

CENTRAL GOVERNMENT BORROWING FORECAST AND ANALYSIS

2005:2

BORROWING REQUIREMENT

Forecast for 2005	1
Forecast for 2006	2
Comparisons	3
Monthly forecasts	4
Central government debt	4

FUNDING

Nominal krona borrowing	5
Inflation-linked borrowing	8
Foreign currency borrowing	9
Summary	9

NEWS

Government debt policy and the budget political goals	10
Currency hedging for government agencies	14
Cash Flow at Risk – a measure of market risk for interest payments forecasts	16

MARKET INFORMATION

Swedish government debt	20
Financial market	23
Swedish economy	24
Primary dealers	24

LOWER BORROWING REQUIREMENT

The central government net borrowing requirement for 2005 is estimated at SEK 31 billion, a reduction of almost SEK 7 billion compared with the forecast presented in February. This is mainly due to changes of a non-recurring nature. Dividends from state-owned companies have been larger than estimated and corporate tax revenue has increased by around SEK 6 billion, primarily due to interest being charged on funds allocated to tax allocation reserves. This has led some companies to dissolve their funds, which have then been taxed.

The Debt Office's first forecast for 2006 is that the borrowing requirement will increase by SEK 10 billion compared with this year to a total of SEK 41 billion. This is partly due to some revenues being lower or disappearing altogether next year. We also assume that the final step in the income tax reform will take place, where wage-earners will be compensated for the increase in national insurance contributions. This will reduce tax revenue by around SEK 6 billion.

The reduced borrowing requirement this year and the fall in interest rates since the previous forecast entails that issue volumes in nominal government bonds will be reduced to SEK 2 billion per auction from June 29. Due to the increased financing requirement after the end of the year, the issue volume is expected to increase to SEK 3 billion per auction in the first half of 2006 and SEK 4 billion in the second half of the year.

During the spring, both France and the UK have issued fifty-year bonds. The United States has announced plans to resume issues of thirty-year bonds. This has contributed to an ongoing discussion on whether the Debt Office will respond to a future demand for bonds with longer times to maturity. The prerequisites for debt management in these countries differ, however, from the situation in Sweden, with for instance, larger budget deficits. In the UK the yield curve is moreover negative, which makes it favourable to borrow with very long times to maturity. It cannot either be excluded that debt management in other countries takes other matters into consideration than cost and risk aspects.

The task of the Debt Office is now as before to minimise the cost of central government debt management taking risk into account. In Sweden, it is the case that, although long interest rates are at historically low levels, short loans are even cheaper. We make the assessment that the maturities of central government debt are well considered under present conditions. However, a long-term change in conditions would affect government debt management, which is not static but clearly governed by the goal of keep costs to a minimum while taking into account risk.

The report includes as usual some articles taking up current issues within the sphere of operation of the Debt Office. One article sheds light on the correlation between the size of central government debt and the cost of financing it. A not unexpected conclusion, which is worth drawing to attention, is that the prerequisites for keeping down costs improve with a reduced government debt. This is a strong reason to shift the focus in the discussion on government finances from the expenditure ceiling to the development of the government budget balance.

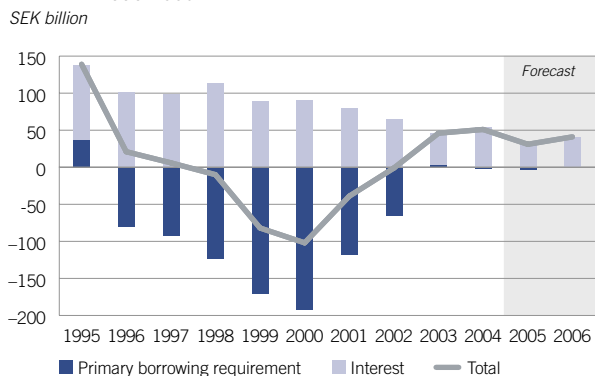
*Bo Lundgren
Director General
National Debt Office*



CENTRAL GOVERNMENT BORROWING REQUIREMENT

The Swedish National Debt Office's forecast for 2005 indicates a borrowing requirement of SEK 31 billion, SEK 7 billion less than in the February forecast. Despite continued good growth, the borrowing requirement will increase next year by SEK 10 billion to SEK 41 billion. The change between the years is due to certain revenues, which are unusually large this year not being so large in 2006. We also expect the last part of the compensation for the national pension contribution to be carried out next year, which is expected to reduce tax revenue by approximately SEK 6 billion.

Figure 1. CENTRAL GOVERNMENT BORROWING REQUIREMENT, 1995-2006



FORECAST FOR 2005

The Debt Office's revised forecast for 2005 indicates a borrowing requirement of SEK 31 billion. That is SEK 7 billion below the February forecast including the correction of the outcome of the borrowing requirement from the year end to April 30, 2005, announced on June 8. The downward adjustment is due to revenue being approximately SEK 13 billion greater than estimated during the spring. The greater part of these payments can be regarded as temporary. The effect on the borrowing requirement is counteracted by an increase in net lending by the Debt

Table 1. CENTRAL GOVERNMENT BORROWING REQUIREMENT AND CENTRAL GOVERNMENT DEBT 2004-2006, SEK BILLION

	2004	2005 (forecast)	2006 (forecast)
Primary borrowing requirement ¹	-2	-3	1
Interest on central government debt	53	34	40
Borrowing requirement, net	51	31	41
Debt adjustment	-14	13	0
Revaluation of foreign currency loans	-9	12	0
Short-term investments	-8	8	0
Change in central government debt	29	52	41
Central government debt at year-end	1,257	1,310	1,351

¹ The primary borrowing requirement is adjusted with SEK 2.8 billion 2004, as announced in the press release from June 8.

Office. The picture of a somewhat weaker recovery that we indicated in February accords well with the development of wage- and consumption-based taxes during the spring.

The primary borrowing requirement (all central government payments excluding interest on central government debt) is reduced by SEK 8 billion compared with the February forecast, resulting in a primary surplus of SEK 3 billion. Increased tax revenue of approximately SEK 6 billion, larger dividends from state-owned companies of around SEK 4 billion and a payment from the City of Stockholm to the National Road Administration of approximately SEK 2 billion explain the reduction in the primary borrowing requirement. The current revenue and disbursements substantially comply with our previous forecast.

As from 2005, companies are to pay interest on the funds they have allocated to tax allocation reserves. This has led some companies to reverse these and thus pay additional tax. The major part of the increased tax revenue we have seen during the spring comes from companies who have reversed tax reservation reserves, in particular in March when almost SEK 6 billion was paid in. This is a temporary effect and we make the assessment that the greatest part of the additional tax payments for this year has already been made. Effects of further reversed tax reservation reserves are calculated to lead to increased payments first next year and then to a somewhat smaller extent.

