

Danish Government Securities 1997



DANMARKS NATIONALBANK

DANISH GOVERNMENT SECURITIES 1997

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Introduction and Summary

Danish Government Securities 1997 deals with the Danish securities market and the management of the debt of the Kingdom of Denmark.

Danmarks Nationalbank acts as fiscal agent to the Ministry of Finance in the area of central government borrowing, including the formulation and implementation of strategies for both domestic and foreign borrowing. The overall responsibility for the management of the government debt still rests with the Ministry of Finance, but within quarterly guidelines Danmarks Nationalbank is authorised to conduct the necessary debt transactions on behalf of the government.

The Danish Financial Market

The Danish bond market is among the largest in Europe. Besides government bonds, the Danish market has a large volume of mortgage-credit bonds. The large proportion of mortgage-credit bonds is explained by the long-standing Danish tradition of financing construction and private housing by issuing mortgage-credit bonds.

Denmark has a well-functioning money market with liquid trading in instruments such as repos, FRAs and foreign-exchange swaps. The well-functioning market among other things gives easy access to funding for investments.

The central institutions of the market are the Copenhagen Stock Exchange (bond, stock and derivatives trading), the FUTOP Clearing Centre (settlement and guaranteeing of derivatives) - from January 1, 1997 a subsidiary of the Copenhagen Stock Exchange - and the Danish Securities Centre (central securities depository and clearing centre).

There is open access to the Danish securities market for credit institutions and other investment firms from all EU member countries¹⁾. These companies can participate in trading by becoming a remote member of the Copenhagen Stock Exchange and participate in clearing and settlement by becoming a member of the Danish Securities Centre (cross-border clearing and settlement is also available). Companies from

¹⁾ Or countries with which the EU has an agreement on such matters.

other countries may participate in the Danish market through branches established in Denmark.

Government Bonds

The Danish government issues bonds (maturities of 5 to 30 years), Treasury notes (maturities of 1½ to 3 years) and Treasury bills (maturities of 3 to 9 months). The government bonds and Treasury notes are straight bullet loans with annual payment of interest.

It is an important objective to create liquid issues, and the number of issues open for sale has therefore been limited. The 10-year benchmark bond is of a size comparable to those of most important European bond markets.

Government bonds and Treasury notes are sold on tap. In the tap system each securities series is continuously open for sale over an extended period of time - normally several years - and the new issue is continuously added to the existing stock. This system has proved very flexible and has functioned well in both positive and adverse market conditions.

Government Debt Policy

All domestic securities are sold to the market by Danmarks Nationalbank acting as fiscal agent to the Ministry of Finance. The securities are sold via the Copenhagen Stock Exchange, where Danmarks Nationalbank participates as a trader.

The fundamental principle of the Danish government domestic debt policy is that the gross domestic borrowing requirement be covered by the issue of domestic government securities. This modus operandi ensures that the liquidity effects of government spending are neutralised; the monetary policy can therefore pursue its own goals. The principle is formulated on a yearly basis and the accumulated issue of government securities therefore does not have to closely follow the accumulated borrowing requirement within a year.

Besides covering the annual borrowing requirement there are two other central objectives: to minimise the costs of the government debt and to minimise the risk exposure of the debt. The risk exposure is managed through aiming at a duration target taking into account the redemption profile. Furthermore, the government debt policy has a number of

sub-targets, e.g. keeping a continuous and stable presence in the bond market.

What is New in this Year's Edition?

The government domestic issue portfolio has been extended to include an 8-year bond, cf. Section 2.2. At the same time the fixed Treasury note programme has been discontinued, although it is the intention to maintain regular issue activity in the short-term maturity segment, cf. Section 2.3.

This year's edition of *Danish Government Securities* has been extended to include a chapter describing the government foreign debt policy.

The Structure of this Booklet

Chapter 1 provides an overview of the domestic debt policy as well as the issue activity in 1996. Chapter 2 details the types of domestic government securities and the issue in 1996. Chapter 3 describes the tap issue technique and explains the deliberations behind the planning of the issue. Chapter 4 gives a broader overview of the securities types and institutions of the Danish securities market. Chapter 5 provides an overview of the foreign debt policy as well as the activity in 1996.

Chapter 1.

Domestic Debt Management

1.1. The Domestic Borrowing Requirement

The central government's net deficit (on a cash basis) is expected to be DKK 3.7 billion in 1997 (0.4 per cent of GDP). The redemption of domestic debt amounts to DKK 65.3 billion. The gross domestic borrowing requirement is thus DKK 69.9 billion in 1997.

The 1997 gross borrowing requirement is DKK 24.8 billion less than DKK 94.7 billion in 1996, cf. Table 1.1.1. This decline can mainly be explained by a decrease in the CIL deficit¹⁾ of DKK 19.1 billion. In 1995 the gross borrowing requirement was DKK 138.8 billion.

Table 1.1.1. The central government's net and gross deficit.

DKK billion	1993	1994	1995	1996	1997
Deficit on the current, investment and lending account (CIL) ..	-48.4	-39.7	-31.3	-25.0	-5.9
Capital items	3.2	-9.7	-7.3	4.6	2.1
<i>Net deficit (cash basis)</i>	<i>-45.3</i>	<i>-49.4</i>	<i>-38.5</i>	<i>-20.4</i>	<i>-3.7</i>
Redemption of domestic debt:					
Bonds	38.0	50.5	48.4	38.7	11.3
Treasury notes	36.3	22.5	56.1	38.0	54.0
Redemption of foreign debt	16.7	13.1	28.5	30.8	23.2
<i>Gross deficit (cash basis)</i>	<i>-136.3</i>	<i>-135.5</i>	<i>-171.5</i>	<i>-127.9</i>	<i>92.3</i>
Gross domestic borrowing requirement ¹⁾	119.2	119.8	138.8	94.7	69.9

Note: Figures for 1996 are preliminary. Figures for 1997 are based on the Finance Act.

¹⁾ Gross deficit less redemption of foreign debt and securities bought back from the market and held by the government.

¹⁾ Deficit on the current, investment and lending account.

Monthly figures for the net and gross deficit are given in Table 4 of the Appendix. As stated in the norm for domestic borrowing (the agreement between the government and Danmarks Nationalbank, cf. Box 1.1.1.) the issue of DKK-denominated domestic securities during a year should cover the total domestic borrowing requirement of that year. The deficits for the individual months are, however, not necessarily as closely matched, cf. Chapter 3.

The exact domestic borrowing requirement is known only at the very end of the year, and minor differences between the actual borrowing and the borrowing requirement are therefore unavoidable. The borrowing requirement and the differences for 1993-1996 are shown in Table 1.1.2.

Table 1.1.2. Central-government domestic borrowing and gross domestic borrowing requirement.

DKK billion	1993	1994	1995	1996
Central-government domestic borrowing, market value	120.9	119.6	137.2	96.0
Gross domestic borrowing requirement	119.2	119.8	138.8	94.7
Difference	1.7	-0.2	-1.6	1.2

Government securities may be bought back from the market and cancelled (extraordinarily redeemed) in order to reduce redemptions on later dates - within a year or between years. In 1996 securities maturing in 1997 with a nominal value of DKK 5.8 billion were bought back and cancelled, cf. Section 2.5.

1.2. Objectives of the Government Debt Policy

The central government's domestic borrowing requirement shall be covered by issuing domestic government securities denominated in DKK. This has been agreed between the government and Danmarks Nationalbank for nearly 15 years and ensures that the liquidity effects of government spending are neutralised, cf. Box 1.1.1.

Box 1.1.1. The central-government borrowing norm.

The size of the borrowing of any given year is determined by the *central-government borrowing norm* which is an agreement between the government and Danmarks Nationalbank. The agreement is composed of two parts: a norm for domestic borrowing and a norm for foreign borrowing.

The norm for domestic borrowing states that the issuance of domestic DKK-denominated securities within a year should match the gross borrowing requirement of that year (the gross borrowing requirement being defined as the gross deficit on a cash basis less redemptions on foreign debt).

The norm for foreign borrowing states that redemptions on the foreign debt should be matched by new foreign borrowing.

The norm for domestic borrowing

The norm for domestic borrowing constitutes a firm quota for issuance of domestic DKK-denominated debt and is an important element of the dividing line between fiscal and monetary policy. The norm for domestic borrowing ensures that - for the year taken as a whole - the central government's domestic payments do not affect the domestic liquidity (the banks' net position with Danmarks Nationalbank). At the same time, the norm for domestic borrowing helps the market to predict the volume and timing of the issuance with a certain degree of accuracy.

When timing the domestic issuance within a year the liquidity position of the banking sector is taken into consideration together with the market situation. The balance of the central government's account with Danmarks Nationalbank is also considered: this balance should be positive at all times. This is a consequence of Article 104 of the Maastricht Treaty which prohibits monetary financing.

An integral part of the norm for domestic borrowing is that Danmarks Nationalbank in the market buys the foreign currency needed to cover the central government's current expenses in foreign currency, including interest payments on the foreign debt. This ensures that the liquidity effects of all central government payments are neutralised. Although the issue of domestic government securities exceeds the domestic deficit the liquidity effect is neutralised by the buying of foreign currency (in the market) to finance the central government's foreign interest payments.

The norm for foreign borrowing

The norm for foreign borrowing implies that redemptions on the foreign debt - including securities bought back from the market and early redemptions - is refinanced by foreign borrowing.¹⁾

Taken together the foreign and domestic norms ensure that the central government's total foreign payments do not effect the foreign-exchange reserve.

It is possible to deviate from the norm for foreign borrowing. The purpose of the central government's foreign borrowing is to maintain an adequate foreign-exchange reserve. Situations may arise where substantial amounts of foreign currency are required for intervention purposes or, conversely, the foreign-exchange reserve has risen beyond what is deemed to be necessary. If the foreign-exchange reserve rises beyond the desired level, the norm for foreign borrowing can be reduced should the balance on the central government's account with Danmarks Nationalbank leave room for such a reduction.

¹⁾ Bonds bought back from the market of the domestic XEU issue (8.5% 1992/2002) are also covered by the norm for foreign borrowing.

The purpose of the central government's foreign borrowing is to maintain an adequate foreign-exchange reserve. The proceeds are added to the government's deposits with Danmarks Nationalbank. Redemption of foreign loans is normally covered by new foreign loans, according to the agreement between the government and Danmarks Nationalbank. The foreign borrowing is described in more detail in Chapter 5.

Besides covering the annual borrowing requirement the central objective of the domestic government debt policy is to minimise the cost of the government debt. This is achieved in several ways, one of the most important being to ensure that government issues are attractive to investors. It is therefore considered important that the government issues become very liquid. The supply of government securities is therefore focused on a limited number of issues.

Another important objective of the management of the government debt is to aim at a duration target and to obtain a suitable redemption profile. This is discussed in more detail in Section 1.7.

In addition to these targets, debt management is aimed at a number of sub-targets. It is considered important to issue regularly and transparently since the tap-issue system (see Chapter 3) necessitates a continuous and stable presence in the bond market. This means continuous issue of a variety of government securities of different maturities.

1.3. Yields on Danish Government Securities

In 1996 the yield on 10-year government bonds began at a level of around 7.2 per cent and then moved up in the first two months, reaching a level of around 7.7 per cent in March. It thereafter moved steadily down to a level of 6.5 per cent at the end of the year, cf. Chart 1.3.1.

The development in interest rates in 1996 followed the international interest-rate trends. The 10-year yield spread vis-à-vis Germany narrowed from a level of around 1.2 percentage points to a level of 0.8 percentage points.

Yields on Treasury notes fell from around 5.5 per cent at the beginning of the year to around 4.0 per cent at year-end, cf. Chart 1.3.2. The Danish yield curve became slightly steeper in 1996.

Chart 1.3.1. Danish 10-year government bond yields and 10-year yield spread vis-à-vis Germany, 1993-1996.

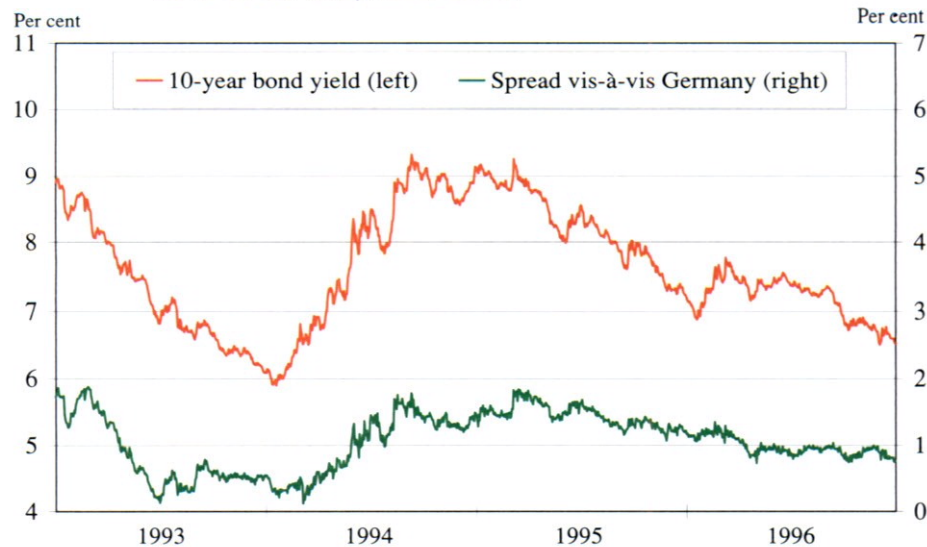
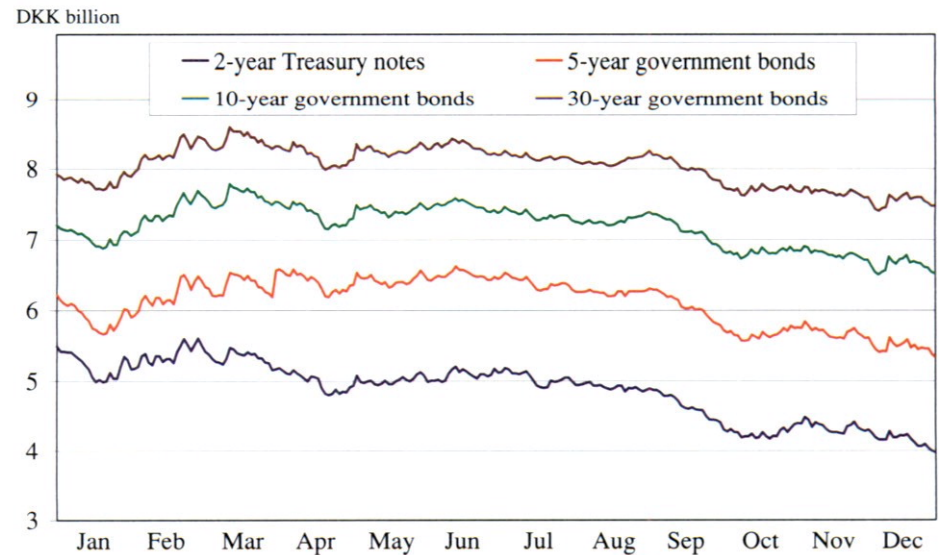


Chart 1.3.2. Yields on Danish government securities, 1996.



