15 (continues next page)

Table 1

Kr. million	2005	2006	2007	2008	2009
A. Loan					
Domestic debt					
- Fixed-rate bonds, nominal	440,351	428,796	403,039	451,394	505,973
- Inflation-linked bonds[1]	-	-	-	-	-
- Fisheries Bank bonds	-	-	-	-	995
- Lottery bonds	200	200	200	200	100
- Treasury notes	33,980	-	-	-	-
- Treasury bills	60,092	42,660	19,660	-	-
- Index-linked loans and loan package[2]	-	379	277	-	-
- Currency swaps from kroner to euro (net)[3]	-15,456	-12,755	-13,262	-11,662	-8,197
- Currency swaps from kroner to dollars	-2,688	-4,862	-7,873	-10,423	-10,956
Domestic debt, total	516,479	454,418	402,040	429,509	487,921
Foreign debt[4]					
- in dollars	2,810	4,583	6,844	9,947	10,218
- in euro	87,833	75,219	61,738	123,126	129,351
- in other currencies and multi-currency	38	21	20	19	19
Foreign debt, total	90,681	79,823	68,642	133,092	139,588
Domestic and foreign debt, total	607,160	534,241	470,682	562,600	627,509
B. Collateral related to swaps[5]	-	-	-	-	-
C. Government deposits with the central bank[6]	-53,297	-70,958	-86,333	-258,131	-210,932
D. The Social Pension Fund, The Fund for Better Working Environment and Labour Retention and The Danish National Innovation Fund					
- Government securities	-124,635	-125,111	-128,547	-98,604	-77,720
- Other securities	-11,284	-9,535	-8,686	-9,643	-37,376
The three funds, nominal value, total	-135,919	-134,646	-137,223	-108,247	-115,096
Central-government debt, total (A+B+C+D)	417,944	328,637	247,116	196,222	301,481
Central-government debt, per cent of GDP	26.3	19.5	14.2	10.9	17.6

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 2015, government deposit are measured as in Danmarks Nationalbank's balance sheet.

Central-Government Debt, year-end 2005-15 (continued)

Table 1

Kr. million	2010	2011	2012	2013	2014	2015
A. Loan						
Domestic debt						
- Fixed-rate bonds, nominal	556,900	606,627	620,695	615,907	637,617	584,356
- Inflation-linked bonds[1]	-	-	10,207	23,251	35,531	35,667
- Fisheries Bank bonds	887	786	684	594	507	424
- Lottery bonds	-	-	-	-	-	-
- Treasury notes	-	-	-	-	-	-
- Treasury bills	25,460	44,200	44,940	32,300	29,800	29,840
- Index-linked loans and loan package[2]	-	-	-	-	-	-
- Currency swaps from kroner to euro (net)[3]	2,974	2,974	-1,490	-1,490	-	-
- Currency swaps from kroner to dollars	-9,808	-8,660	-7,512	-6,364	-5,215	-4,067
Domestic debt, total	576,413	645,927	667,524	664,198	698,240	646,220
Foreign debt[4]						
- in dollars	9,901	8,957	7,662	6,219	5,778	5,047
- in euro	104,811	102,861	82,338	69,689	53,207	28,223
- in other currencies and multi-currency	18	-	-	-	-	-
Foreign debt, total	114,731	111,818	90,000	75,908	58,986	33,270
Domestic and foreign debt, total	691,144	757,745	757,524	740,106	757,225	679,490
B. Collateral related to swaps[5]	-	-	-	3,596	3,804	2,859
C. Government deposits with the central bank[6]	-177,282	-223,100	-161,991	-161,953	-213,099	-157,376
D. The Social Pension Fund, The Fund for Better Working Environment and Labour Retention and The Danish National Innovation Fund						
- Government securities	-75,511	-69,351	-70,859	-65,550	-64,825	-62,399
- Other securities	-52,075	-51,393	-37,902	-32,352	-25,259	-17,172
The three funds, nominal value, total	-127,587	-120,744	-108,761	-94,902	-90,084	-79,571
Central-government debt, total (A+B+C+D)	386,275	413,901	486,771	486,848	457,846	445,402
Central-government debt, per cent of GDP	21.5	22.6	25.9	25.6	23.6	22.4

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 2015, government deposit are measured as in Danmarks Nationalbank's balance sheet.