The Debt Office's net lending to central government agencies, public enterprises and state-owned enterprises is expected to total SEK 23 billion, which is SEK 9 billion more than in the previous forecast. Net lending increases by SEK 6 billion as a result of the winding-up of the account for competence saving. However, this does not affect the overall borrowing requirement since it is a transfer within the state. The Debt Office shall take over loans that Stockholmsleder AB and Göteborgsleder AB have taken up with central government guarantee totalling approximately SEK 12 billion. As the loans mature, the Debt Office will take up new loans in the ordinary borrowing. Only then will the loans affect the borrowing requirement.



CONDITIONS BEHIND THE FORECAST

The Debt Office uses NIER's macroeconomic assessment in the areas where such assessment is needed for the forecast borrowing requirement. This forecast is based on the forecasts presented by NIER in "The Swedish Economy" in March 2005.

The trend in the labour market is the single most important variable for the borrowing requirement. The fact that the labour market has still not started to improve leads the Debt Office to make a more cautious forecast for the rate of increase of the gross wages bill than NIER. The wages bill is the most important tax base and we estimate that it will grow by almost 4 per cent in 2005 and slightly over 4 per cent in 2006.

NIER estimates a 3.0 per cent growth in GDP this year and 2.9 per cent in 2006. The composition of growth is changed from having been driven by strong net export in 2004 to be driven mainly by investments and consumption in 2005 and 2006. Consumption and investments are more favourable for the borrowing requirement than exports. However, low inflation will restrain the nominal growth rate.

The Debt Office's forecast for interest payments on the government debt is based on the interest and exchange rates at the time of the forecast. The stop date for the current forecast was June 8, 2005. We have also weighed in the outcome of the borrowing requirement up to June 8.

Maturities in 2005 for these loans total approximately SEK 7 billion. No maturities are expected during 2006. Besides this, the Export Credits Guarantee Board, among others, has amortised SEK 2 billion, which was not included in the previous forecast.

Interest payments for 2005 are expected to be SEK 34 billion, an increase of SEK 1 billion compared with the previous forecast. This is partly explained by lower interest rates leading to larger capital rate losses on the exchange of bonds planned in the autumn.

Interest payments are expected to decrease by almost SEK 19 billion compared with 2004, largely due to our obtaining exchange rate gains of SEK 9 billion compared with losses of SEK 5 billion in 2004. The gains are an accounting effect of the maturing this year of the dollar loans taken in 2002. These were taken up at a considerably higher dollar rate than the current rate. However, the actual gain over the whole period to maturity of the loans is considerably less as the Debt Office distributes the risk among different currencies with derivatives.

FORECAST FOR 2006

The borrowing requirement increases by SEK 10 billion in 2006 compared with 2005 and totals SEK 41 billion. Despite continued good growth next year, the borrowing requirement is increasing between 2005 and 2006. The increased borrowing requirement is partly explained by a part of the revenue not being as large as this year and that we assume that some tax cuts will be made in 2006.

The primary borrowing requirement (all central government payments excluding interest payments on debt) increases by SEK 4 billion between the years and is expected to be SEK 1 billion in 2006. The increase between the years is explained, among other things, by increased development assistance, larger payments to the municipalities, reduced dividend from the Riksbank and our assumption on tax cuts.

Despite gross wages being expected to increase more rapidly next year, tax revenue is not developing in a similar way between 2005 and 2006. One reason is that we expect the final step of the income tax reform, with full compensation for the national pension charge to be implemented. This is expected to reduce tax revenue by approximately SEK 6 billion. Moreover, tax revenue due to the reversed tax reservation reserves is not expected to be as large in 2006 as in 2005.

The Debt Office's net lending to central government agencies, public enterprises and state-owned companies is expected to total SEK 15 billion, which is a reduction compared with 2005 of SEK 8 billion. The reason is that net lending is expected to be high in 2005 due to winding-up of the account for competence saving and new borrowing for loans that the Debt Office is to take over from Stockholmsleder AB and Göteborgsleder AB.

Interest payments for 2006 are expected to be SEK 40 billion. The increase between the years is primarily explained by exchange rate gains in 2005 of SEK 9 billion changing into a loss of SEK 2 billion in 2006. The low interest-rate level has an impact, however, and results in lower total interest payments.

COMPARISONS

Borrowing requirement adjusted for temporary payments

Part of the payments that affect the borrowing requirement can be regarded as temporary. Previous examples of payments of this kind are payments for maturing housing bonds that were transferred from the AP funds to the state and sale of state property.

In 2005, the state has sold shares in Nordea for SEK 2 billion and the repurchase of shares in TeliaSonera is expected to produce approximately SEK 4.5 billion in income for the state. The amounts are recorded as sales income. We estimate sales of income of SEK 5 billion in 2006.

Table 2. BORROWING REQUIREMENT ADJUSTED FOR TEMPORARY PAYMENTS, SEK BILLION

	2000	2001	2002	2003	2004	2005	2006
Borrowing requirement	-102	-39	-4	47	51	31	41
Sale, state property		76					
Additional dividend, Riksbank				20			
Transfer from AP (pension insurance) funds	45	42	7	14	4	2	0
Deposits and loans	-56	-25	-9	-3	-8	-17	-8
Central government debt interest	-14	-5	-1	15	10	9	8
Miscellaneous	1	2	-2	4	0	7	5
Adjusted borrowing requirement	-50	-25	14	76	57	31	47

The borrowing requirement is expected to be around SEK 31 billion in 2005. Adjusted for temporary payments, it will also be approximately SEK 31 billion. The borrowing requirement for 2006 is expected to be SEK 41 billion and the adjusted borrowing requirement SEK 47 billion.

Comparisons with other forecasts of the borrowing requirement

The Debt Office's forecast for the current year indicates a lower borrowing requirement than the Government's, NIER's and the Financial Management Authority's (ESV) calculations. Compared with NIER and ESV, the differences are fairly small in 2005, however. The lower borrowing requirement in relation to the Government's calculation can be partly explained by the Government calculating with higher net lending.

NIER, ESV and the Debt Office have very similar forecasts for sales income (SEK 6-7 billion in 2005 and SEK 4-6 billion in 2006), while the Government assumes that sales revenue will total SEK 15 billion both years. Adjusted for known differences in the forecasts of sales income and interest payments, we still expect a higher borrowing requirement in 2006 than NIER and the Government.

Interest payments differ slightly between the different forecasters, but what the Government, NIER and ESV all have in common is that they believe in higher interest payments. This is due to their expecting that interest rates will increase compared with the stop rates from June 2005 used by the Debt Office.