1.4. The Issue of Government Securities in 1996

In 1996 87 per cent of the nominal issue was of 5, 10 and 30-year bonds, cf. Table 1.3.1. This proportion was quite high compared to the level of the previous years. The net borrowing in Treasury bills was negative as the total outstanding volume of Treasury bills was reduced in 1996.¹⁾ The issue of these instruments in 1996 is described further in Chapter 2.

Table 1.4.1. The distribution of gross domestic borrowing at nominal value.

Per cent ¹⁾	1993	1994	1995	1996
Government bonds, fixed interest rate	50	71	66	87
Treasury notes	47	31	32	20
Treasury bills, net	2	-2	1	-7
Total	100	100	100	100

1.5. The Government Debt

The Danish central-government debt was DKK 599 billion or 59.3 per cent of GDP at the end of 1996, cf. Table 1.5.1. This was an increase of DKK 21 billion on 1995.

Table 1.5.1. Central-government debt. Nominal value, end of year.

DKK billion	1993	1994	1995	1996	1997
Central-government debt:					
Domestic	562.2	617.8	657.7	677.7	684.0
Foreign	164.3	129.8	105.6	101.5	101.6
Total	726.5	647.6	763.3	779.2	785.6
Liquid assets:					
The Social Pension Fund	-138.4	-146.8	-151.4	-148.8	147.0
Deposits with Danmarks Nationalbank	-89.8	-55.3	-33.7	-31.7	31.7
Central-government debt less liquid assets	498.3	545.5	578.3	598.8	607.0
Per cent of GDP	57.0	58.7	59.6	59.3	57.2

Note: + denotes liabilities, - denotes assets. Figures for 1996 are preliminary. Figures for 1997 are based on the Finance Act for 1997.

¹⁾ This was mainly caused by the buying and subsequent cancellation of Treasury bills maturing in 1997, cf. Section 2.5.

The Maastricht Treaty of the European Union focuses on the public-sector debt. The public-sector debt is specified in Box 1.5.1.

Box 1.5.1. Public-sector debt - Maastricht definition.

In the Maastricht Treaty of the European Union, Article 104C, it was agreed that on entering the second phase of EMU on January 1, 1994 the member states shall avoid excessive budget deficits. The exact definitions of excessive deficits are set out in a protocol to the Maastricht Treaty and in Council Regulation No 3605/93, stating a public-sector deficit of 3 per cent of GDP and a public-sector debt of 60 per cent of GDP as criteria.

The consolidated public-sector debt at the end of 1996 is estimated at DKK 706 billion, amounting to 70 per cent of GDP. This is a decrease from 72 per cent of GDP in 1995.

The gross debt figures should be adjusted for the amounts outstanding for the financing of public undertakings. The Council of the European Union and the European Commission have furthermore agreed that for Denmark government deposits with Danmarks Nationalbank and the assets held by the Social Pension Fund against sectors outside the general government shall be specified in the presentation of the stock of public debt (the Social Pension Fund's holdings of government securities are deducted directly on calculating the consolidated public-sector debt). These deductions amount to DKK 115 billion in 1996, implying a debt of 58 per cent of GDP at the end of 1996.

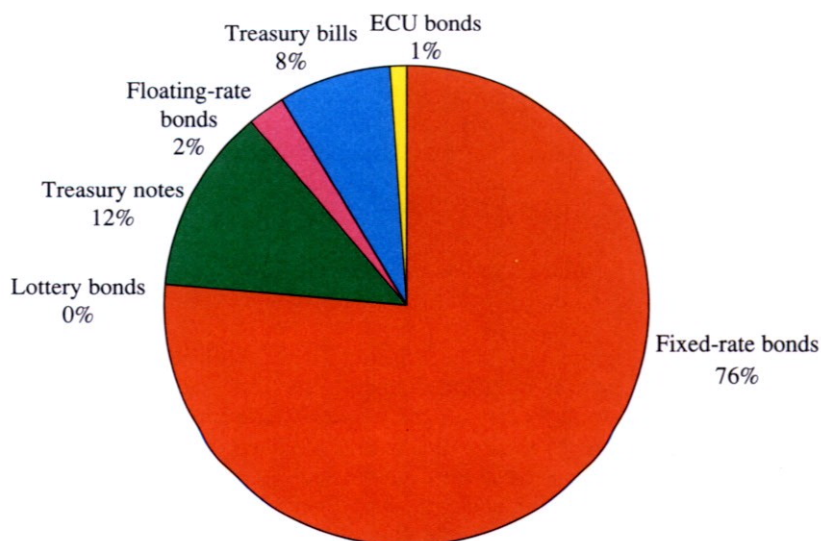
Table 1. Public-sector debt.

DKK billion	1993	1994	1995	1996
The consolidated gross debt of the public sector .	701	705	698	706
Per cent of GDP	80	76	72	70

Source: Ministry of Economic Affairs, Economic Survey, December 1996.

Chart 1.5.1. shows the domestic central-government debt by securities types at the end of 1996. Of the total debt, 76 per cent of the nominal value is fixed-interest-rate government bonds.

Chart 1.5.1. Domestic central-government debt by securities types. End of 1996.



1.6. Holders of Government Securities

The distribution of holders of Danish government securities has been estimated by Danmarks Nationalbank on the basis of figures from Statistics Denmark (the Danish central statistics agency). The results are shown in Table 1.6.1.

Danish financial institutions' holdings of government securities decreased by DKK 28 billion in 1996 and at year-end amounted to 20 per cent of the domestic government debt, down from 25 per cent in 1995.

The holdings of the household sector decreased by DKK 14 billion and at the end of 1996 amounted to 8 per cent of the domestic government debt.

A significant proportion of Danish government securities are held by non-residents. Danish government securities are included in many of the international portfolios managed in accordance with the government bond indices published by some of the major international banks.¹⁾

Holdings of Danish domestic government securities by non-residents increased by DKK 33 billion in 1996 to DKK 252 billion at

¹⁾ The indices typically include Danish government bonds corresponding to 1-2 per cent of the total (world) index value.

year-end. The proportion of the domestic debt held by non-residents thus increased to 35 per cent at year-end compared to 32 per cent at the beginning of the year.

Table 1.6.1. Holders of government securities. Market value, end of quarter.

DKK billion	4th qtr. 1995	1st qtr. 1996	2nd qtr. 1996	3rd qtr. 1996	4th qtr. 1996
Non-financial corporate sector	45.1	40.9	44.7	42.8	43.9
Financial institutions incl. Danmarks Nationalbank	171.8	146.7	168.5	167.9	143.7
Insurance companies and pension funds	40.1	40.7	46.8	53.9	51.0
Public sector	106.4	116.0	124.2	131.5	132.4
Private, non-dividend-paying institutions	10.9	10.2	11.0	12.1	10.9
Household sector	71.8	64.6	67.0	65.2	57.7
Non-residents	218.4	243.6	236.1	236.8	251.6
Other	11.2	18.0	12.9	12.7	19.5
Total ¹⁾	675.7	680.8	711.2	722.9	710.8

¹⁾ Excluding the holdings of the Ministry of Finance under the location-swap facility.

1.7. Duration Target and Redemption Profile

An important objective of the management of the domestic government debt is to aim at a duration target. The duration target gives a broad measure of the risk exposure of the debt. It is the intention at present, as it has been through 1996, to keep the duration of the debt at a level of around 4 years. This goal was achieved in 1996, cf. Chart 1.7.1. The duration¹⁾ was 4.1 years at the end of 1996, cf. Table 1.7.1.

The management of the foreign debt is discussed in more detail in Chapter 5.

¹⁾ Macauley-type duration is used.

Chart 1.7.1. The duration of the domestic debt in 1996. Monthly data.

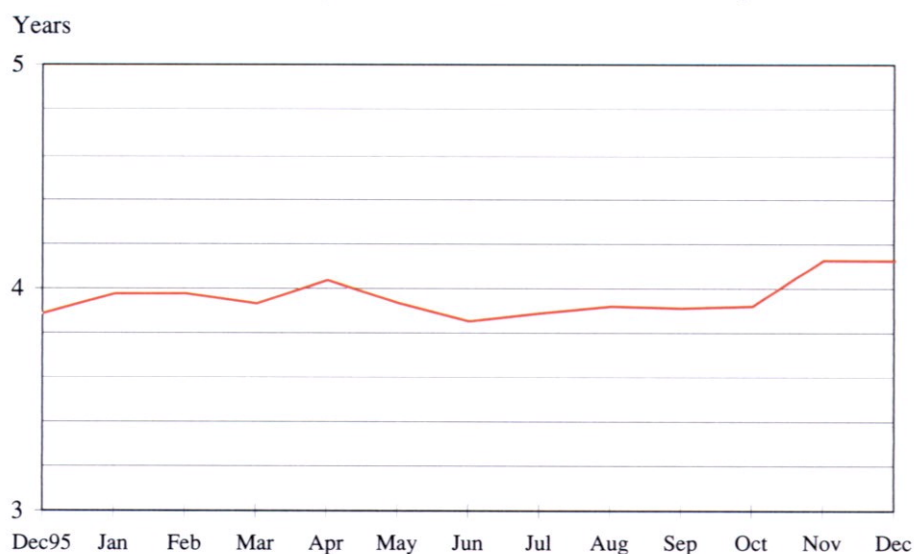
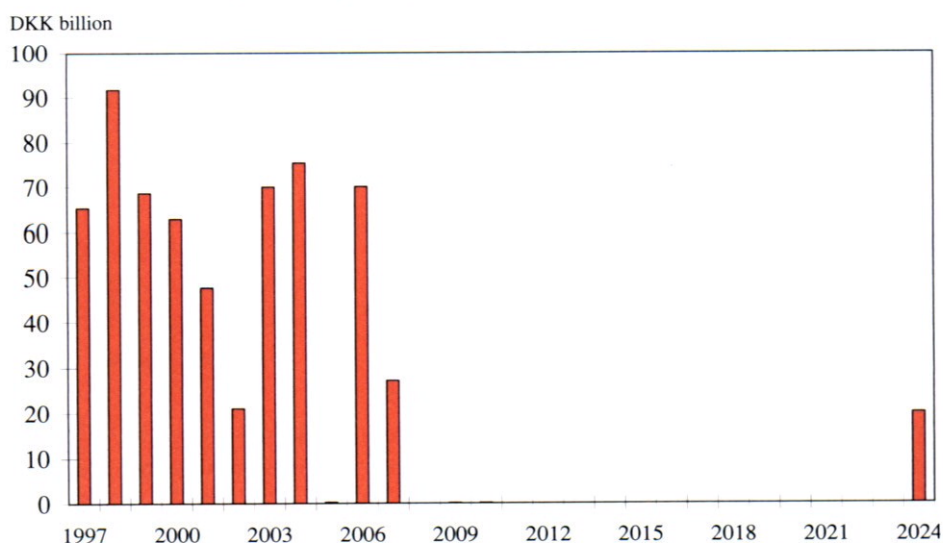


Table 1.7.1. Duration and average remaining time to maturity of the domestic government debt. End of year.

Years	Duration		Average remaining time to maturity
	Total debt	Fixed-rate debt	
1991	2.3	2.8	3.6
1992	2.8	3.2	4.2
1993	3.3	3.5	4.2
1994	3.3	3.4	4.4
1995	3.9	4.0	5.0
1996	4.1	4.2	5.3

As the duration target only gives a broad measure of the risk exposure the redemption profile of the debt is also taken into consideration. It is preferred that the redemption profile of the overall debt be as smooth as possible (i.e. the redemptions should not be too concentrated on any individual year) in order, among other things, to control the re-financing risk of the debt. The redemption profile is shown in Chart 1.7.2.

Chart 1.7.2. Redemption profile of the domestic government debt. End of 1996.



1.8. Sources of Information

The borrowing requirement for 1997 was presented in the Finance Act for 1997 (the government's budget). The Finance Act was approved by Parliament in December 1996. Revised estimates of the government deficit are published by the Ministry of Finance - normally in May, August, October and December.

The Finance Bill for 1998 will be presented in August 1997, and the Budget would normally be approved by Parliament in December 1997. Information on the Finance Bill and the Budget will be available from the Ministry of Finance on telephone +45 33 92 33 33, telefax +45 33 32 80 30 or e-mail fm@fm.dk.

On the basis of the quarterly government deficit figures from the Ministry of Finance Danmarks Nationalbank estimates and publishes the government's net and gross borrowing requirements distributed on individual months as well as on individual days (for 2 months at a time). This information is available via fax on request.

Information on the daily issue and figures for the borrowing requirement and other information on the issue of government securities are available through several channels according to subject and the frequency of the information.

Figures on the daily issue of government securities are available on Reuters. On the morning of each trading day Danmarks Nationalbank publishes the nominal value of the issue on the previous trading day, as well as the accumulated issue from the beginning of the year. This information can be found on Reuters, pages DKMA-DKMB.

The actual gross domestic borrowing requirement of a month is published on the first trading day of the next month. This information can be found on Reuters, pages DKMG-DKMH.

The market value of the issue in a month is published on the first trading day of the next month via the Copenhagen Stock Exchange. This information is also available from Danmarks Nationalbank via fax on request and via Reuters, pages DKMG-DKMH.