Central government's financing requirement, 2005-15 (continues next page) Table 2

Kr. billion	2005	2006	2007	2008	2009
Current, investment and lending budget	80.6	98.6	106.2	72.3	-29.8
On-lending of government loans	-3.2	-12.4	-8.5	-13.5	-82.0
Distributed capital losses on issue and due interest[1]	-0.7	-0.9	0.4	0.3	-1.3
Other capital items[2]	-0.9	5.0	-15.3	-10.7	3.1
Net cash balance	75.9	90.2	82.8	48.3	-110.0
Net financing requirement (=-Net cash balance)	-75.9	-90.2	-82.8	-48.3	110.0
Redemption on long-term domestic government debt[3]	118.7	75.6	51.8	37.7	61.2
Redemption on T-bills[4]	68.6	60.1	42.7	19.7	0.0
Domestic financing requirement[5]	111.4	45.5	11.6	8.7	171.2
Redemption on long-term foreign government debt[6]	7.0	10.5	10.4	19.4	17.9
Redemption on Commercial Paper[4]	0.0	0.0	0.0	0.0	60.3
Financing requirement	118.4	56.0	22.1	28.0	249.4

Source: Central Government Accounts. 2015 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' 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.

Central government's financing requirement, 2005-15 (continued) Table 2

Kr. billion	2010	2011	2012	2013	2014	2015
Current, investment and lending budget	-88.7	-33.1	-75.7	5.8	6,7	na.
On-lending of government loans	1.1	2.9	-7.7	-9.5	24,2	na.
Distributed capital losses on issue and due interest[1]	-1.2	-1.7	-2.5	-1.7	-1,8	na.
Other capital items[2]	-4.9	1.7	4.3	4.2	-6,6	na.
Net cash balance	-93.7	-30.2	-81.6	-1.2	22.6	13.1
Net financing requirement (=-Net cash balance)	93.7	30.2	81.6	1.2	-22.6	-13.1
Redemption on long-term domestic government debt[3]	62.5	63.8	60.2	55.1	54.2	88.2
Redemption on T-bills[4]	0.0	25.5	44.2	44.9	32.3	29.8
Domestic financing requirement[5]	156.2	119.5	186.0	100.1	63.9	104.9
Redemption on long-term foreign government debt[6]	36.5	33.2	32.5	22.1	26.8	22.8
Redemption on Commercial Paper[4]	5.1	4.6	2.5	2.8	2.6	3.7
Financing requirement	197.8	157.2	221.0	125.0	93.2	131.3

Source: Central Government Accounts. 2015 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' 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
Domestic debt	21.5	19.9	22.1
Foreign debt	1.4	0.9	0.6
Interest rate swaps, net	-2.6	-2.5	-1.3
Central government's account at Danmarks Nationalbank	0.0	0.0	0.6
Government funds	-3.6	-2.8	-3.2
Central-government debt	16.7	15.5	18.8
Central-government debt, per cent of GDP	0.9	0.8	0.9
On-lending	-2.9	-2.5	-2.5
Central-government debt, adjusted for on-lending	13.8	13.0	16.4
Central-government debt, adjusted for on-lending, per cent of GDP	0.7	0.7	0.8

Note: A positive sign denotes interest costs. A negative sign denotes interest income.
Source: *Central Government Accounts*. Figures for 2015 are provisional figures from the central government's accounting.

Issuance of domestic central-government securities, 2015

Table 4

ISIN code	Coupon, per cent	Name	Opened	Redemption date	Issuance, kr. million, nominal	Issuance, kr. million, market value
Government bonds						
DK0009922759	2.5	Bullet loan 2016	8 Feb 2011 -	15 Nov 2016	1,930	2,007
DK0009923484	0.25	Bullet loan 2018	21 Oct 2015 -	15 Nov 2018	18,970	19,221
DK0009923138	1.75	Bullet loan 2025	20 May 2014 -	15 Nov 2025	22,145	24,226
DK0009922320	4.5	Bullet loan 2039	11 Nov 2008 -	15 Nov 2039	1,195	2,036
T-bills						
DK0009815243	0	T-bill 2015 I	28 Aug 2014 -	2 Mar 2015	1,260	1,260
DK0009815326	0	T-bill 2015 II	27 Nov 2014 -	1 Jun 2015	3,660	3,662
DK0009815409	0	T-bill 2015 III	26 Feb 2015 -	1 Sep 2015	3,400	3,409
DK0009815599	0	T-bill 2015 IV	28 May 2015 -	1 Dec 2015	9,900	9,917
DK0009815672	0	T-bill 2016 I	28 Aug 2015 -	1 Mar 2016	27,400	27,447
DK0009815755	0	T-bill 2016 II	27 Nov 2015 -	1 Jun 2016	2,440	2,448