Table 3. COMPARISON BETWEEN BORROWING REQUIREMENT FORECASTS, SEK BILLION

	Debt Office		Govt.		NIER		ESV	
	05	06	05	06	05	06	05	06
Primary borrowing requirement	-3	1	4	-15	-2	-5	-2	2
Interest on central government debt	34	40	35	45	34	46	35	46
Borrowing requirement	31	41	39	30	32	41	33	47
Borrowing requirement with Debt Office interest and sales income	31	41	47	34	33	34	32	41

SENSITIVITY ANALYSIS

All forecasts include elements of uncertainty. The Debt Office does not produce any overall uncertainty analysis for the borrowing requirement. Instead, we present a partial analysis of the impact on the borrowing requirement that changes in some important macro variables, roughly estimated, will have in a one-year perspective. If one wishes to make an assessment of an alternative scenario in which several variables develop differently, their effects must be added together.

SENSITIVITY ANALYSIS, SEK BILLION

Increase by one per cent/percentage point	Impact on borrowing requirement
Gross wages ¹	-6
Household consumption, current prices	-2
Registered unemployment	4
Swedish interest rates	4
International interest rates	1
Exchange rate	0.5

¹ Local taxes based on income from employment are disbursed to local government with a one-year time lag. As a result, the effect on the central government borrowing requirement in a one-year time perspective - the time horizon in the table - is larger than the permanent effect.



MONTHLY FORECASTS

The Debt Office publishes annual forecasts three times a year. At the same time, we publish monthly forecasts for the intervening months. Between regular publications, the Debt Office only makes revisions of annual and monthly forecasts in exceptional cases. The revised forecast is then presented with the announcement of the monthly borrowing requirement outcome five working days after the end of each month.

The forecast for the borrowing requirement in June 2005 is SEK 4.3 billion, which is SEK 8.5 billion less than calculated compared with the previous forecast. The difference is mainly explained by the Riksbank's surplus for 2004 being paid in June instead of May as previously estimated. The large borrowing requirements in August and September are mainly explained by large disbursements for excess tax being expected to take place in these months.

Table 4. CENTRAL GOVERNMENT BORROWING REQUIREMENT 2005, SEK BILLION

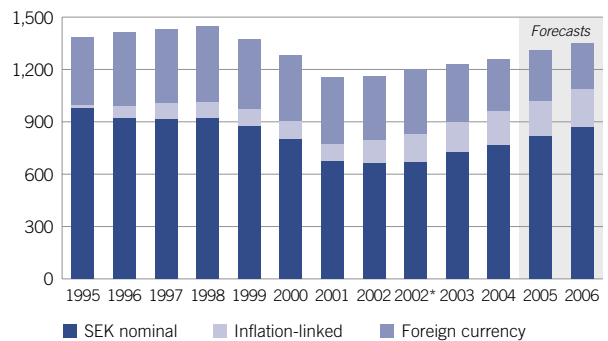
	Jun	Jul	Aug	Sep	Oct
Primary borrowing requirement	4.0	-6.0	7.1	4.7	5.9
Interest on central government debt	0.3	-0.7	6.3	8.4	-0.3
Borrowing requirement	4.3	-6.8	13.3	13.2	5.5

CENTRAL GOVERNMENT DEBT

At the end of May, government debt was SEK 1 246 billion, a reduction of SEK 11 billion since January 1. The borrowing requirement has reduced government debt by SEK 32 billion since the turn of the year. Debt-related dispositions and short-term investments have increased the debt by SEK 21 billion. An example of a debt-related disposition is the revaluation of the foreign currency debt, which affects the size of the debt but not the borrowing requirement.

The Debt Office does not take into account debt-related dispositions in its forecast of the development of central government debt. It is therefore expected to increase at the same pace as the borrowing requirement. At the end of 2005, the debt is projected to be SEK 1 310 billion and at the end of 2006 SEK 1 351 billion.

Figure 2. THE CENTRAL GOVERNMENT DEBT, 1995-2006
SEK billion



* A new measure of the central government debt was introduced in the beginning of 2003.



In December, the Debt Office decided to reduce the duration target for the nominal krona debt from 3.0 years in 2004 to 2.8 years at the end of 2005.

The larger financing requirement in 2006 justifies an increase in the issue volume from year-end. We expect to increase the issue volume to SEK 3 billion from the beginning of the year and to SEK 4 billion in the latter part of the year, autumn 2006.

As shown in Table 4, the outstanding stock of bonds will decrease by SEK 28 and SEK 14 billion respectively in 2005 and 2006.¹ The exposure in bond rates, taking planned swaps into consideration, is expected to decrease by SEK 50 and SEK 30 billion respectively. Swaps are discussed in more detail in the section on T-bills and foreign currency borrowing.

Table 4. CHANGE IN OUTSTANDING GOVERNMENT BONDS, NET INCLUDING SWAPS, SEK BILLION

	2004	2005	2006
Nominal government bonds, issues	91	56	77
Maturities, buy-backs and exchanges	-69	-84	-91
Change in nominal government bond stock	22	-28	-14
Swaps, net	-21	-22	-16
Nominal government bonds and swaps, net change	1	-50	-30

New ten-year loan introduced on September 14

Bond issues are usually made in the reference loans with two-, five- and ten-year maturities that are traded in the electronic interbank market.² The issues are usually concentrated on new loans.

On September 14, a new ten-year government bond, loan 1050, will be introduced maturing on July 12, 2016. There will be an opportunity to exchange loan 1049 (August 2015) for the new ten-year loan on four business days after the auction. The conditions for these exchanges will be announced in a press release on September 1. The coupon will be notified a week before the first auction date. Trading will start in the loan as a ten-year reference loan in the electronic trading system with payment date on December 21, 2005.

¹ Information on outstanding stocks in the different types of debt are published in the Debt Office's monthly report The Swedish Central Government Debt.

² The loans treated as reference loans in electronic trading are determined by which loans are closest in terms of maturity to two, five or ten years. However, reference loans change only on IMM dates (the third Wednesday of March, June, September and December) with the criteria that in terms of maturity the loans should be closest to two, five or ten years on the following IMM date. With this change, an underlying loan in the forward contracts will always be the same as a reference loan in the last three months of the contract.

We are also planning to issue a new ten-year loan in 2006. More information will be presented in the next government borrowing report.

To avoid an excessively long duration in the debt, the issues will be allocated evenly between the two-, five- and ten-year maturities in 2005. During the autumn, we expect to be able to issue the fifteen-year loan on one occasion.

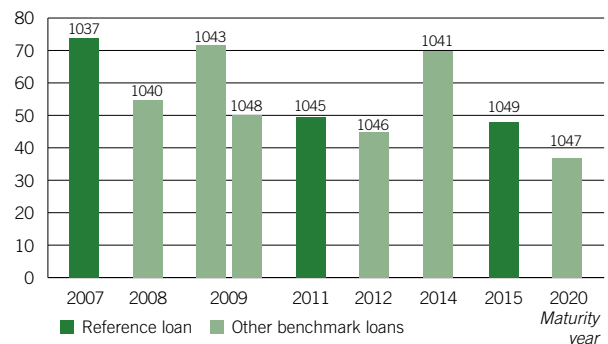
In 2006, the issues will be allocated in such a way that half of them will be made in the ten-year segment. We expect to make three issues in both the two-year and the fifteen-year maturity and the remaining issues in the five-year segment.