Information on the result of Treasury-bill auctions is published at 1.00 p.m. on the penultimate trading day of each month on Reuters, pages DKME-DKMF.

A list of current issues open for sale is published biannually via the Copenhagen Stock Exchange and is also available from Danmarks Nationalbank via fax on request.

Questions concerning the issue of Danish government securities, the borrowing requirement or other aspects of Danish debt policy should be directed to Danmarks Nationalbank, Financial Markets Department, Government Debt Section, telephone +45 33 63 63 63, or telefax +45 33 63 71 15.

Table 1.8.1. Sources of information.

Subject	Frequency	Source
Borrowing requirement, year total	Quarterly	Ministry of Finance
Borrowing requirement, monthly distribution	Quarterly	Danmarks Nationalbank
Borrowing requirement, daily distribution	Monthly	Danmarks Nationalbank
Actual borrowing requirement (ex post)	Monthly	Reuters DKMG-DKMH
Issue (nominal)	Daily	Reuters DKMA-DKMB
Issue (market value)	Monthly	Reuters DKMG-DKMH
Result of Treasury-bill auctions	Monthly	Reuters DKME-DKMF
Current issues open for sale	Biannually	Danmarks Nationalbank
Questions on the aforementioned or other aspects of Danish debt policy		Danmarks Nationalbank

Chapter 2.

Government Securities

2.1. Types of Danish Government Securities

The government currently issues fixed-rate bullet bonds with maturities of 5, 8, 10 and 30 years, Treasury notes with maturities of 1½ to 3 years and Treasury bills with maturities on issue ranging between 3 and 9 months.

All domestic government securities are marketable and listed on the Copenhagen Stock Exchange. All bonds and Treasury notes are sold on tap. The tap-issue system is explained in more detail in Chapter 3. Treasury bills are sold at monthly auctions. The securities types are described in more detail in the sections below.

2.2. Government Bonds

The current issues are straight bullet bonds in denominations of DKK 1,000 with annual payment of interest.¹⁾ The bonds may not be called by the issuer prior to ordinary redemption. Danmarks Nationalbank may, however, on behalf of the Ministry of Finance buy back securities from the market and cancel (or hold) those securities, cf. Section 2.5.

Usually bond series are issued on tap for a period of 1-3 years.²⁾ New issues are continuously added to the existing stock and the newly issued bonds in each series are fungible with (exactly equal to) the bonds in that series already traded in the market. Due to the practice of adding to the issue over an extended period of time, the issue price may deviate significantly from par during the issue period.

There are no formal rules concerning the length of the period in which a particular bond is issued. It may be decided to discontinue issue in a particular series, resume issue in a series or open a new series for issue. The market is informed of such changes in good time.

¹⁾ The yield-calculation convention used is specified in Annex A of this Chapter.

²⁾ 7% government bonds 2024 is, however, expected to be open for issue for a longer period due to the long maturity. Other series may also be open for issue in periods exceeding 3 years.

It should be noted that the coupon rate must always be greater than or equal to the minimum coupon rate in force at the time of issue, cf. Box 2.2.1. An increase in the minimum coupon rate can thus lead to issue of individual bond series being discontinued.

Box 2.2.1. The minimum-coupon-rate rule.

The coupon rate of Danish government bonds and Treasury notes shall at the time of issue exceed or equal a so-called "minimum coupon rate" which is calculated according to the Danish Capital Gains Tax Act. This rule is known as the "minimum-coupon-rate rule".

It is defined in the conditions of the government securities series that all interest-bearing government securities must satisfy the minimum-coupon-rate rule on issue. Changes in the minimum coupon rate may, therefore, force issuing in a series to be discontinued before the desired volume is reached.

For private individuals in Denmark, capital gains on securities are not subject to taxation provided that on issue the securities satisfy the minimum-coupon-rate rule. These rules are of no taxation significance to non-resident investors.

The minimum coupon rate is fixed biannually (January 1 and July 1). The calculation is based on a "reference yield" that is calculated and published daily by the Copenhagen Stock Exchange. The minimum coupon rate is the integer of 7/8 of the average of the reference yield over a period of 20 trading days before June 15 and December 15 respectively.

The minimum coupon rate may be adjusted extraordinarily if the reference yield during a 10-day period is more than 1 per cent lower or 2 per cent higher than the reference yield used to calculate the current minimum coupon rate. A new minimum coupon rate is then fixed until the next ordinary adjustment.

At the beginning of 1996 the minimum coupon rate was 6 per cent. On October 22, 1996 the minimum coupon rate was lowered extraordinarily to 4 per cent. This level was maintained at the ordinary fixing on January 1, 1997.

For a number of years it has been an objective of Danish domestic debt policy to create issues with characteristics that investors in Denmark and abroad consider attractive. A central element of this strategy is to focus bond issues on straight bullet loans with one annual interest payment. Another element is to create liquid issues which can be traded efficiently, domestically as well as internationally.

The size of the issues has thus increased considerably during the last 5 years, and the most important issues are very liquid by all standards. So far, the 5-year government bond series have typically reached volumes of DKK 40-60 billion and the 10-year government bond series volumes of DKK 60-80 billion.

Today, the government has liquid securities series¹⁾ maturing in every year from 1997 to 2005, cf. Chart 1.7.2. The domestic debt strategy has therefore, in a sense, left a build-up phase. As an effect of this - and expected reductions in the domestic borrowing requirement - the sizes of new issues may be at a slightly lower level in the years to come.

The most important government bonds are shown in Table 2.2.1.

Table 2.2.1. The most important government bonds at the beginning of 1997.

DKK billion	Due date	First issued	Issue discontinued	Amount issued in 1996	Size of series ¹⁾
7% 2024	Nov. 10	Apr. 6, 94	Still open	5	20
7% 2007	Nov. 15	Apr. 10, 96	Still open	27	27
8% 2006	Mar. 15	Dec. 5, 94	Apr. 10, 96	17	70
5% 2005	Aug. 15	Jan. 14, 97	Still open	-	-
7% 2004	Dec. 15	May 25, 93	Dec. 5, 94		75
8% 2003	May 15	Jan. 2, 92	Dec. 30, 93		69
6% 2002	Nov. 15	Jun. 18, 96	Still open	20	20
8% 2001	Nov. 15	Jan. 9, 95	Jun. 18, 96	8	44
9% 2000	Nov. 15	Jan. 2, 90	Dec. 30, 92		59
6% 1999	Dec. 10	Apr. 14, 94	Jul. 2, 96 ²⁾	8	49
9% 1998	Nov. 15	Jan. 2, 89	Mar. 31, 94 ³⁾		59

Note: Excluding the holdings of the Ministry of Finance under the location-swap facility.

¹⁾ At the end of 1996.

²⁾ There has been issue in 6% government bonds 1999 in 2 separate periods.

³⁾ There has been issue in 9% government bonds 1998 in 2 separate periods.

On June 18, 1996 a new 5-year bond, 6% government bonds 2002 (maturing November 15, 2002), was opened. Approximately DKK 20 billion has been issued in this series in 1996 and issue continues in 1997. This issue is expected to become the 5-year benchmark in the Danish market in 1997. It will then replace the current 5-year benchmark, 8% government bonds 2001 (redemption on November 15, 2001).

On January 14, 1997 an 8-year bond, 5% government bonds 2005 (maturing August 15, 2005), was opened. This was the first time an 8-year bond was issued. The new issue was opened in order to secure an issue with a coupon in line with the interest-rate level at that time and to increase the overall flexibility of the debt management. The due date in

¹⁾ Or securities series currently open for sale and on their way to become liquid.

2005 was chosen to ensure a smooth redemption profile for the government debt. The 8-year bond may become the 5-year benchmark in a few years' time when the remaining time to maturity is at a level of around 5-6 years.

The 10-year government bond has been the undisputed benchmark in the Danish bond market since 1991. The current 10-year benchmark,¹⁾ 8% government bonds 2006 (maturing on March 15, 2006), has a size of DKK 70 billion.

On April 10, 1996 a new 10-year bond, 7% government bonds 2007 (maturing on November 15, 2007), was opened. Approximately DKK 27 billion has been issued in this series in 1996 and issue in this series continues in 1997. The size is expected to reach a level comparable to that of the most important European government bond markets.

The 30-year government bond, 7% government bonds 2024 (maturing on November 10, 2024), was launched in 1994 to help increase the duration of the domestic debt. Although it is the intention to make this issue liquid in line with the general issue strategy, the issue period may be longer for this particular series due to the very long maturity. At the end of 1996 7% government bonds 2024 had reached a volume of around DKK 20 billion. The issue in this series continues in 1997.

2.3. Treasury Notes

Treasury notes have the same characteristics (denominations of DKK 1,000, fixed interest rate and annual interest payment) as government bonds. Treasury notes are, however, shorter than bonds as their maturity on issue is normally around 1½-3 years.

Treasury notes are normally issued for one year. The coupon is set at approximately 1 percentage point below the average secondary market yield on government securities with a residual maturity of 1 to 4 years, but at least equivalent to the minimum coupon rate at the time of opening of the series.

As from 1997 the previous fixed Treasury-note programme has been discontinued in order to increase the flexibility of debt management and ensure a smooth redemption profile for the government debt. It is, however, the intention to maintain regular issue activity in the short-term maturity segment of the Danish market.

¹⁾ The current benchmark is chosen by the Danish Securities Dealers Association. The benchmark is - among other things - used as the basis for futures and options, cf. Section 4.5.

On January 7, 1997 a new series of Treasury notes, 4.00% Treasury notes 2000 I (maturing on February 15, 2000), was opened. 6.00% Treasury notes 1999 I (maturing on February 15, 1999) was opened on July 2, 1996 and the issue in this series continues in the first six months of 1997.

Table 2.3.1. Treasury notes at the beginning of 1997. Nominal amounts, end of January.

DKK billion	Due date	First issued	Issue discontinued	Amount issued in 1996	Size of series ¹⁾
4.00% 2000 I	Feb. 15	Jan. 7, 97	Still open	-	5
6.00% 1999 I	Feb. 15	Jul. 2, 96	Still open	10.0	11
7.00% 1998 I	Feb. 15	Jul. 3, 95	Jul. 2, 96	9.8	21
7.00% 1997 II	Aug. 15	Jan. 4, 95	Dec. 29, 95		36
6.25% 1997 I	Feb. 10	Jul. 1, 94	Dec. 30, 94		18

¹⁾ Excluding holdings of the Ministry of Finance under the location-swap facility, cf. Section 4.6.

2.4. Treasury Bills

Treasury bills are zero-coupon securities issued in denominations of DKK 1 million in a regular programme.¹⁾ The Treasury bills are sold at monthly auctions by Danmarks Nationalbank.

New Treasury bill series with maturities of 9 months are opened at the beginning of January, April, July and October. New tranches of the series are issued at subsequent auctions, while the remaining time to maturity of the series decreases from 9 to 3 months. There is no issue of bills with a remaining time to maturity of less than 3 months. As a new series is opened every 3 months, the auction calendar implies that there are always 3 issues in the market.

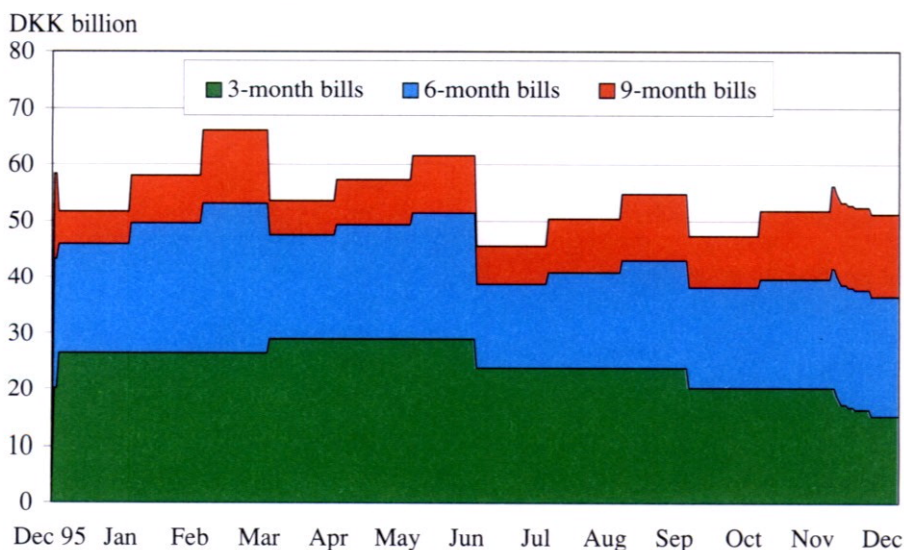
The auctions are held by Danmarks Nationalbank on the penultimate banking day of each month, with settlement on the first banking day of the following month (2 trading days is the normal settlement period for Danish Treasury bills, against 3 trading days for other securities). Bids may be submitted by banks and stockbroking companies either for their own account or for the account of customers. Danmarks Nationalbank is

¹⁾ The Danish convention for calculating the yield-to-maturity is specified in Annex A of this Chapter.

currently developing an automated auction system intended to make the auction process more effective.

The auctions in March, June, September and December are settled on the redemption dates for maturing issues. As a consequence the amount bid for, and the amount sold, at these auctions are normally much larger than at the other auctions. The outstanding volume in Treasury bills in 1996 is shown in Chart 2.4.1.

Chart 2.4.1. Outstanding volume of Treasury bills, 1996.



The volume of Treasury bills was gradually built up in the beginning of the 1990's. In the past few years, the outstanding volume has been relatively stable, and no major variations in the outstanding volume are expected in 1997.

2.5. Government Securities Issued in 1996

The total issue of Danish government securities in 1996 is shown below in Table 2.5.1.

Table 2.5.1. Issue of domestic government securities in 1996.