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-2015

Table 5.1

Kr. million, nominal value	Outstanding amount end-2014	Issuance 2015	Redemptions 2015	Outstanding amount end-2015	Redemption date	ISIN code
Government bonds, fixed interest rate						
Bullet loans						
4 per cent bullet loan 2015	82,110	-	82,110	-	15 Nov 2015	DK0009921439
2.5 per cent bullet loan 2016	54,320	1,930	2,000	54,250	15 Nov 2016	DK0009922759
4 per cent bullet loan 2017	52,870	-	-	52,870	15 Nov 2017	DK0009921942
0.25 per cent bullet loan 2018	-	18,970		18,970	15 Nov 2018	DK0009923484
4 per cent bullet loan 2019	99,675	-	4,375	95,300	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	67,845	-	5,965	61,880	15 Nov 2023	DK0009923054
7 per cent bullet loan 2024	24,431	-	3,046	21,386	10 Nov 2024	DK0009918138
1.75 per cent bullet loan 2025	41,090	22,145	-	63,235	15 Nov 2025	DK0009923138
4.5 per cent bullet loan 2039	122,765	1,195	-	123,960	15 Nov 2039	DK0009922320
Inflation-linked bonds						
0.1 per cent DGBi 2023[1]	35,531	137	-	35,667	15 Nov 2023	DK0009922916
Amortised loans						
4 per cent amortised loan 2017	14	-	5	10	15 Jun 2017[2]	DK0009902728
Perpetual						
5 per cent Dansk-Islandsk Fond 1918	1	-	-	1	Perpetual	•
Government bonds, fixed interest rate, total	673,148	44,377	97,501	620,023		
T-bills						
T-bill 2015 I	17,480	1,260	18,740	-	2 Mar 2015	DK0009815243
T-bill 2015 II	12,320	3,660	15,980	-	1 Jun 2015	DK0009815326
T-bill 2015 III	-	3,400	3,400	-	1 Sep 2015	DK0009815409
T-bill 2015 IV	-	9,900	9,900	-	1 Dec 2015	DK0009815599
T-bill 2016 I	-	27,400	-	27,400	1 Mar 2016	DK0009815672
T-bill 2016 II	-	2,440	-	2,440	1 Jun 2016	DK0009815755
T-bills total	29,800	48,060	48,020	29,840		
Fisheries Bank of Denmark Bonds						
6 per cent 2016	4	-	3	1	1 May 2016	DK0009604035
7 per cent 2016	8	-	5	3	1 May 2016	DK0009603656
5 per cent 2019	255	-	52	203	1 Nov 2019	DK0009604621
5 per cent 2025	240	-	23	217	1 Nov 2025	DK0009604894
Fisheries Bank Bond, total	507	-	84	424		
Domestic government securities, total	703,455	92,437	145,604	650,287		
Swaps from kroner to dollar	-5,215	-	-1,148	-4,067		
Central-government domestic debt, total	698,240	92,437	144,456	646,220		

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-2015

Table 5.2

ISIN code/loan no[1]	Coupon, per cent	Name	Redemption date	Nominal value, kr. million[2]
Loan				
XS0605536613	2.75	2011/16 euro loan	16 Mar 2016	9,328
XS0921252465	0.375	2013/16 dollar loan	25 Apr 2016	10,245
1641	0.375	2013/16 swap from dollar		-10,245
•	0.006	2013/16 swap to euro		8,578
XS0642551773	3.125	2011/16 Swedish kronor loan	12 Jul 2016	2,234
1485	3.125	2011/16 swap from Swedish kronor		-2,234
•	var.	2011/16 swap to euro		2,243
XS1046173529	0.875	2014/17 dollar loan	20 Mar 2017	10,245
1741	0.875	2014/17 swap from dollar		-10,245
•	0.417	2014/17 swap to euro		8,075
Loan, total				28,223
Other foreign debt		Currency swap in dollar[3]		5,047
Foreign debt, total				33,270