Table 5. REFERENCE LOANS IN THE ELECTRONIC INTERBANK MARKET¹

Dates for exchanges of reference loans (IMM-date)	2-year	5-year	10-year
December 15, 2004	1037	1048	1049
June 15, 2005		1045	
December 21, 2005	1040		1050
June 21, 2006	1043		

¹ The above dates for change of reference loans refer to the payment date. The first trading date for a new reference loan is normally the Friday before the IMM date.

Figure 2. NOMINAL GOVERNMENT BONDS (BENCHMARKS) SEK billion



T-bills and interest swaps

Increased borrowing with T-bills

Funding in T-bills is expected to increase by SEK 25 billion in 2005 compared with 2004. This is a reduction of SEK 15 billion compared with the February forecast and reflects the decreased funding requirement. In 2006, bill funding is expected to increase by SEK 5 billion compared with 2005.

Borrowing in T-bills varies due to seasonal variations in the funding requirement. In late autumn, as well as early in the year, the borrowing requirement and thus bill issues are relatively large. However, the borrowing

requirement is usually lower in the period February to May. Bill maturities are concentrated in the IMM months, contributing to relatively large borrowing in bills at auctions in these months. Bill borrowing can deviate from the normal pattern, however, due to, for instance, forecast deviations in the borrowing requirement.

The T-bill stock is expected to increase by SEK 54 and 57 billion respectively in 2005 and 2006. The increase is due to increased net funding in bills and the exchanges of bond loans 1044 and 1037 to T-bills taking place in 2005 and 2006.

Table 6. CHANGE IN OUTSTANDING T-BILLS, NET INCLUDING SWAPS, SEK BILLION

	2004	2005	2006
T-bill borrowing, net ¹	-35	-10	-5
Exchanges of government bonds for T-bills	50	65	62
Change in T-bill stock	15	54	57
Interest swaps, net	30	33	23
T-bill stock and swaps, net change	45	87	80

¹ Net of issues (excluding exchanges) and maturities.

SEK 40 billion in interest rate swaps

The Debt Office can also create short borrowing by issuing bonds and then use interest rate swaps to reduce the duration. Provided that the difference between the swap rate and the government bond rate is sufficiently large, this borrowing technique reduces government borrowing costs.

In 2005 and 2006 around SEK 40 billion of bond issues will be swapped to short interest exposure in kronor or to foreign currency. The estimated increase in the swap volume in comparison with 2004 contributes to reducing the duration and thus keeping up issue volumes in government bonds. Interest rate swaps can also be used as part of the foreign currency borrowing. The interest rate swap is then combined with a foreign currency swap so that the exposure in kronor is exchanged for exposure in foreign currency.

If market conditions change, the actual swap volume can deviate from the forecast. Swaps will continue to take place at a relatively even pace during the year and with cost-effective maturities.

³ See fact box on borrowing instruments and swaps on p. 9 in Central Government Borrowing – Forecast and Analysis 2004:2. For an extended discussion on the use of swaps, see, Holmlund, A, (2002), "Swaps in central government debt management", Central Government Borrowing – Forecast and Analysis 2002:3, p. 17-20. An account of how funding is allocated to different loan instruments can be found in Olofsson, T. (2002), "How central government debt is funded", Central Government Borrowing – Forecast and Analysis 2002:3, p. 13-16.

THE USE OF SWAPS BY THE DEBT OFFICE

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The Debt Office's policy is to make borrowing predictable and transparent. Funding is allocated between borrowing instruments and maturities depending on borrowing requirements, duration targets and the need to contribute to liquidity in our benchmark loans. The approximate allocation between instruments and maturities is announced in advance.

Our goals and restrictions for borrowing can also be achieved by swaps to some extent. Funding in T-bills can, for instance, be replaced by bond borrowing combined with interest rate swaps. Since we have a relative advantage as an issuer in the long segment, this is a cheaper way of creating short borrowing compared with T-bill borrowing. If the conditions for foreign currency borrowing are less favourable, we can also create foreign currency borrowing by swapping bond borrowing for exposure in foreign currency.

Bond borrowing with swaps contributes to liquidity in the bond market. At the same time, the refinancing risk is limited by the short interest exposure achieved with a synthetic FRN (long maturity with floating interest) instead of with T-bills.

However, the Swedish swap market has limited liquidity. Our swap volumes are therefore restricted by the depth of the market. If we undertake excessively large volumes, we will become an altogether too large and dominant player in the market and push down swap rates relative to bond rates, reducing the cost benefits. In practice, this means that if we use swaps in foreign currency borrowing, the scope is decreased for using swaps instead of T-bills. The possibility of issuing bonds and then swapping the exposure to short interest is restricted for these reasons.

In 2004 practically all swaps were used to replace T-bills. In 2005 and 2006, the major part will be used to replace T-bills since there is a limited need to use swaps in foreign currency borrowing, see the section on foreign currency borrowing below.

Table 7 shows the net change in the outstanding swap volume. Despite a larger gross swap volume planned in 2005, the outstanding stock will not increase more quickly since maturities will also be larger.



Table 7. CHANGE IN OUTSTANDING SWAPS, SEK BILLION

	2004	2005	2006
Interest rate swaps ¹	30	33	26
Currency swaps ²	2	7	15
Swaps total	32	40	40
Swaps, maturities	-11	-18	-24
Swaps, net change	21	22	16

¹ Interest rate swaps from long to short interest-rate exposure in SEK.

² Interest rate swaps from long to short interest-rate exposure combined with currency swaps to foreign currency.

INFLATION-LINKED BORROWING

Issue volume

Demand for inflation-linked bonds has periodically been weak during the past six months. One reason for the weak demand can be uncertainty in the market about how the future investment rules for pension institutes will be framed. The weak demand has resulted in the rate of issuance to date this year being slightly lower than the annual pace of SEK 15 billion adopted in the February forecast. However, the Debt Office expects the uncertainty to decrease during the autumn and that we will again be able to issue inflation-linked bonds at an annual pace of around SEK 15 billion.

However, market growth is difficult to assess and the annual pace only provides an approximate estimate. If demand continues to be weak, the issue volumes will be lower than assumed above. The costs for inflation-linked borrowing must also be reasonable for the planned pace of issue to be maintained.

Issue policy

Inflation-linked bonds are issued every other week. The announced issue volumes are normally about the same size at each auction. However, large deviations cannot be ruled out at times when market conditions are special, such as on coupon maturity.