DKK million	Amount issued		Outstanding amount, end of 1996 ¹⁾
	Nominal value	Market value	
7 % government bonds 2024	5,130	4,581	20,045
7 % government bonds 2007	27,045	26,366	27,045
8 % government bonds 2006	17,240	18,113	70,000
6 % government bonds 2002	19,562	19,143	19,562
8 % government bonds 2001	8,000	8,564	44,135
6 % government bonds 1999	7,950	8,050	49,300
Bonds, fixed interest rate	84,927	84,817	
7,00 % Treasury notes 1998 I	9,800	10,171	21,200
6,00 % Treasury notes 1999 I	10,000	10,236	10,000
Treasury notes	19,800	20,407	
Treasury bills 1997 III	14,686	14,311	14,686
Treasury bills 1997 II	21,373	20,900	21,373
Treasury bills 1997 I	20,185	19,748	15,175
Treasury bills 1996 IV	23,950	23,389	
Treasury bills 1996 III	13,861	13,628	
Treasury bills 1996 II	3,388	3,350	
Redemptions ²⁾	104,594	104,582	
Treasury bills, net	-7,151	-9,256	
Government securities, total	97,576	95,968	

¹⁾ Excluding the holdings of the Ministry of Finance under the location-swap facility.

²⁾ Including securities bought back and cancelled (extraordinarily redeemed prior to ordinary redemption).

As mentioned in Section 1.1., government securities may be bought back from the market and cancelled (redeemed extraordinarily) in order to reduce redemptions on later dates. In 1996 DKK-denominated securities maturing in 1997 with a nominal value of DKK 5.8 billion were bought back and cancelled, cf. Table 2.5.2.

In 1997 DKK-denominated securities maturing in 1997 and 1998 may be bought back and cancelled.

Table 2.5.2. *Securities bought back and cancelled in 1996.*

DKK million	Amount bought back		Outstanding amount, end of 1996 ¹⁾
	Nominal value	Market value	
6.25% Treasury notes 1997 I	700	702	17,617
Floating-rate notes 1997	100	100	6,362
Treasury bills 1997 I	5,010	4,998	15,175
Government securities, total	5,810	5,800	

¹⁾ Excluding the holdings of the Ministry of Finance under the location-swap facility.

2.6. Current Issues Open for Sale

The series of domestic government securities open for sale at the beginning of 1997 are summarised in Table 2.6.1.

Table 2.6.1. *Current issues open for sale. January 1997.*

	Due date	Redemption
<i>Government bonds:</i>		
7% Government bonds 2024	November 10	2024
7% Government bonds 2007	November 15	2007
5% Government bonds 2005	August 15	2005
6% Government bonds 2002	November 15	2002
<i>Treasury notes:</i>		
4.00% Treasury notes 2000 I	February 15	2000
6.00% Treasury notes 1999 I	February 15	1999
<i>Treasury bills:</i>		
Treasury bills 1997 IV	October 1	1997
Treasury bills 1997 III	July 1	1997
Treasury bills 1997 II	April 1	1997

Annex A

Yield Calculation for Danish Government Securities

Treasury Notes and Government Bonds

Definitions and Conventions

- No odd first or last coupon
- Price/yield method is based on ISMA conventions
- 1 month = 30 days (European), 1 year = 360 days
- Calculation of accrued interest: see example below

Calculation of Accrued Interest

Danish government bonds and Treasury notes traded outside due dates are settled according to normal practice in the Danish bond market. These rules also apply on issue.

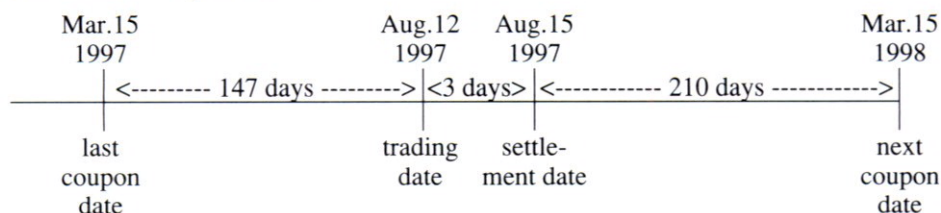
This means - in most of a coupon period - that bonds are issued on a cum-coupon basis, i.e. the buyer of the bond receives full payment of interest on the forthcoming due date. The seller (at issue: the government) is compensated for this by receiving accrued interest from the purchaser of the bond from the last coupon date to settlement of the trade. This also goes for a situation where the bond series was not open on the previous coupon date.

However, this rule does not apply when the bond enters the ex-coupon period 30 days before an interest payment date. For bonds sold in this period the seller receives the full coupon payment on the next interest-payment date and the buyer is compensated (i.e. accrued interest is negative). In the period from 30 days before an interest-payment date to the actual interest-payment date, accrued interest is calculated backwards from the interest-payment date to the settlement date.

Example:

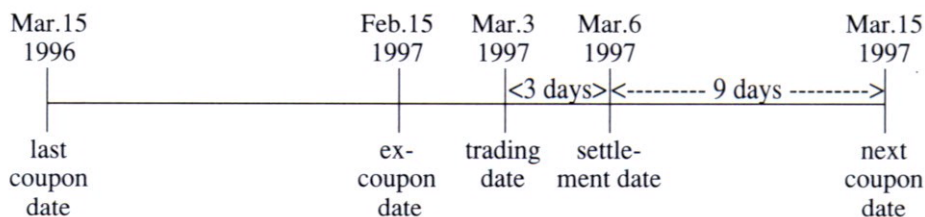
Issue: 8% government bonds 2006
Interest-payment date: March 15
Maturity date: March 15, 2006
First issue date: December 5, 1994
Coupon: 8 per cent

Bond sold on August 12, 1997



The accrued interest for a bond sold on August 12 and settled on August 15 is:
 $(150/360) \times 8\% = 3.33\%$.

Bond sold on March 3, 1997



The accrued interest for a bond sold on March 3 and settled on March 6 is:
 $-(9/360) \times 8\% = -0.20\%$.

Yield Calculation

The yield, or yield to maturity, is found as the internal rate of return on the cash flow of the bond including the price paid, along with accrued interest. The specific calculation then depends on how the cash flow is laid out for different types of bond.

The general formula is

$$(A.1) \quad P + A = \sum C_t \times (1+i)^{-(t-t_0)}$$

where i = Yield
 P = Clean price paid on value date
 A = Accrued interest
 C_t = Payment due at time t
 $t-t_0$ = Time from value date to time t .

Since 1991 government bonds and Treasury notes have been bullet issues characterised by a cash flow of identical coupons and one final redemption payment.

Zero-Coupon Treasury Bills

Treasury bills are zero-coupon securities issued in denominations of DKK 1 million. The official conversion from price to yield and vice versa takes place according to money-market practice, according to which the yield per day is calculated by dividing the capital gain up to the maturity date by the actual number of calendar days remaining. The annual yield is arrived at by multiplying the yield per day by 360:

$$(A.2) \quad \text{Yield} = \frac{1 \text{ mill.} - \text{price}}{\text{price}} \times \frac{360}{\text{actual number of days}}$$

Conversion from yield to price:

$$(A.3) \quad \text{Price} = \frac{1 \text{ mill.}}{1 + \frac{\text{yield} \times \text{actual number of days}}{360}}$$

Chapter 3.

The Issue of Domestic Government Securities

3.1. The Tap Issue Technique

Danmarks Nationalbank acts as fiscal agent to the Ministry of Finance and all domestic government securities are sold to the market by Danmarks Nationalbank on behalf of the Ministry of Finance.

All government bonds and Treasury notes are issued on tap.¹⁾ In this system, the securities series are open for sale at all times within trading hours.²⁾ Each series of government securities is thus issued over an extended period, sometimes several years. All the tap-issued securities are fungible with the securities issued earlier in the same series.

The total issue of domestic government securities in a year must cover the domestic borrowing requirement of that year, cf. Box 1.1.1. However, the amount issued on tap during a given period within a year is not fixed in advance, but is determined on the basis of the desired sale (reflecting the domestic borrowing requirement), the demand from the market and the general market conditions.

The domestic government securities are sold via the Copenhagen Stock Exchange where Danmarks Nationalbank participates as a trader. All members of the Copenhagen Stock Exchange can buy government bonds and Treasury notes from Danmarks Nationalbank in the trading systems of the Copenhagen Stock Exchange.

On issue, bonds and notes have the same settlement period and payment terms as for other trading on the Danish securities market. The first coupon after issue is normal, and the ex-coupon period of 30 days applies on issue as well as for all other trading on the market. Issue prices are net prices, and no commission is paid.

Danmarks Nationalbank continues to issue in a series until the series has reached the desired size.³⁾ Changes in the statutory minimum coupon rate, cf. Box 2.2.1., may shorten the issue period. Issue thus takes place

¹⁾ Treasury bills are sold at monthly auctions, cf. Section 2.4.

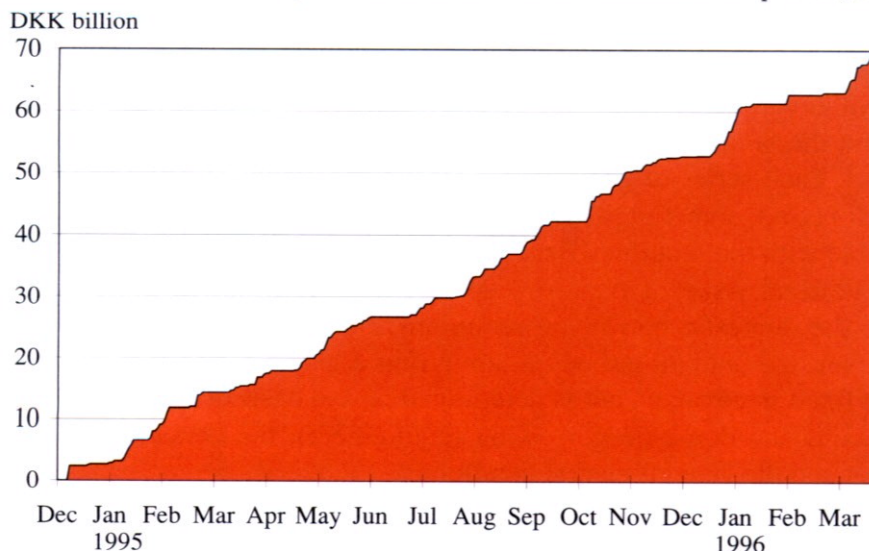
²⁾ Several securities series are open for tap issue at a time, cf. Sections 2.2. and 2.5.

³⁾ As series can be re-opened, cf. Section 2.2., they might be issued in more than one period.

over an extended period of time, and usually each government bond series is issued over a period of several years.

The tap method gradually builds up the volume of a securities series. This is illustrated in Chart 3.1.1. which shows the issue of the current 10-year benchmark, 8% government bonds 2006, from the opening on December 5, 1994 until issue was discontinued on April 10, 1996.

Chart 3.1.1. The build-up of 8% government bonds 2006 (from the opening on December 5, 1994 until issue was discontinued on April 10, 1996).



Normally the size of a new series reaches the threshold of a liquid market relatively fast. Furthermore, investors and intermediaries know that the liquidity of the securities series is an important objective of the issuing policy. Therefore, new issues are most often traded at a yield very similar to that of older and more liquid issues in the same maturity segment.

3.2. The Daily Tap Issue

The Use of the Copenhagen Stock Exchange

Danish government securities are issued via the electronic trading systems of the Copenhagen Stock Exchange. The systems of the Copenhagen Stock Exchange are described in more detail in Chapter 4.

Danmarks Nationalbank issues most of the government bonds and notes via the Match System¹⁾ since it is very well suited for sale of large bond volumes, ensures all securities dealers equal access to buy the required amount of government securities, and ensures immediate spreading of market information concerning the issue of government securities.

The Accept System can on very rare occasions be used to issue small amounts of government securities.

Danmarks Nationalbank normally does not trade via telephone and will refer callers to the Match System. Government securities may, however, on rare occasions be sold via telephone²⁾, for example if there are technical problems with the Match System.

The Interest System, which is a trade-supporting system, and the Electro-Broker System, which is used by market makers, are not used by Danmarks Nationalbank.

The Daily Sale

Issue of government bonds and Treasury notes will normally take place by Danmarks Nationalbank offering an amount for sale in the Match System. Typically DKK 100-200 million will be offered at a time. When the offer is placed in the system, securities dealers will buy larger or smaller portions of the offered amount. Often, the securities offered are sold to several different buyers. Thereafter a new amount may be offered. Usually very substantial amounts are sold, and the average daily issue in 1996 was around DKK 900 million.³⁾

Government securities are normally not issued on days when prices are falling. Experience shows that on days with falling prices there will rarely be any real buyer interest in the bond market, and any significant issue is therefore not possible. Furthermore, the risk cannot be ignored that, due to the Nationalbank's central position in the financial markets the issue might contribute to creating or reinforcing negative market trends. Danmarks Nationalbank will therefore typically refrain from issuing government securities on days with low turnover and falling prices, although it has done so on a few occasions when it was considered necessary to stimulate sales.

¹⁾ The Match System is described in more detail in Chapter 4.

²⁾ With subsequent reporting to the Copenhagen Stock Exchange, cf. Chapter 4.

³⁾ It should be noted that issue took place on only about half of the trading days in 1996.

In order to avoid creating or amplifying negative trends in the bond market, Danmarks Nationalbank will usually not underbid itself in the market over a single day. For the offers placed in the Match System on a single day, each subsequent offer will thus be at the same or a marginally raised price. However, offers at a lower price cannot be excluded completely if there is a general downward shift in the market (e.g. as a consequence of falling bond markets abroad), which in reality creates a new market situation.

Danmarks Nationalbank will normally not underbid itself within a period of several days either. If securities have been issued at a particular price level on a given day, no issue will take place at lower prices on the days immediately thereafter, unless there is a general shift in the market level. The probability of a general shift in the market conditions and thus of the issue being resumed at the new lower price level obviously increases with the length of the period considered.

This issue-price practice can be summarised as follows: given moderate price fluctuations, the issue follows the market prices up, but pauses before following the market level down. This prevents the issue of government securities from unnecessarily amplifying downward bond-price trends and enables the bond market to find a new level.

3.3. Procedure on Opening New Issues

In order to ensure transparency and to give securities dealers a firm basis for trading in a newly issued series, a fixed framework for the opening procedure was established in 1994.

One to two weeks before the opening day market participants are notified that a new government securities series will be opened. Details are given of the characteristics of the loan, i.e. coupon, maturity, and interest-payment date, and of the date and time of opening. The time of opening is normally 11.00 a.m. It is also stated at what time further information will be made available. This would normally be at 9.00 a.m. on the morning of the opening day.