1. ISIN codes are used for loans, and loan numbers are used for swaps.
2. The outstanding amount as of 31 December 2015 is calculated to kroner on the basis of the following exchange rates as of 30 December 2015: euro = 746.25, Swedish kronor = 81.22 and dollar = 683.00.
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, 2015

Table 6.1

Loan number	Issued	Redemption date	Currency	Principal amount, kr. million
1316	9 Jan 2015	30 Dec 2019	Euro	746
11446	10 Dec 2015	9 Sep 2019	Euro	746

Note: On all concluded interest-rate swaps the central government pays a fixed rate and receives 6-month Euribor.

Termination of Existing Interest-Rate Swaps, 2015

Table 6.2

Loan number	Government pays	Termination date	Currency	Principal amount, kr. million
1299	Floating rate	21 Jan 2015	Euro	746
1062	Floating rate	24 Feb 2015	Euro	373
1063	Floating rate	24 Feb 2015	Euro	746
575	Floating rate	5 Mar 2015	Danish kroner	300
577	Floating rate	24 Mar 2015	Danish kroner	300
11449	Floating rate	27 Oct 2015	Euro	746
11447	Floating rate	28 Oct 2015	Euro	746
9258	Fixed rate	17 Dec 2015	Danish kroner	50
11454	Fixed rate	17 Dec 2015	Euro	39

Note: Market values have been exchanged at termination.

Central-government portfolio swaps as of end-2015

Table 6.3

	Krone interest-rate swaps		Euro interest-rate swaps
Expiry year	Net exposure, kr. million	Net exposure, million euro	Net exposure, kr. million[1]
2016	10,000	325	2,425
2017	-	175	1,306
Interest rate swaps, total	10,000	500	3,731

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. In all krone interest-rate swaps the variable payments are calculated on basis of Cibor rates. In all euro interest-rate swaps the variable payments are calculated on basis of Euribor rates.

1. Converted to kroner on the basis of the following exchange rate as of 30 December 2015: euro = 746.25.

On-lending and government guarantees administered by Danmarks Nationalbank, 2011-15

Table 7

Kr. million	2011	2012	2013	2014	2015
On-lending					
CPH City & Port Development	10,050	11,575	11,775	11,775	15,500
Danish Ship Finance	9,573	8,863	7,304	6,748	5,902
DR (Danish Broadcasting Corporation)	3,578	3,522	3,322	3,241	3,140
EKF (Danish Export Credit Agency)	5,297	10,453	14,839	16,670	15,810
Energinet.dk	6,475	11,875	12,572	16,319	18,216
Femern	500	800	1,100	1,550	1,950
Femern Landworks	100	200	400	500	725
Greater Copenhagen Light Rail	-	-	-	-	100
SSI (Statens Serum Institut)	387	387	387	387	387
Sund & Bælt Holding	350	350	450	400	400
The Danish North Sea Fund	344	-	-	-	-
The Financial Stability Company	13,902	13,532	12,862	5,328	800
The Great Belt Bridge	13,115	13,365	13,765	15,711	16,143
The Metro Company	1,750	2,940	5,240	7,090	10,140
Øresund Landworks	7,362	8,712	9,762	10,262	10,062
Ireland	-	1,492	2,984	2,977	2,985
Iceland	3,568	1,485	1,485	-	-
Total	76,351	89,551	98,247	98,959	102,260
Guarantees					
DR (Danish Broadcasting Corporation)	896	876	856	836	816
Femern	-1	-	-	-	-
Femern Landworks	-	-	-	-	-
Sund & Bælt Holding	47	31	23	21	28
The Danish State Railways	7,117	5,889	6,223	5,404	4,632
The Great Belt Bridge	14,403	12,993	11,249	8,905	7,176
Øresundsbro Konsortiet	17,753	18,183	16,425	15,905	15,011
Øresund Landworks	3,561	2,556	1,630	515	456
Total	43,775	40,528	36,406	31,586	28,120

Note: Guarantees are inclusive of guaranteed swaps.