Flexible issue volumes will be used in the same way as before. The flexibility in the volume will be announced as an interval. The lower interval limit corresponds to the issue volume offered. The flexibility entails that the issue volume can be increased up to the upper interval limit provided that this can be done without significant impact on interest rates, i.e. that the bid curve is flat within the interval.

Even if the issue volumes do not vary so much from one auction to another, to some extent, the Debt Office takes into account the prevailing state of demand and the pricing picture. The choice of loans, issue mechanisms and volume on individual issue dates is announced a week

before the auction date after the Debt Office has gathered suggestions from primary dealers and investors. Both investors and dealers are welcome to pursue a continuous dialogue with the Debt Office on inflation-linked bonds and to submit suggestions before individual issues.

During the spring, we have taken part in a dialogue with the market on sales mechanisms for inflation-linked bonds. Any policy changes will be announced in the next forecast.

Current loans and issues

On September 22, 2005, the Debt Office will issue a new inflation-linked bond (loan 3106) maturing on April 1, 2012.⁴ The new loan is being introduced by an auction. The issue volume and coupon for the loan will be published a week ahead of the first auction. The conditions of the loan otherwise will be substantially the same as for loan 3105 which is the most recently issued inflation-linked bond, for instance, loan 3106 will also have deflation protection.⁵

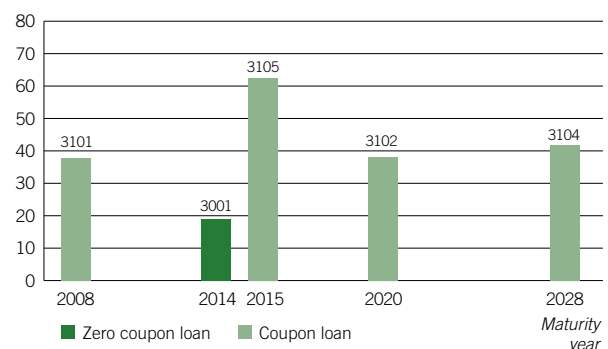
There will be an opportunity to exchange the new loan 3106 for the bonds 3101, 3001 and 3105 during the three following business days. The exchange procedure will be repeated four weeks later beginning on October 21, 2005. The replacements for 3101 and 3105 will be made price risk-neutral, while the replacement for 3001 will be made liquidity-neutral.⁶ Definitive conditions and details

⁴ In the previous Central Government Borrowing – Forecast and Analysis 2005:1, the due date was stated as April 12 instead of April 1. To avoid an interpolation of the CPI figure having to be used to pay inflation compensation on maturity, the maturity date has been set as April 1. The CPI outcome for January will then be used when calculating the compensation for inflation.

⁵ The deflation protection means that the final index (the price index to be used to pay inflation compensation on maturity of the loan) is never to be lower than the base index (the price index used in connection with the first issue).

⁶ Price risk neutral exchanges mean that the market value of bought and sold volumes multiplied by the modified duration of the respective bond is to be equal. Liquidity-neutral exchanges mean that the cash (payment) amount of bought and sold volumes is to be equal.

Figure 3. INFLATION-LINKED GOVERNMENT BONDS
SEK billion



of the exchanges will be announced in a press announcement on September 1.

Loan 3101 matures in 2008. Phasing-out of the loan is to take place successively. During the autumn, a maximum of SEK 8 billion of 3101 will be exchanged for the new loan 3106. In 2006, at most an additional SEK 8 billion will be exchanged for longer bonds. In 2007, investors will be offered opportunities to exchange the remaining outstanding amount. No exchange or buy-back opportunities will be offered in 2008.

Loans 3105, 3102 and 3104 will, in addition to loan 3106 when it is introduced in the autumn, be issued in 2005 and 2006.

FOREIGN CURRENCY BORROWING

In 2005 and 2006, foreign currency loans equivalent to SEK 54 billion per year will mature and we accordingly need to borrow SEK 29 billion per year in foreign currency to meet the target of SEK 25 billion for the pace of amortisation.

Table 8. FOREIGN CURRENCY BORROWING 2004-2006, SEK BILLION

	2004	2005	2006
Foreign currency borrowing requirement, gross	12	29	29
Foreign currency amortisation	-26	-25	-25
Maturities and foreign currency differences	37	54	54
Foreign currency bonds ¹	22	43	30
Foreign currency swaps ²	11	18	21
Realised exchange rate differences	5	-8	2
Foreign currency borrowing, gross	13	29	29
Bonds in foreign currency	10	22	15
Foreign currency swaps, gross ²	2	7	15

¹ Valued at current exchange rates

² Interest rate swaps from long to short interest rates combined with currency swaps to foreign currency.

We can borrow in foreign currency by issues of krona bonds that are swapped to exposure in foreign currency (krona/swap borrowing)⁷ or by issues of foreign currency bonds (direct foreign currency borrowing). The allocation of currency borrowing between direct currency borrowing and krona/swap borrowing will depend on the interest rate conditions that can be achieved.

⁷ Government bond issues are first swapped to short interest rate exposure. Floating interest rates in SEK are then exchanged to short foreign interest rate by a currency swap with the same maturity as the interest-rate swap. At the same time, the Debt Office buys the foreign currency spot when the transaction is entered into. The currency is sold at the time of the swap. The currency swap thus creates a debt in foreign currency.

In 2005, the major part of the borrowing is taking place by direct currency borrowing since it has been possible to obtain loans at very good terms. To date, currency loans equivalent to SEK 12 billion have been issued. In January, a eurodollar bond was issued with a volume of 1 billion dollar maturing in 2010. If the loan conditions for issues of foreign currency bonds continue to be favourable, it may be possible to issue another benchmark loan during the autumn.

The remaining borrowing requirement during the year has been allocated in a standardised way between direct foreign currency borrowing and krona/swap borrowing, see Table 8. The actual allocation may, however, deviate from this scenario.

SUMMARY

The issue volumes in nominal government bonds will be reduced from SEK 2.5 billion to SEK 2.0 billion per auction from the auction on June 29. The reduction is due to a lower net borrowing requirement and a lower interest-rate level compared with the forecast from February. The total bond borrowing is estimated at SEK 56 billion this year.

The larger financing requirement in 2006 justifies an increase in the issue volume from the turn of the year. In this forecast, we assume an increase in the issue volume to SEK 3 billion from the beginning of next year.

The issues in nominal government bonds will be allocated evenly between the two-, five- and ten-year loans. In 2006, the issues will be allocated so that half are made in the ten-year segment. In addition, we expect to make three issues in both the two-year and the fifteen-year maturity and the remaining issues in the five-year segment.

T-bill borrowing increases by SEK 25 billion compared with 2004. This is a downward adjustment compared with the previous forecast.