On the morning of the opening day, Danmarks Nationalbank announces the amount that will initially be offered in the Match System, as well as for how long that offer will remain in the system before (the rest of) the offer may be deleted - this period is normally half an hour. The maximum amount that will be sold on the opening day is also an-

nounced. The offer price is entered to the Match System at the time of opening and is not published in advance.

By announcing the size of the initial offer, market participants are informed of the market depth, i.e. the amount they can bid for at the initial price. Three new series were opened in 1996 and the initial amounts were DKK 2 billion twice and DKK 1 billion once. Two new series were opened in January 1997 with initial amounts of DKK 1 billion.

The size of the initial amount offered, as well as the maximum amount to be sold, are decided just before their announcement on the opening day. These variables are fixed in the light of perception of investor interest, the market situation, and the borrowing requirement at the time of opening. Other factors may, however, also influence the decision.

The opening price is set immediately before the time of opening. It is based on a theoretical price calculation¹⁾ as well as the market situation and the perception of investor interest.

The large initial amounts enable market participants to buy relatively large volumes at one single price on the opening day. At the same time, the announcement of the maximum amount to be sold helps the market participants to estimate the supply on the opening day. It should, however, be emphasised that the announced maximum is indeed a maximum and not a target for the sale on the opening day.

As a result of the opening method sales on the opening day have similarities with an auction-style sale.

The fixed framework for the opening of new series of government securities has generally been well accepted by market participants.

3.4. Timing of the Issue

The issue of government securities should for a whole year equal the central government's domestic borrowing requirement, cf. Box 1.1.1. However, this does not mean that on any given date the government's deficit from the beginning of the year until that date should be matched by the issue of government securities in that period. There is room for (positive and negative) deviation between the borrowing requirement and the actual funding over the course of the year.

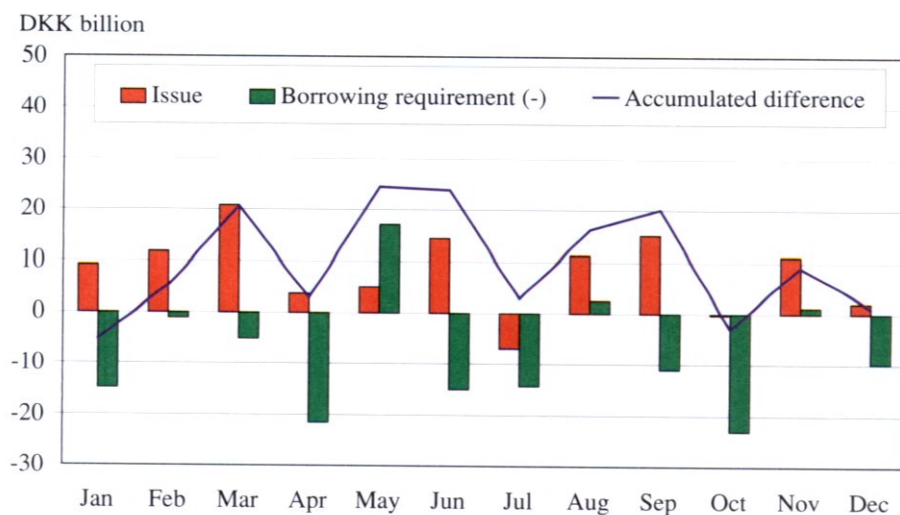
¹⁾ Calculated from zero-coupon yield structures.

Seasonal variations in the borrowing requirement are generally very pronounced, resulting in alternate months with deficits and surpluses of various sizes, cf. Chapter 1. The seasonal variations stem mainly from the timing of payment of government debt redemptions, value-added tax and other taxes.

When planning the issue for a specific month, the basis is naturally the borrowing requirement for that month. However, the issue may in some periods deviate from the borrowing requirement because other aims of the issue policy take precedence. Firstly, it is a primary objective to sell the government securities at the lowest possible cost (i.e. best price). This means that securities are issued at times when demand is strong. Secondly, it is considered important that government securities be issued on a continuous basis. This means that securities are issued even in months with no borrowing requirement. Experience shows that issue on a continuous basis supports the liquidity of the smaller series.

The monthly borrowing requirement and the monthly issue of government securities in 1996 are shown in Chart 3.4.1. The monthly pattern normally changes from year to year.

Chart 3.4.1. Monthly issue of government securities and domestic borrowing requirement in 1996.



Note: Cancelled government bonds and Treasury notes have been added to the borrowing requirement. Cancelled Treasury bills have been deducted from the net issue.

Chapter 4.

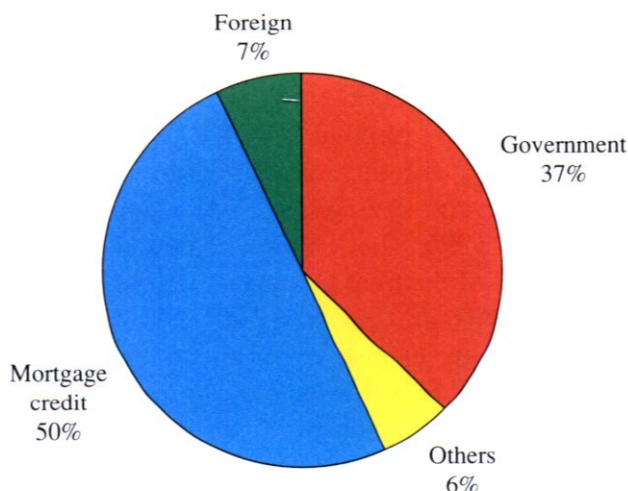
The Danish Securities Market

4.1. Bonds on the Danish Market

The Danish bond market is among the largest in Europe, with very large volumes of mortgage-credit bonds and government bonds. The market value of bonds and Treasury bills listed on the Copenhagen Stock Exchange was DKK 1,965 billion at the end of 1996. The market value of listed shares was DKK 499 billion.

The main reason for the composition of the Danish market - the large proportion of bonds in particular - is that Denmark has a long-standing tradition for financing residential and commercial construction as well as private housing by issuing mortgage-credit bonds. Mortgage-credit bonds account for the largest share of the Danish bond market, cf. Chart 4.1.1.

Chart 4.1.1. The Danish bond market at the end of 1996. Nominal value.



Source: The Copenhagen Stock Exchange.

Domestic corporate bond activity is negligible. Most of the short-term funding of the corporate sector is mediated by the banks, while long-term financing of tangible assets is often provided via mortgage-credit institutions.

In 1996, however, a historically low minimum coupon rate (cf. Box 2.2.1.) allowed for DKK-denominated issues with a 4 per cent coupon. These issues have for domestic taxation reasons been very attractive to private Danish investors. This has led to some issuing activity from government-backed companies or agencies typically borrowing to finance a specific infrastructure project as well as foreign issuers taking advantage of the minimum-coupon-rate situation.

The listed foreign bonds are mainly securities issued by mortgage-credit institutions in Sweden, denominated in SEK. There was substantial activity in these bonds some years ago, but during most recent years the activity has been negligible.

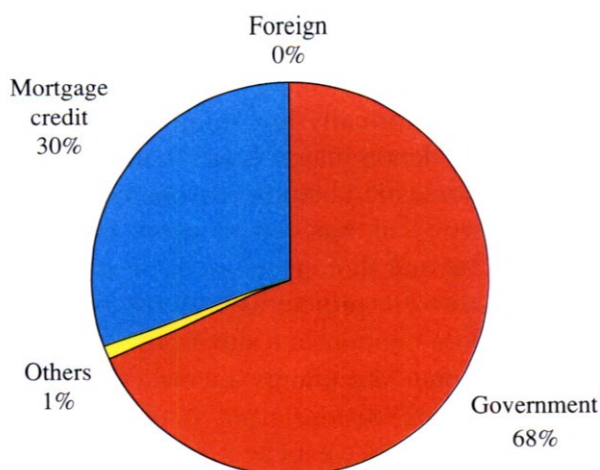
In 1996 the outstanding volume of government bonds, mortgage-credit bonds and "other" bonds increased, whereas the outstanding volume of foreign bonds decreased.

In 1996 the average turnover per trading day on the Danish bond market was DKK 27 billion at nominal value (excluding repo trading) compared to DKK 24 billion in 1995. In 1996 the average daily turnover in the repo market was DKK 74 billion.

Government bonds are the most traded segment of the market, cf. Chart 4.1.2., and have been so since 1990. In 1996 the most traded issue was 8% government bonds 2006 (the 10-year benchmark throughout 1996) with an average daily turnover of DKK 5 billion. The three most traded government bonds (8% government bonds 2006, 8% government bonds 2001 and 9% government bonds 1998) accounted for 30 per cent of the total turnover in 1996. The ten most traded government bonds accounted for 57 per cent of the total turnover.

The listed turnover figures are based on trades reported to the Copenhagen Stock Exchange. Danish government securities are, however, to some extent also traded outside Denmark, primarily in London. Trading outside Denmark between non-residents is not reported to the Copenhagen Stock Exchange; this turnover is therefore not included in the figures stated above.

Chart 4.1.2. Bond-market turnover in 1996. Nominal value.



Source: The Copenhagen Stock Exchange.

It should be mentioned that there are neither exchange restrictions nor taxes on Danish bonds purchased by foreign investors (including withholding tax and turnover tax).

Government Securities

The Danish central government has been a major bond issuer since the mid-1970's, when public finances began to show a deficit. The government securities have been short-term in the form of Treasury bills and Treasury notes, and medium-term and long-term in the form of government bonds with maturities of up to 30 years.

In recent years, government bonds and Treasury notes have been issued as bullet loans in a limited number of series. The series are generally very liquid. The market for government bonds, as well as their characteristics, are described in more detail in Chapters 1 to 3.

Mortgage-Credit Bonds

The mortgage-credit system is dominated by specialised mortgage-credit institutions which offer mortgages on residential as well as agricultural,

commercial and industrial properties. The institutions finance long mortgages, typically for 20 to 30 years, by issuing mortgage-credit bonds with corresponding maturities. The total market for mortgage-credit bonds comprises around 2,200 different series of substantially varying sizes.

The mortgage-credit market based on privately owned residential property and financed via the bond market currently comprises 6 institutions: Nykredit, Realkredit Danmark, BRFkredit, Totalkredit, Danske Kredit and Unikredit. The first three are the oldest institutions; the latter three were established more recently and are owned by banks.

In addition to the 6 institutions mentioned above the mortgage-credit market also includes: Danmarks Skibskreditfond (The Ship Credit Fund of Denmark), which grants loans against ship mortgages; Kreditforeningen af Kommuner i Danmark (The Credit Association of Local Authorities in Denmark), which mainly offers loans to municipalities; Dansk Landbrugs Realkreditfond (The Mortgage-Credit Fund of Danish Agriculture), which issues bonds against secondary mortgages on agricultural property; FIH Realkredit A/S, which offers loans to finance industrial property; and Landsbankernes Reallånefond, which mainly offers loans to publicly supported building activity.

Several types of mortgage-credit bonds are issued, the most common being annuity bonds, but also serial bonds and index-linked bonds play a role. The bonds are issued in series normally kept open for 1 to 3 years, subject to the minimum-coupon-rate rule, cf. Chapter 2. Redemption payments are effected by drawing bonds for a nominal value corresponding to the payments due from the debtors. The mortgage-credit loans are typically callable at par value and the mortgage-credit bonds are called if the debtors redeem their loans. This may take place on coupon dates and at fairly short notice.

4.2. Overview of the Organisation of the Securities Market

The Danish securities market is organised as an integrated system comprising the Copenhagen Stock Exchange, the FUTOP Clearing Centre and the Danish Securities Centre. The institutions have integrated electronic systems provided by the Danish Securities Centre.

The Copenhagen Stock Exchange (Københavns Fondsbørs A/S) is the only stock exchange in Denmark and therefore the place where listed securities are traded and to which trades are reported. The Copenhagen

Stock Exchange covers trading in securities as well as in futures and options.

The FUTOP Clearing Centre (FUTOP) is the agency which registers, settles and guarantees trading in futures and options. As from January 1997 FUTOP has been reorganised as a wholly-owned subsidiary of the Copenhagen Stock Exchange.

The Danish Securities Centre (Værdipapircentralen, VP) is a combined central securities depository and clearing centre. It also functions as facilities manager and systems integrator for the three institutions.

Legislation implementing a reform of the securities market took effect from January 1, 1996. This reform is described in some detail in *Danish Government Securities 1996*.

4.3. The Copenhagen Stock Exchange

Today, any credit institution or investment firm from an EU member state¹⁾ carrying a European Passport (licence from the financial supervisory authority of the company's home country) can become a member of and trade securities on the Copenhagen Stock Exchange. No physical presence is required. Companies from other countries may participate through branches established in Denmark.

As a consequence of the 1996 securities-market reform²⁾, the Copenhagen Stock Exchange was reorganised as a limited liability company as of May 1, 1996. 60 per cent of the shares are held by the traders, 20 per cent are held by the bond issuers³⁾ and 20 per cent are held by the share issuers.

At the beginning of 1997 a total of 26 companies (including branches of foreign companies) were entitled to trade as securities dealers on the Copenhagen Stock Exchange: 21 banks, 4 stockbroking companies and Danmarks Nationalbank.

The Copenhagen Stock Exchange has no rules governing the size or structure of commissions, and prices and fees are set by competition. Large investors usually deal with securities dealers on a net basis, reflecting professional price spreads. Round lots of liquid government is-

¹⁾ Or a country with which the EU has an agreement on such matters.

²⁾ The reform of the securities market is described in more detail in *Danish Government Securities 1996*.