The Debt Office expects to make interest rate swaps for around SEK 40 billion per year.

The Debt Office makes the assessment that there are prerequisites to issue inflation-linked bonds of around SEK 15 billion yearly. Demand is uncertain, however, and the issue volume may be lower if the weak state of demand persists. A new seven-year inflation-linked loan is being introduced on September 22.

The Debt Office is amortising the foreign currency debt at an annual pace of SEK 25 billion. Foreign currency borrowing is expected to total SEK 29 billion in both 2005 and 2006.



GOVERNMENT DEBT POLICY AND THE BUDGET POLITICAL GOALS

In order for the central government to be able to reduce the cost of the central government debt in the long run, it is important that finances remain strong and that the debt ratio is reduced. This provides scope for more inexpensive borrowing by taking greater risks in the management of the debt. The target regarding a surplus in the public finances should therefore be safeguarded. A target that the financial savings of the central government shall be in balance over an economic cycle would be an important milestone.

Budget politics in Sweden are aimed at two overall targets. One is the *surplus target* which states that the public sector's financial savings shall correspond to 2 percent of GDP on average over an economic cycle. The other is the *budget expenditure ceiling* which states that all the central government's annual spending including the old age pension system (except payments of interest on the central government debt) shall be maintained under a level determined by the Parliament.

Both the surplus target and the expenditure ceiling were created in the wake of the severe central government financial problems during the first half of the 1990s. In combination with the tightening of the budget process that led to a new budget act being adopted in 1996, these targets contributed to a marked improvement of the Swedish public finances during the following years. In the year 2000 there was, for example, a surplus in the financial savings corresponding to 5 percent of GDP, see Table 1. In parallel, the central government debt was reduced both in absolute numbers and measured as a share of GDP.

But in later years the aggregate surpluses have decreased. The pension system still shows a surplus but as to the central government there are regular deficits corresponding to 1–2 percent of GDP. This causes the central government debt to grow again. The purpose of this article

is to discuss what the prospects are in the long run and what consequences a continued increase of the central government debt may have for the debt management and the cost for the debt.

WHY A SURPLUS TARGET AND A BUDGET EXPENDITURE CEILING?

As a background, it could be interesting to study the justifications that are usually stated for the budget policy to be guided by the surplus target and the budget expenditure ceiling. In its spring bill of 2005, the Government writes as follows (bill 2004/05:100, Appendix 1, p. 62):

“ The surplus target is primarily motivated by the need to strengthen the financial position of the public sector before the future demographic strains on the public welfare systems. At the same time, the target means that a scope is created to avoid overly large deficits in a recession.

The budget expenditure ceiling for the central government is an important instrument in the budget process and prevents a temporarily greater income being used for permanently greater expenditures. The expenditure ceiling is also an important instrument to ensure the surplus target. ”

Table 1. THE FINANCIAL SAVINGS OF THE PUBLIC SECTOR, 2000–2007

	2000	2001	2002	2003	2004	2005	2006	2007
<i>SEK Billion</i>								
The central government	56	167	–44	–43	–21	–43	–47	–28
The old age pension system	48	–104	45	47	48	54	56	55
The municipal sector	5	–4	–13	–7	2	8	8	5
The public sector	109	59	–12	–2	28	19	17	32
<i>Percent of GDP</i>								
The central government	2.6	7.4	–1.9	–1.7	–0.8	–1.6	–1.7	–1.0
The old age pension system	2.2	–4.6	1.9	1.9	1.9	2.0	2.0	1.9
The municipal sector	0.2	–0.2	–0.5	–0.3	0.1	0.3	0.3	0.2
The public sector	5.0	2.6	–0.5	–0.1	1.1	0.7	0.6	1.1
Average from 2000	5.0	3.8	2.4	1.8	1.6	1.5	1.3	1.3

Sources: Statistics Sweden and the Ministry of Finance.

The surplus target, thus, has primarily a long-term perspective, connected to the demographic changes which will cause the share of elderly to increase in the coming decades. Another effect of the surplus target is that the freedom to act in the economic cycle policy will increase by having a margin to the EU's limit on too great deficits of 3 percent of the GDP. The central government is thereby able to reduce the need to put on the breaks when the budget is weakened in a recession. It should be noted that the surplus target is based on a benchmark obtained from the national accounts and is therefore guided by an established international body of rules.

The budget expenditure ceiling is, as the above quote shows, a more short-term instrument to secure the surplus target, *inter alia* by preventing uncontrolled increases of central government expenditures when the income increases. It also makes it impossible for the expenditures in the transfer systems, where the economic development is decisive, e.g., for unemployment compensation, to increase without the Parliament having the ability to consider reprioritizations or rule changes that restrict aggregate expenditures.

Expenditure ceilings have become a permanent part of the budget (even if the proposal for 2007 will not be available until the budget bill in the autumn). How to design the ceiling is however not regulated in the Budget Act. It regulates only certain principles on how the ceiling is to be handled. This means that the expenditure ceiling comprises the expenditures that the Parliament chooses to include. Also otherwise, the effects of the expenditure ceiling are to a great extent affected by how the Parliament chooses to apply the Budget Act.

APPLICATION OF THE BUDGET POLITICAL TARGETS

The surplus target

Table 1, the figures of which are derived from the spring bill of 2005, shows that the surplus over the entire period of 2000–2007 on an average amounts to 1.3 percent. How

to define an economic cycle is not self-evident, but in the spring bill the Government also accounts for a measure of the structural financial savings where the figures have been adjusted in consideration of free resources in the economy, the so-called GDP gap. The results are presented in Table 2.

Table 2 shows that the structural financial savings during the later part of the period is approximately 1 percent of GDP (except for 2004 that has been affected by certain temporary effects). This indicates that the surplus target cannot be deemed to have been fulfilled.

The budget expenditure ceiling

When it comes to the budget expenditure ceiling there is no ambiguity whether the number target has been fulfilled since it is defined and measured in a precise manner. The Government has consequently for each year been able to show that the expenditures have been below the ceiling. In a number of cases this has however been attributable to special actions having been taken toward the end of the year, e.g., moving expenditures between the years (on an accounting basis or by moving payments).

An important explanation that the expenditure ceiling has not in a more effective manner contributed to reaching the surplus target is however that the Parliament has passed resolutions by which expenditures have been converted to reduced income for the central government. One example is that certain extra subsidies to the municipalities have not been included in the normal state subsidies, which fall under the budget expenditure ceiling, but have instead accrued to the municipalities by a reduction of their payment of tax to the central government. Also decisions to use a lower tax rate than normally for a certain activity may be seen as a method to provide support which is equivalent to a targeted subsidy but which does not affect the expenditures.¹

By different forms of subsidies that take the form of a relinquished central government income, central

¹ In Appendix 2 to the spring bill (bill 2004/05:100) there is an accounting for this type of support under the heading Tax Expenditures.

Table 2. STRUCTURAL FINANCIAL SAVINGS IN THE PUBLIC SECTOR, 2000 – 2007

	2000	2001	2002	2003	2004	2005	2006	2007
<i>Percent of GDP</i>								
Financial savings	5.0	2.6	-0.5	-0.1	1.1	0.7	0.6	1.1
Adjustment for GDP gap etc.	-1.1	0.3	0.8	0.9	0.6	0.2	0.1	0.0
Structural savings	3.9	2.9	0.2	0.8	1.8 ¹	0.9	0.7	1.1
GDP gap	0.9	-0.5	-1.1	-1.3	-0.9	-0.3	-0.1	0.0

¹ Part of the increase in the structural balance of 2004 may be explained by increased tax income due to certain companies having reversed all or some of their untaxed reserves for taxation. Sources: Statistics Sweden and the Ministry of Finance



government resources may thus be appropriated without affecting the expenditures that are accounted for. Relinquished income will however reduce the financial savings in the same manner as if it had been a question of budget expenditures. The Budget Act contains a rule that income and expenditures are to be accounted for on a gross basis, which *inter alia* is intended to prevent such subsidy forms. But for every departure Parliament chooses to make from the principle of gross accounting, the budget expenditure ceiling becomes an increasingly less effective means to reach the surplus target.

A departure from the gross accounting principle also facilitates support to activities where it is possible to provide subsidies by reduced tax income in comparison to others, where only normal expenditures are available. One example is that competence development in the municipal old age care may be financed through deposits into the tax accounts of the municipalities. The corresponding activities, e.g. within financial supervision, requires the use of appropriation means and must therefore be beneath the expenditure ceiling. Thereby, the ability to make clear and openly accounted for prioritizations between different expenditure areas in the budget process is reduced.

With the current application of the principles of the Budget Act, the expenditure ceiling must be seen as the less important budget political target. Whether the expenditure ceiling is fulfilled or not says relatively little about how the central government finances are handled and developed. In particular in a longer time perspective, interest should be focused on the surplus target, how it is designed and how it develops.

THE SURPLUS TARGET AND THE CENTRAL GOVERNMENT FINANCES IN THE LONGER TERM

As the quote from the spring bill shows, the surplus target is connected to the need to prepare the public finances for the strains of the coming decades. The challenges that the public sector faces are analyzed in detail in the Long-Term Survey of the Swedish Economy 2003/04 (SOU 2004:19). Despite relatively optimistic assumptions regarding economic development, the Long Term Survey's (LU's) calculations show that it is only with a narrow margin that it is possible to maintain present levels of the public services until 2020. Among the central assumptions is that the surplus target is reached every year until 2015. This reduces the interest expenses, which creates scope for other expenses, e.g. for social welfare services.

Since public savings presently are clearly below 2 percent of GDP, the public sector is less equipped to meet the coming strains than in the main scenario of the LU. A marked increase in employment over the next few years would improve the situation but it is not given that developments by themselves would take such a turn. Consequently, actions are required to bring the public finances onto a course until 2020 that corresponds to the LU's calculations. At that point, the margins are still small and from 2020 the demographically-caused requirements of old age care and healthcare will increase. This will lead to significant strains on the public finances.

CENTRAL GOVERNMENT DEBT MANAGEMENT AND DEBT SIZE

How then will the prospects for the central government debt affect the conditions for the Debt Office's area of responsibility, the central government debt management? The debt management concerns decisions of how the central government debt should be structured in order to achieve the lowest possible cost with due consideration to risk. In principle the size of the debt plays no part in assessing the debt structure that would provide the lowest cost, but normally it is possible to assume that the central government cannot reduce the expected costs without increasing risk. And the risks that the central government can take in deciding on the structure of the debt are to a decisive degree affected by the amount of the debt.

This connection is most easily illustrated in terms of the choice of duration of the debt. Normally, it is cheaper for the central government to borrow at short durations, for the same reason as a homeowner normally gets the lowest rate by borrowing at a floating interest rate. The disadvantage is that it is not known what future interest costs will be. But the smaller the debt, the lower will the impact on the total expenditures be if interest rates increase. A reduction of the central government debt thus provides a double bonus for the central government finances. On the one hand, costs are reduced on a total basis, and on the other, it is possible to choose more risky but cheaper types of debt. In addition, strong central government finances lower the yield requirements of the lenders, which results in lower interest rates.

The converse is also true: If the debt grows, the central government may need to choose longer and more expensive borrowing. Already the assessment that there is a risk that the debt will grow may motivate more long-term borrowing. If a great deal of the old debt is to be refinanced

every year and the central government in addition needs to take out new loans to cover a great deficit, the impact of higher interest rates will become extra great. In order to reduce this risk the central government should before a period of great expected deficits increase the duration of the debt so that a smaller part needs to be refinanced every year. The result will (normally) be higher costs but this can be seen as the insurance premium that central government must pay in order to reduce the risk level. If the central government does not extend the duration when the debt grows or is expected to grow fast, the lenders may also start to worry that the financing needs will be overwhelming. Then interest rates will increase, in the worst case, drastically. The result may be that the decision to extend the borrowing is the less costly of two costly alternatives.

The Debt Office discussed these issues in its proposed Guidelines to the Government prior to 2004. The conclusion was however that the demographic strains were so far ahead in time that it was not time already now to bring about an extension of the duration of the debt. In the proposal before 2005 we also suggested a reduction of the duration of the nominal debt in consideration of the overall risk level having been reduced *inter alia* because the central government had issued more long-term inflation-linked bonds and reduced the foreign currency debt.

At the same time it must be emphasized that the greater the departure from the surplus target that is made in the nearest few years, the greater the risks will be in the central government finances and the earlier will the point in time be when it is necessary to reduce the risk level in the outstanding central government debt. This in turn will cause the costs of the central government debt to increase. Here is, thus, a vicious circle where bad management of the central government funds will cause the interest rates to assume a greater deal of the resources. In the long run, the scope for financing other budget expenditures will irreversibly shrink.

Conversely, there is also a beneficial circle where lower debt provides lower debt costs and stronger finances. In order to initiate such a positive development it may be sufficient that the central government sticks to the surplus target as originally formulated. The surplus target comprises the entire public sector: the central government, the municipalities and the old age pension system. The income and expenditures of the pension system are guided by fixed rules. For the municipalities there is a balance requirement and their finances are hard pressed by their present obligations. Consequently, it is primarily the financial savings

of the central government that must be improved if the surplus target is to be reached. Considering that the target has been established by the Parliament it is also reasonable that the responsibility for maintaining it remains there. Since the central government has a deficit it is essential to reduce the central government's negative financial savings.