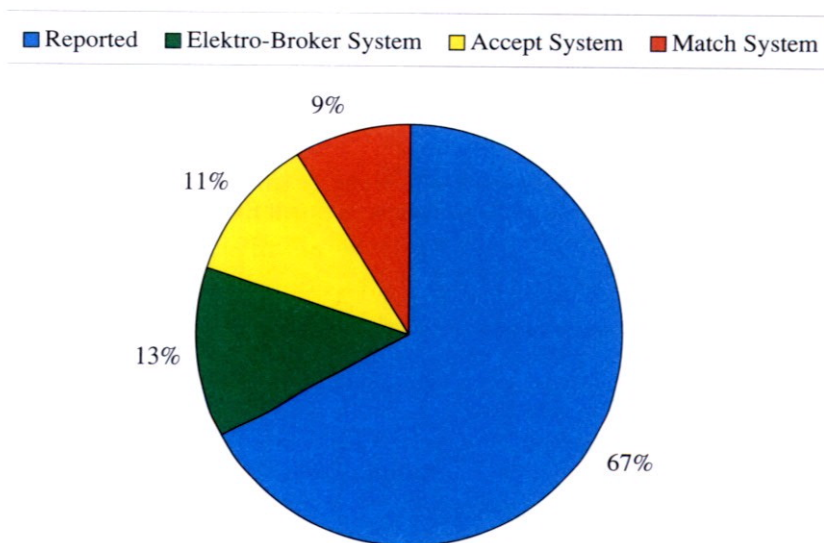
³⁾ Danmarks Nationalbank (as a trader as well as representing the Ministry of Finance as a bond issuer) has chosen not to become a shareholder of the Copenhagen Stock Exchange.

sues and mortgage-credit issues would normally have a bid-offer spread of DKK 0.10 per 100 (10 ticks) or less vis-à-vis clients.

In 1987 the trading floor was abolished and an electronic system was introduced. This system enables continuous trading from 9.00 a.m. to 3.30 p.m. and is used by the members from their offices.

Trades can be executed electronically in one of three trading systems: the *Match System*, the *Accept System*, or the *Electro-Broker System*. To support trading outside these electronic systems, a trade-supporting system called the *Interest System* has been established. Information is published in the *Information System*. This information is fed automatically from the trading systems, but trades outside the systems must be reported to the *Reporting System*. The systems are described in Box 4.2.1.

Chart 4.3.1. Trading on the Copenhagen Stock Exchange. Nominal value.



67 per cent of bond trading in 1996 was executed outside the automated trading systems with subsequent reporting to the Copenhagen Stock Exchange, cf. Chart 4.3.1. 9 per cent of trades were executed in the Match System. For bond trading the Match System is predominantly used by Danmarks Nationalbank.

Box 4.2.1. The trading systems of the Copenhagen Stock Exchange.

The Match System is an automatic trading system with continuous matching. A match is made every time a bid or an offer is registered which is better than or equals one or more offers or bids already registered in the system. At any point in time, only the best bid/offer and the identification of the relevant securities dealer can be seen on the screen in the Match System. It is possible to trade smaller sections of the existing bids/offers. The transactions are executed automatically. The bids and offers must be in round lots of DKK 5 million. All trades, as well as the best bid and offer in each paper, are reported to the Information System automatically.

The Accept System functions as an electronic "noticeboard" on which securities dealers can see all the bids and offers placed (prices as well as amounts) and the identity of the securities dealer making the bid/offer. A transaction is concluded when a dealer accepts one of the bids or offers posted in the system (the total amount of the bid/offer must be accepted). The bids and offers must be in round lots of at least DKK 10,000. All trades, as well as all current bids and offers, are automatically reported to the Information System.

The Electro-Broker System functions in the same way as the Accept System, but it is not possible to see the identity of the securities dealer making the bid/offer. The Electro-Broker System can only be used by securities dealers participating in a market-making agreement, cf. Section 4.4., and the participants can only trade in the securities in which they are market makers. Bids and offers must be of at least DKK 25 million. Only ultra-liquid securities can be traded in the Electro-Broker System. All trades are reported to the Information System automatically.

The Interest System is a trade-supporting system and has been established in order to allow the members of the Copenhagen Stock Exchange to exchange information electronically. It is normally used to indicate the prices at which the members are willing to trade via telephone. It is also used for quoting market-making prices in the 10-year benchmark, cf. Section 4.4.

The Information System distributes information on bids, offers and deals made via the electronic systems, as well as deals reported to the system. The information is distributed on-line to the participants and to non-members linked to this system.

The Reporting System is a system to register deals made outside the trading systems (telephone trading). All securities dealers are obliged to report transactions in listed securities within 90 seconds during trading hours. Trades made outside normal trading hours must be reported before the trading systems open on the following trading day.

Normal settlement of trading in bonds and notes takes place 3 business days after the transaction. Other settlement periods than standard may be used, should the parties to a trade so wish. For each trading day, the Copenhagen Stock Exchange publishes an official quotation list with infor-

mation on quoted prices, turnover and other relevant information concerning the market on the preceding day.

4.4. Market-Making

Government Securities

There are two market-making arrangements for Danish government securities: the Voluntary Market-Making Agreement under the auspices of the Copenhagen Stock Exchange, and the Quote-on-Request Agreement under the auspices of the Danish Securities Dealers Association.

Market-making under the Voluntary Market-Making Agreement includes only the 10-year benchmark bond, currently 8% government bonds 2006. At the start of 1997 16 securities dealers participated in the agreement, with amounts varying between DKK 10 and 100 million. Securities dealers participating in this agreement are obliged to quote two-way prices with a maximum spread of DKK 0.10 per 100 (10 ticks) in the Interest System of the Copenhagen Stock Exchange. All members of the Copenhagen Stock Exchange can join the Voluntary Market-Making Agreement.

The Quote-on-Request Agreement covers all liquid government securities (as well as some mortgage-credit bonds, cf. the Section below), except the 10-year benchmark bond already covered by the Voluntary Market-Making Agreement. Participants can freely choose the bonds in which they wish to participate.

Securities dealers participating in the Quote-on-Request Agreement shall - on request - quote two-way prices with a maximum spread of 10 ticks¹⁾ to other participants for amounts of between DKK 10 and 50 million. At the beginning of 1997 the 16 securities dealers participating in the Voluntary Market-Making Agreement also participated in the Quote-on-Request Agreement for government bonds. The Quote-on-Request Agreement can be joined by members of the Danish Securities Dealers Association who are also members of the Copenhagen Stock Exchange.

¹⁾ Most participants have agreed on tighter spreads for shorter maturities: 5 ticks for bonds with a remaining time to maturity of 1 year or less and 8 ticks for bonds with a remaining time to maturity in the range of 1 to 4 years.

Mortgage-Credit Bonds

The Quote-on-Request Agreement described above also covers a selection of mortgage-credit bonds. This agreement has the same rules and characteristics as the Quote-on-Request Agreement for government bonds.

Bonds with identical characteristics but issued by different mortgage-credit institutions are traded as a single instrument under the market-making agreement, and the seller may choose a mortgage-credit bond from any of the six mortgage-credit institutions.

At the beginning of 1997 12 securities dealers participated in the Quote-on-Request Agreement for mortgage-credit bonds in lots varying between DKK 10 and 25 million.

4.5. FUTOP and Derivatives

The primary function of the FUTOP Clearing Centre is to guarantee the performance of clearing members by registering options and futures contracts until expiry. The Copenhagen Stock Exchange is the official trading place for futures and options on securities listed on the Copenhagen Stock Exchange, including futures and options on government bonds. As from January, 1997 FUTOP is a wholly-owned subsidiary of the Copenhagen Stock Exchange.

FUTOP currently has futures on the 5- and 10-year benchmark government bonds, 6% 2026 mortgage-credit bonds, 3-month CIBOR and KFX (a share index of the Copenhagen Stock Exchange) and a selection of liquid shares. FUTOP currently has options on the 10-year benchmark government bond, KFX and a selection of liquid shares.

Futures are marked to market daily; occasionally more than once a day. Margin may be posted in cash during the trading day or by pledging securities on a day-to-day basis. All margin accounts are held with Danmarks Nationalbank. As from June 1996 futures and options on government bonds feature physical delivery of the underlying asset on expiration. Danish options and futures contracts are non-terminable, but may be closed-out (liquidated) via the member with whom the original contract was concluded.

Two market-making agreements exist. Under the auspices of the FUTOP Clearing Centre a Specialised Market-Maker Agreement for all the listed contracts has been arranged in the Accept System of the Co-

penhagen Stock Exchange. The other market-making agreement is a Quote-on-Request Agreement under the auspices of the Danish Securities Dealers Association. This agreement only covers futures based on the 10-year benchmark government bond and the benchmark mortgage-credit bond.

In 1996 71 per cent of the total turnover in the Danish futures market (market value) was in instruments based on the 5- and 10-year benchmark government bonds. Compared to other futures markets in Europe, the turnover on the Danish futures and options market is small in relation to the market for the underlying bonds. The turnover in futures on the 10-year government benchmark bond amounted to 22 per cent of the turnover in the underlying instrument in 1996. The efficient trading arrangements on the cash market are one of the reasons for the relatively low turnover on the futures market. Another is a well-functioning OTC market in forward contracts and options.

4.6. The Danish Securities Centre

The Danish Securities Centre (Værdipapircentralen, VP) is a combined central securities depository and clearing centre. VP is responsible for clearing and settlement of securities trades, for registration of issues on the Copenhagen Stock Exchange and for registration of ownership and other rights to the securities listed on the Copenhagen Stock Exchange. VP has around 250 members (banks, savings banks, stockbroking companies, mortgage-credit institutions, institutional investors and Danmarks Nationalbank) of which around 100 participate directly in the clearing process.

Since 1983, all listed domestic Danish bonds have been registered in dematerialised form in the VP system. In 1988 Danish shares, investment certificates, etc. were dematerialised. From 1989, registration of securities denominated in foreign currencies and listed on the Copenhagen Stock Exchange has been possible (with settlement in foreign currencies).

The securities are registered in units of equal size (DKK 1,000 for most government securities) on VP accounts. Only VP's members may keep VP accounts, and each member keeps a number of VP accounts, each of which is normally earmarked for a specific investor, in addition to a VP account for its own holdings. Each VP account contains information specifying the holdings, ownership and other rights, and details a

bank account to which VP transfers payments of interest, dividend, etc. on the holdings with VP. The owner of the securities may be registered in his own name or in the name of a nominee. The latter registration implies that the name of the actual owner of the securities is known only to the nominee.

The information registered by VP is safeguarded by strict secrecy and safety measures as the VP computer system is the sole registration of ownership and other legal rights to bonds and shares.

Normal settlement of trading takes place 3 business days after the trading day, but other periods (longer as well as shorter) may be chosen. In October 1996 VP has implemented a new system entailing repeated overnight clearing and settlement cycles as well as a daylight settlement cycle, all of which involve the netting of participants' securities and cash positions. The settlement guarantees delivery versus payment and is final and irreversible at the point of settlement.

Payments are cleared through Danmarks Nationalbank and settled via authorised institutions' accounts with Danmarks Nationalbank. As from 1996, any financial enterprise from an EU member state carrying a European Passport (licence from the financial supervisory authority of the company's home country) may apply for a settlement account with Danmarks Nationalbank. Companies from other countries may participate through branches established in Denmark.

Cross-Border Settlement

Danish government securities are eligible for clearing and settlement via Euroclear and CEDEL and it is also possible to deposit bond holdings in these systems as well as in VP.

To simplify international trading and cross-border settlement of Danish securities VP has established a direct link with Euroclear. One of the aims of the new VP system, implemented in October 1996, has been to increase the effectiveness of the link and enable same-day transfers of securities between VP and Euroclear, thereby providing for back-to-back trades.

Danmarks Nationalbank, on behalf of the Ministry of Finance, offers a temporary location-swap facility for government securities which enables movement between VP and Euroclear to take place without the loss of disposal days.¹⁾ The location-swap facility currently comprises all

important government securities (with an amount of DKK 2 billion in each series).

4.7. The Money Market

In order to give an integrated picture of the Danish market, it should be mentioned that Denmark has an efficient and liquid money market. Participants in the Danish money market are, besides Danmarks Nationalbank, Danish banks, Danish branches of foreign banks and two money-market brokers.

The money market has evolved strongly in the past few years and there is now efficient and liquid trading in a range of instruments. The main instruments are repos, FRAs and FX swaps.

As an element of the monetary-policy instruments it is possible for Danish banks, including Danish branches of foreign banks, to enter into repurchase agreements (sale and repurchase agreements) with Danmarks Nationalbank.²⁾ All liquid government securities may be pledged in the repos. Danmarks Nationalbank's repo facility has contributed to the development of an organised market in repos, and this market is today very significant. In addition to repos there is also a market for deposits.

There is also active organised market trading in FRAs and FX swaps.

¹⁾ Technically, when a location swap is executed Danmarks Nationalbank simultaneously enters into two spot transactions on behalf of the Ministry of Finance. For example: 1) Danmarks Nationalbank sells securities from a Euroclear account to the counterpart, and 2) Danmarks Nationalbank buys securities from the same counterpart with delivery in VP. Both trades are against payment.

²⁾ See Danmarks Nationalbank's Report and Accounts, as well as the quarterly Monetary Review, for a further description of the Danish monetary-policy instruments.

Chapter 5.

Foreign Borrowing by the Kingdom of Denmark

5.1. Introduction

This booklet deals primarily with the domestic borrowing activities and debt management of the Danish central government (usually known on the international debt markets as the Kingdom of Denmark). However, in order to give a complete picture of the Danish borrowing activities and debt management this Chapter gives an overview of the foreign-currency borrowing and the management of the foreign debt.

Section 5.2. describes the general framework for the foreign borrowing. Section 5.3. describes the borrowing- and debt-management instruments used. Section 5.4. describes the borrowing activity in 1996. Section 5.5. describes the management of currency risk and interest-rate risk.

5.2. General Framework

The main objective of Danish net borrowing in foreign currencies is to ensure an adequate Danish foreign-exchange reserve. When the Kingdom of Denmark issues foreign debt the proceeds of the transaction are sold to Danmarks Nationalbank and the corresponding amount in DKK is credited to the government's account with Danmarks Nationalbank. Similarly, funds needed by the Kingdom of Denmark for redemptions are bought from Danmarks Nationalbank with a corresponding debiting of the government's account with Danmarks Nationalbank (in DKK).

The annual net foreign borrowing by the Kingdom of Denmark is determined by the norm for foreign borrowing which is part of the central-government borrowing norm (an agreement between the government and Danmarks Nationalbank, cf. Box 1.1.1.). The norm for foreign borrowing implies that redemptions on the foreign debt should be matched by foreign borrowing.

The norm for foreign borrowing may be departed from should the foreign-exchange reserve be depleted due to Danmarks Nationalbank's

intervention in favour of the Danish krone. Should this happen, the foreign borrowing may exceed the redemptions on the foreign debt falling due that year.

On the other hand, if interventions by Danmarks Nationalbank lead to a larger foreign-exchange reserve than is considered to be necessary, it may be decided not to fully refinance all redemptions falling due. However, the balance on the government's account with Danmarks Nationalbank should always be positive, cf. Box 1.1.1.

In recent years the foreign debt has been reduced significantly, cf. Table 5.4.1., but at present further reduction of the norm for foreign borrowing is not expected in view of the cash flows currently projected for the central government's account with Danmarks Nationalbank.

5.3. Borrowing and Debt Management

Medium-Term and Long-Term Borrowing

The Kingdom of Denmark issues debt in a wide range of currencies, maturities and structures, and it does so in a variety of markets and legal environments.

For instance, the Kingdom of Denmark has been active in the euro-bond market as well as various domestic markets such as the *Samurai* market and the *Yankee* market. Issue activities in those markets are the primary source of funds, but private placements as well as loans arranged directly between the Kingdom of Denmark and the lender are also used.

In 1994 the Kingdom of Denmark established an EMTN (Euro Medium Term Note) programme which has facilitated the documentation of transactions, making it possible to accept small attractive transactions without incurring prohibitive documentation costs. The limit for the total outstanding is USD 6 billion. A dealer group has been appointed for the programme but other dealers may be appointed as dealer-for-a-day for a specific issue.

For a number of years the Kingdom of Denmark has pursued a double-tracked borrowing strategy. A target for advantageous borrowing is fixed in terms of a sub-Libor level and conveyed to the banks. The target reflects the preferences of the Kingdom of Denmark with regard to the different maturities, as well as the actual opportunities in the different maturity segments. To the extent that advantageous borrowing op-

portunities do not provide the necessary funds the Kingdom of Denmark will, from time to time, be in the market for normal bond issues. The Kingdom of Denmark is not in principle opposed to negotiated deals but would normally in this situation make use of competitive bidding between invited investment banks.

Short-Term Borrowing

The Kingdom of Denmark uses short-term borrowing for 3 different purposes:

- 1) to ensure an adequate foreign-exchange reserve;
- 2) to maintain an adequate balance on the government's account with Danmarks Nationalbank; and
- 3) to act as a buffer for the medium- and long-term borrowing in order for the Kingdom of Denmark to be able to pick up advantageous offers when they appear.

Two CP programmes have been set up for the purpose of short-term borrowing: one in the US market (SN: Sovereign Notes) and one in the Euromarket (ECP: Euro Commercial Paper). At present each programme has a limit of USD 6 billion or the equivalent amount. ECPs can be issued in a number of different currencies.

Swap Activity

Currency and interest-rate swaps are frequently used in debt management. Currency swaps are normally carried out as an integrated element of borrowing transactions, but could also be used as secondary swaps in connection with changes in the desired currency composition of the portfolio. The latter also applies to interest-rate swaps.

The Kingdom of Denmark uses a counterparty limit system in order to control its credit risk on swaps.¹⁾ The Kingdom of Denmark has en-

¹⁾ Counterparties are assigned limits according to their credit rating. The Kingdom of Denmark in principle accepts all counterparties rated in at least the double A category by Standard & Poor's, IBCA and Moody's. If a potential counterparty is not rated by any single one of the rating agencies mentioned, it is assumed that that agency would have rated it one notch lower than the lowest of the other ratings.

tered into ISDA master agreements with all its counterparties and expects new counterparties to do so as well.

Buy-Backs

The Kingdom of Denmark does occasionally buy back its own debt. While such transactions are normally profit driven, they should of course also fit into the overall objectives of the portfolio - the duration target and the desired redemption profile.

5.4. Borrowing in 1996 and Outlook for the Coming Years

In 1996 net borrowing from CPs amounted to DKK 11.7 billion, while DKK 16.7 billion was raised by medium- and long-term funding, cf. Table 5.4.1. Redemptions amounted to DKK 32.1 billion and together with fluctuations in exchange rates led to a reduction of the foreign debt of DKK 4.1 billion.

Table 5.4.1. Central-government foreign borrowing and debt, nominal value.

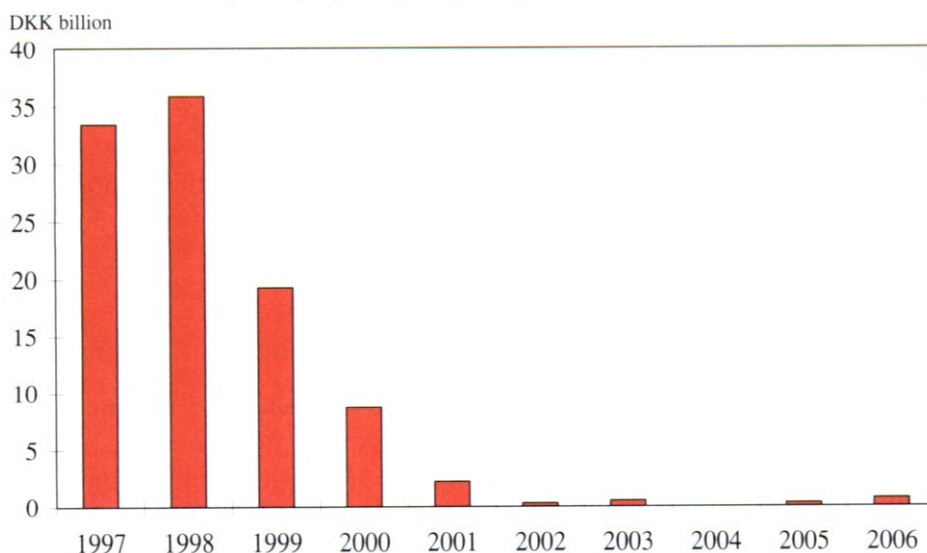
DKK billion	Commercial Paper, net	Medium- and long- term borrowing		Net bor- rowing	Exchange- rate ad- justment	Debt ²⁾
		Funding	Redemp- tions ¹⁾			
1993	5.9	68.6	16.6	57.9	2.9	164.3
1994	-24.9	7.5	13.7	-31.0	-3.5	129.8
1995	-0.5	13.7	32.3	-19.1	-5.1	105.6
1996,1	0.2	3.0	7.3	-4.1	-0.2	101.3
1996,2	0.5	2.2	1.4	1.3	0.3	102.9
1996,3	7.5	4.2	12.5	-0.8	-0.1	101.8
1996,4	3.5	7.3	10.8	0.0	-0.3	101.5
1996	11.7	16.7	32.1	-3.7	-0.4	101.5

¹⁾ Including buy-backs and early repayments.

²⁾ Adjusted for buy-backs.

In 1997 total redemptions of the foreign debt amount to more than DKK 33 billion. The redemptions of the foreign debt will be financed by new borrowing. The redemption profile of the foreign debt is shown in Chart 5.4.1.

Chart 5.4.1. Redemption profile of the foreign debt.



5.5. Management of Currency Risk and Interest-Rate Risk

Currency Risk Management

The foreign debt¹⁾ of the Kingdom of Denmark and the foreign-exchange reserve²⁾ are managed within a coordinated framework that provides for an integrated approach to asset-liability management. Management thus focuses on the net foreign debt which is the foreign debt and the foreign-exchange reserve taken as one. Chart 5.5.1. shows that the net foreign debt has varied somewhat over the years.

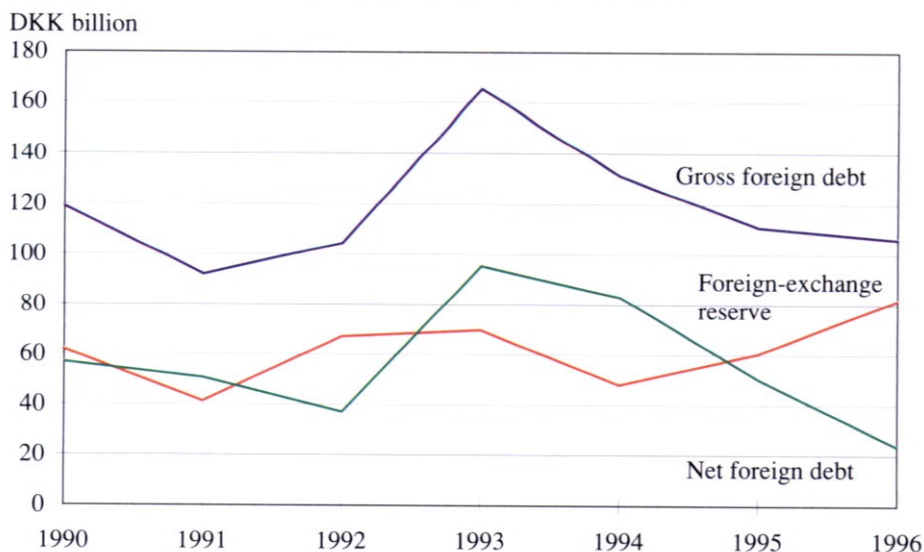
The net debt is managed via the setting of a benchmark. The benchmark is a portfolio composed of assets or liabilities in USD, ERM³⁾, JPY, GBP and CHF. The distribution of currencies reflects the trade-off between the expected currency risk and the expected cost of borrowing; i.e. the sum of interest payments and losses/gains on foreign-exchange fluctuations.

¹⁾ Including XEU denominated domestic government debt and buy-backs.

²⁾ For this purpose adjusted for elements such as the stock of gold and SDRs.

³⁾ In this context ERM means DEM, FRF, NLG, BEF and XEU. Danmarks Nationalbank sets a benchmark for these currencies itself.

Chart 5.5.1. Distribution of the net foreign debt 1990-1996.



Note: Foreign debt including XEU-denominated domestic government debt.

The benchmark is composed of a risk-neutral portfolio and certain strategic deviations from this risk-neutral portfolio. The losses and gains stemming from exchange-rate fluctuations versus the DKK can be seen as the sum of a general contribution from exchange-rate fluctuations versus the risk-neutral portfolio and a specific contribution from the exchange-rate fluctuations of the risk-neutral portfolio versus the DKK. This distinction makes it possible to separate risks and costs that can be regulated, i.e. the general exchange-rate risk, from those who can not, i.e. variations in the DKK versus the ERM currencies.

The Danish exchange-rate policy aims to stabilise the DKK vis-à-vis the core ERM currencies. Therefore the risk-neutral portfolio consists of assets and liabilities denominated in ERM currencies. This implies among other things that the specific risk attached to variations in the DKK versus the ERM currencies is excluded from the considerations leading to the setting of the benchmark since the specific DKK/ERM risk cannot be affected by the management of the net debt, whereas the general currency risk can.

The net debt is managed with an absolute risk measure. This means that the benchmark is made up as an absolute distribution in billion DKK, the residual being the core ERM currencies. Changes in the net

debt take place in the core ERM currencies. Therefore the general currency risk does not change when the net debt changes as the core ERM currencies are considered a risk-neutral portfolio.

The benchmark for the net currency distribution is agreed by the Ministry of Finance, the Ministry of Economic Affairs and Danmarks Nationalbank on a quarterly basis.¹⁾ Danmarks Nationalbank may take positions against the benchmark within a limit of DKK \pm 2.5 billion. The benchmarks for 1996 and the beginning of 1997 are shown in Table 5.5.1.

Table 5.5.1. Benchmark for the net foreign debt, DKK billion.

	USD	JPY	GBP	CHF	ERM
1996, 1st qtr. to 4th qtr.	-4.0	2.5	0.0	4.5	Rest
1997, 1st qtr.	-2.0	2.5	1.0	2.0	Rest

Interest-Rate Risk Management

Duration is used when measuring the interest-rate risk of the foreign debt. At the end of 1996 the duration of the foreign debt was 1.9 years, cf. Table 5.5.2.

There is in general no direct coordination between the assets of Danmarks Nationalbank and the liabilities of the Kingdom of Denmark concerning interest-rate risk.

However, as marginal foreign assets and marginal foreign liabilities are required to have a short duration, it is ensured that neither the interest-rate risk of, respectively, the government and the Nationalbank nor the interest-rate risk of the two institutions taken together, is significantly affected by government borrowing to finance DKK currency intervention or to prevent an overdraft on the government's account with Danmarks Nationalbank.

¹⁾ A standard mean-variance portfolio model is used in the deliberations leading to the setting of the benchmark.

Table 5.5.2. *The foreign debt distributed on currencies and duration.*

	Part of total debt, 1995	Part of total debt, 1996	Duration, 1996
	Per cent		Years
DEM	44	74	1.9
USD	4	2	1.2
CHF	12	6	1.5
FRF	9	7	2.6
GBP	9	5	2.0
JPY	8	2	1.2
XEU	12	3	1.2
NLG	1	0	2.3
Others	1	1	-
Total	100	100	1.9

Appendix

Table 1.**Central-Government Debt 1986-1996.**

DKK million	1986	1987	1988
A. Debt			
I. Domestic debt denominated in DKK ¹⁾			
1. Fixed-rate bonds	282,451	243,212	215,492
2. Floating-rate bonds	39,935	56,935	82,785
3. Lottery bonds	1,200	1,200	1,200
4. Compulsory savings	1,497	1,464	1,425
5. Treasury notes	27,500	43,675	54,085
6. Treasury bills	-	-	-
7. Government securities held by the Danish State	-30	-21	-18
Domestic debt denominated in DKK, total	352,553	346,465	354,969
II. Domestic debt denominated in XEU			
1. Fixed-rate bonds	-	-	-
2. Government securities held by the Danish State	-	-	-
Domestic debt, total	352,553	346,465	354,969
III. Foreign debt			
1. In USD	55,313	44,637	32,983
2. In CHF	12,160	16,572	20,452
3. In DEM	21,131	26,799	29,374
4. In XEU	5,874	10,191	14,480
5. In JPY	9,874	13,781	12,718
6. In other currencies	15,561	15,657	14,326
7. Government bonds held by the Danish State ²⁾	-2,463	-1,516	-1,569
Foreign debt, total	117,450	126,121	122,764
Domestic and foreign debt, total	470,003	472,586	477,733
Domestic and foreign debt, per cent of GDP	70.5	67.5	65.3
B. Government deposits with the central bank	-51,448	-57,960	-39,855
C. The Social Pension Fund			
1. Government securities	-25,543	-27,667	-27,009
2. Other securities	-69,491	-73,091	-79,215
The Social Pension Fund, total	-95,034	-100,758	-106,224
Net government debt (A-B-C)	323,521	313,868	331,654
Net government debt, per cent of GDP	48.5	44.8	45.3

Note: + denotes liabilities, - denotes assets.

¹⁾ Does not include the holdings of the Ministry of Finance in the location-swap facility.

²⁾ Acquired value. From end of 1993 adjusted to exchange-rate value.

1989	1990	1991	1992	1993	1994	1995	1996
221,592	229,221	252,481	316,690	357,346	409,565	466,608	516,812
88,410	85,010	85,010	57,147	41,241	30,345	20,722	16,760
1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
1,375	864	392	-	-	-	-	-
64,550	68,850	74,050	71,150	94,200	111,705	102,697	84,499
-	21,350	49,250	55,485	58,339	56,238	58,385	51,234
-11	-5	-1	0	-	-	-	-
377,116	406,490	462,382	501,672	552,326	609,053	649,612	670,505
-	-	-	9,827	9,824	9,697	9,244	9,597
-	-	-	-	-	-970	-1,138	-2,372
377,116	406,490	462,382	511,499	562,150	617,781	657,719	677,730
27,624	15,556	17,103	37,802	50,889	24,912	6,425	4,562
17,919	21,033	15,785	13,952	20,914	18,393	13,836	6,179
30,034	36,700	28,464	23,758	47,223	42,772	49,476	81,070
16,970	18,103	18,025	14,942	9,364	5,576	6,778	-2,934
10,156	3,597	1,866	3,159	5,612	10,419	9,329	2,396
13,328	24,112	11,096	11,019	31,610	29,494	25,319	17,209
-1,574	-1,126	-1,374	-1,151	-1,338	-1,784	-5,516	-6,986
114,457	117,975	90,965	103,482	164,274	129,782	105,647	101,495
491,573	524,465	553,347	614,981	726,424	747,563	763,366	779,225
64.1	65.6	66.8	72.2	83.0	80.2	78.2	77.1
-35,254	-45,206	-11,649	-30,927	-88,781	-55,266	-33,677	-31,652
-30,212	-36,193	-38,872	-43,611	-45,270	-50,143	-68,889	-83,445
-81,164	-82,254	-86,836	-88,583	-93,105	-96,689	-82,517	-65,326
-111,376	-118,447	-125,708	-132,194	-138,375	-146,832	-151,406	-148,772
344,943	360,812	415,990	451,860	499,268	545,465	578,283	598,801
45.0	45.2	50.2	53.1	57.1	58.7	59.6	59.2

Table 2.***Domestic Government Securities Issued in 1996.¹⁾*****No 264, 7% government bonds 2024 (7 pct. stående lån 2024)**

Issued in 1996, DKK million	5,130
Interest payable	November 10
Stock exchange code	DK000991813-8
Issue commenced	April 6, 1994
Redemption date	November 10, 2024

No 265, 6% government bonds 1999 (6 pct. stående lån 1999)

Issued in 1996, DKK million	7,950
Interest payable	December 10
Stock exchange code	DK000991821-1
Issue commenced	April 14, 1994
Redemption date	December 10, 1999

No 269, 8% government bonds 2006 (8 pct. stående lån 2006)

Issued in 1996, DKK million	17,240
Interest payable	March 15
Stock exchange code	DK000991864-1
Issue commenced	December 5, 1994
Redemption date	March 15, 2006

No 272, 8% government bonds 2001 (8 pct. stående lån 2001)

Issued in 1996, DKK million	8,000
Interest payable	November 15
Stock exchange code	DK000991872-4
Issue commenced	January 9, 1995
Redemption date	March 15, 2001

No 274, Treasury bills 1996 II (Skatkammerbevis 1996 II)

Issued in 1996, DKK million	3,388
Interest payable	-
Stock exchange code	DK000980579-8
Issue commenced	July 3, 1995
Redemption date	April 1, 1996

No 275, 7,00% Treasury notes 1998 I (7,00 pct. statsgældsbevis 1998 I)

Issued in 1996, DKK million	9,800
Interest payable	February 15
Stock exchange code	DK000991899-7
Issue commenced	July 3, 1995
Redemption date	February 15, 1998

Table 2 - continued

No 276, Treasury bills 1996 III (Skatkammerbevis 1996 III)

Issued in 1996, DKK million	13,861
Interest payable	-
Stock exchange code	DK000980587-1
Issue commenced	October 2, 1995
Redemption date	July 1, 1996

No 277, Treasury bills 1996 IV (Skatkammerbevis 1996 IV)

Issued in 1996, DKK million	23,950
Interest payable	-
Stock exchange code	DK000980595-4
Issue commenced	January 2, 1996
Redemption date	October 1, 1996

No 278, Treasury bills 1997 I (Skatkammerbevis 1997 I)

Issued in 1996, DKK million	20,185
Interest payable	-
Stock exchange code	DK000980609-3
Issue commenced	April 1, 1996
Redemption date	January 2, 1997

No 279, 7% government bonds 2007 (7 pct. stående lån 2007)

Issued in 1996, DKK million	27,045
Interest payable	November 15
Stock exchange code	DK000991902-9
Issue Commenced	April 10, 1996
Redemption date	November 15, 2007

No 280, 6% government bonds 2002 (6 pct. stående lån 2002)

Issued in 1996, DKK million	19,562
Interest payable	November 15
Stock exchange code	DK000991910-2
Issue commenced	June 18, 1996
Redemption date	November 15, 2002

No 281, Treasury bills 1997 II (Skatkammerbevis 1997 II)

Issued in 1996, DKK million	21,373
Interest payable	-
Stock exchange code	DK000980617-6
Issue commenced	July 1, 1996
Redemption date	April 1, 1997

No 282, 6,00 % Treasury notes 1999 I (6,00 pct. statsgældsbevis 1999 I)

Issued in 1996, DKK million	10,000
Interest payable	February 15
Stock exchange code	DK000991929-2
Issue commenced	July 2, 1996
Redemption date	February 15, 1999

No 283, Treasury bills 1997 III (Skatkammerbevis 1997 III)

Issued in 1996, DKK million	14,686
Interest payable	-
Stock exchange code	DK000980625-9
Issue commenced	October 1, 1996
Redemption date	July 1, 1997

¹⁾ Does not include the holdings of the Ministry of Finance in the location-swap facility.

Table 3.***Domestic Central-Government Debt. End of 1996¹⁾.***

Stock exchange code	Cou- pon %	Name	Issue Period ²⁾	Redemption date	Nominal amount (DKK million)
Government bonds, fixed interest rate					
<i>Bullet loans</i>					
DK000991554-8	9	Stående lån 1998	Jan.2,89-Jun.29,90 and Jan.2,92-Mar.31,94	Nov.15, 1998	59,400.0
DK000991619-9	9	Stående lån 2000	Jan.2,90-Dec.30,92	Nov.15, 2000	59,150.0
DK000991716-3	8	Stående lån 2003	Jan.2,92-Dec.30,93	May 15, 2003	69,000.0
DK000991783-3	7	Stående lån 2004	May 25,93-Dec.5,94	Dec.15, 2004	74,450.0
DK000991813-8	7	Stående lån 2024	Apr.6,94-	Nov.10, 2024	20,045.0
DK000991821-1	6	Stående lån 1999	Apr.14,94-Dec.30,94 and Jan.2,96-Jul.2,96	Dec.10, 1999	49,300.0
DK000991864-1	8	Stående lån 2006	Dec.5,94-Apr.10,96	Mar.15, 2006	70,000.0
DK000991872-4	8	Stående lån 2001	Jan.9,95-Jun.18,96	Nov.15, 2001	44,135.0
DK000991902-9	7	Stående lån 2007	Apr.10,96-	Nov.15, 2007	27,045.0
DK000991910-2	6	Stående lån 2002	Jun.18,96-	Nov.15, 2002	19,562.0
<i>Serial loans</i>					
DK000990302-3	4.5	S 1997	Dec.10,52-Sep.12,58	Oct.15, 1997 ³⁾	13.2
DK000990329-6	5	S 2007	Oct.20,53-Sep.12,58	Sep.15, 2007 ³⁾	60.6
DK000990272-8	4	S 2017	Nov.29,55-Sep.12,58	Jun.15, 2017 ³⁾	110.5
DK000990493-0	12	S 2001	Oct.6,80-May 9,83	Feb.15, 2001	13,387.5
DK000990736-2	10	S 1999	May 10,83-Jul.12,85	Jul.15, 1999	3,519.8
DK000990744-6	10	S 2004	May 10,83-Aug.30,85	Oct.15, 2004	7,584.0
DK000991015-0	10	S 2001	Jul.15,85-Aug.30,85	Jul.15, 2001	2.5
<i>Perpetuals</i>					
DK000990159-7	3.5	Dansk Statslån 1886 Uamortisabelt ³⁾	Dec.11,1886	-	46.2
...	5	Dansk Islandske Fond 1918 Uamortisabelt	May 20,1919	-	1.0
Government bonds, floating interest rate					
<i>Bullet loans</i>					
DK000980080-7	Var.	Stående lån 1997	Jan.2,87-Jan.6,88	Jan.15, 1997	6,362.0
DK000980102-9	Var.	Stående lån 1998	Jan.4,88-Dec.30,88	Jan.15, 1998	6,052.0
DK000980129-2	Var.	Stående lån 1999	Jan.2,89-Dec.28,90	Nov.20, 1999	4,346.0

Table 3 - continued

Stock exchange code	Coupon %	Name	Issue Period ²⁾	Redemption date	Nominal amount (DKK million)
Treasury notes					
DK000991856-7	6.25	Statsgældsbevis 1997 I	Jul.1,94-Dec.30,94	Feb.10, 1997	17,617.0
DK000991880-7	7.00	Statsgældsbevis 1997 II	Jan.4,95-Dec.29,95	Aug.15, 1997	35,682.0
DK000991899-7	7.00	Statsgældsbevis 1998 I	Jul.3,95-Jul.2,96	Feb.15, 1998	21,200.0
DK000991929-2	6.00	Statsgældsbevis 1999 I	Jul.2,96-	Feb.15, 1999	10,000.0
Treasury bills					
DK000980609-3	0	Skatkammerbevis 1997 I	Apr.1,96-Oct.1,96	Jan.2, 1997	15,175.0
DK000980617-6	0	Skatkammerbevis 1997 II	Jul.1,96-	Apr.1, 1997	21,373.0
DK000980625-9	0	Skatkammerbevis 1997 III	Oct.1,96-	Jul.1, 1997	14,686.0
Lottery bonds					
DK000990019-3	3.5	Præmieobligationslån af 1948/98	Jun.20,48	Jun.20, 1998	100.0
DK000990027-6	4	Præmieobligationslån af 1954/99	Oct.7,54	Oct.1, 1999	100.0
DK000990035-9	3.5	Præmieobligationslån af 1959/98	Dec.1,58	Dec.1, 1998	100.0
DK000990043-3	7	Præmieobligationslån af 1965/2010	Sep.22,65	Sep.22, 2010	100.0
DK000990051-6	7	Præmieobligationslån af 1969/2009	Oct.1,69	Dec.31, 2009	100.0
	8	Præmieobligationslån af 1977/2002:			
DK000990078-9	I		Apr.14,77	Feb.15, 2002	100.0
DK000990086-2	II		Jun.3,77	May 15, 2002	100.0
DK000990094-6	III		Jun.24,77	Jun.15, 2002	100.0
DK000990108-4	IV		Jul.28,77	Jul.15, 2002	100.0
DK000990116-7	V		Aug.30,77	Aug.15, 2002	100.0
DK000990124-1	10	Præmieobligationslån af 1980/2005	Oct.28,80	Jul.1, 2005	200.0
Domestic central-government debt denominated in DDK					670,505.2

Table 3 - continued

Stock exchange code	Coupon %	Name	Issue Period ²⁾	Redemption date	Nominal amount (DKK million)
Domestic debt denominated in XEU					
DK000991740-3	8.5	Stående lån XEU 1.3 billion 2002	Apr.24,92	Apr.24, 2002	9,597.3
Held by the Danish State		(XEU 321 million)			-2,372.4
Total					7,224.8
Domestic central-government debt					677,730.0

¹⁾ Does not include the holdings of the Ministry of Finance in the location-swap facility.

²⁾ The issue period refers to the period the series has been open for issue. Series still open for issue at the beginning of 1997 are marked with "-" after the first day of issue. Certain securities are only sold on one single date. For these securities only this date is stated.

³⁾ May be redeemed by the Danish State at three month's notice.

Table 4.***Monthly Distribution of Central-Government Payments in 1997.***

Estimate based on the Finance Act for 1997.

DKK million	Jan.97	Feb.97	Mar.97	Apr.97
Outgoing payments	33,998	55,602	26,759	10,162
Ingoing payments	31,392	33,224	32,661	32,281
Net financing requirement (cash basis)	-2,606	-22,378	5,902	22,119
<i>Redemption of domestic debt:</i>				
Government bonds	6,462	2,678	0	0
Treasury notes	0	18,317	0	0
Gross financing requirement excluding redemption of foreign debt (cash basis)	3,856	-1,383	5,902	22,119

May 97	Jun.97	Jul.97	Aug.97	Sep.97	Oct.97	Nov.97	Dec.97	1997
53,229	11,639	18,476	54,491	12,913	13,492	78,088	29,508	398,427
32,601	28,671	31,246	28,498	27,242	35,027	49,667	40,536	403,047
-20,698	17,033	12,770	-25,993	14,329	21,536	-28,421	11,029	4,620
0	5	1,174	0	6	961	0	0	11,286
0	0	0	35,682	0	0	0	0	53,999
-20,698	17,038	13,944	9,689	14,335	22,497	-28,421	11,029	69,905