The Debt Office has in different connections pointed to that it would for several reasons be suitable to establish a separate target for financial savings of the central government.² A simple point of reference would for example be that the financial savings of the central government shall be zero on an average over an economic cycle. In addition to fulfilling the aggregate surplus goal in that manner, this would cause the central government debt to remain at approximately the present level in krona and would reduce it as a share of GDP. Since the central government has obligations that grow as a result of the demographic changes, e.g., for healthcare and old age care, the central government has its own need to strengthen its financial position. As a result, a target that comprises the entire public sector may be insufficient, even if the pension system had such a large surplus that the 2 percent target was reached

CONCLUSION

Sweden has weathered central government financial problems before, at the latest time after the crisis during the first half of the 1990's. This crisis was partially caused by unforeseen events and arose in a short time. Now it is about the effects of demographic occurrences which are incontrovertible and which stretch over several decades. The advantage is that there is time to prepare the economy and the central government finances for the strains that are coming. The preparations can, however, not wait.

Lars Hörngren, Chief Economist

² See, e.g., Central Government Borrowing 2004:2.



CURRENCY HEDGING FOR GOVERNMENT AGENCIES

The ability of government agencies to handle currency flows and currency risk in an efficient manner has until recently been limited. This makes it difficult for the agencies to plan and forecast their use of funds. The Swedish National Debt Office nowadays offers the agencies currency hedging of foreign currency payments. Currency hedging and associated deliveries of foreign currency are a part of the Debt Office's efforts to promote good cash management within the Central Government. The system also contributes to more efficient management and control of the appropriation funds of the agencies.

THE AGENCIES' CURRENCY RISK

Since an agency's appropriations are stated in krona, foreign currency payments create uncertainty about the rate at which appropriations are being consumed. Agencies who pay (or receive payments) in foreign currency therefore benefit greatly from being able to hedge these payments. Currency hedging guarantees a certain fixed exchange rate for a fixed amount on a fixed day. In this way, the agency thus knows exactly how much it will pay in krona, even though the actual payment will take place in the future, when the exchange rates may have changed.

For the agency, this means simpler planning, less administration and in general less resources spent on managing unplanned and unforeseen situations. This will also give the agencies an incentive to review how their foreign currency payments are made, the currencies that are chosen and how to limit currency risks when agreements are made with foreign suppliers.

Currency hedging means that the Debt Office assumes the agencies' currency risk and supplies or receives the foreign currency on the due date. The agency enters into a forward contract with the Debt Office and thereby receives a fixed price for the foreign currency for a certain due date. The price may be used by the agency in its budgeting.

A practical example:

Assume that the agency X orders goods (on the transaction date) and for that reason places an order for Euro 1 million to be paid on the day of delivery (on the payment date). On the transaction date, the Euro forward exchange rate for the

payment date is SEK 9.00. Hedging means that the payment will amount to SEK 9.0 million regardless of what the actual exchange rate is on the payment date. If the agency had not hedged the payment and the Euro exchange rate had amounted to SEK 9.10 on the payment date, the final payment would instead have been SEK 9.1 million.

The pre-determined times at which payment for ordered goods or services is to be made, frequently change. But currency forwards are always to be paid at the time fixed in advance. In that case, the agency may supplement the original currency forward with additional forward contracts.

THE ROLE OF THE DEBT OFFICE

There are clear economies of scale in having a single central government supply of foreign currency to the agencies through the Debt Office. The Debt Office is a major player on the currency markets and is able to offer the agencies the foreign currency needed on a cost-efficient basis. The flows that are derived from the hedging of the agencies are combined with the Debt Office's other foreign currency payment flows, which means that these can be used to match also, e.g., the Debt Office's interest payments on and amortization of foreign currency loans.

The Debt Office does not however eliminate the currency risk that it has assumed from the agencies by entering into corresponding forward transactions in the market. One reason for this is that the operations aim to assist individual agencies in handling foreign currency risks that are great in relation to the appropriations of these agencies, but which are insignificant in relation to the aggregate foreign currency risks of the central government. The central government has a foreign currency debt in the amount of approximately SEK 300 billion. That the agencies have payments in foreign currencies means that the actual foreign currency exposure is somewhat greater than what the foreign currency debt shows, but the increase is marginal. There is therefore no reason for the Debt Office to assume for itself (and the central government) additional costs in order to reduce the

FACTS

WHAT IS A FOREIGN CURRENCY FORWARD?

A foreign currency forward is a binding contract between two parties for the *right and obligation* at a certain future point in time to buy and sell, respectively, a pre-determined amount in a foreign currency at a pre-determined price.

foreign currency risks that we happen to become aware of because we enter into forward contracts with agencies.

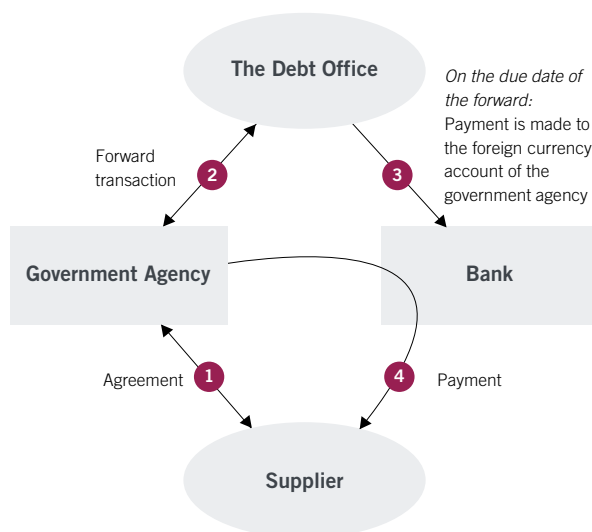
Moreover, this is the same principle that the Debt Office for a long time has applied to other types of intra-central government transactions, e.g., the agencies' borrowing from and lending to the Debt Office. The fact that an agency borrows for, e.g., a three-year term in order to finance an investment does not affect the Debt Office's borrowing from external parties, i.e., the loans we issue in order to finance the central government debt.

The underlying principle may be said to be that the Debt Office's financing of the central government debt through loans from third parties should not be affected by financial agreements within the central government. One is about managing the balance sheet of the central government, the other about offering to the agencies the financial services they need in order to fulfil their proper duties, without having to divert too much attention to financial risks and how to manage these.

HEDGING IN PRACTICE

The practical transactions in connection with a forward contract can be described with reference to the figure below.

Figure 1. HEDGING MODEL



It all starts with the government agency entering into an agreement with a supplier, under which payment is to be made in a foreign currency. The agency will remove its exchange rate risk by entering into a forward transaction with

the Debt Office in connection with execution of the agreement. On the due date of the forward, the Debt Office deposits the foreign currency in the agency's foreign currency account with a bank. When payment is made, there is a transfer from the agency's foreign currency account to the account of the supplier. The actual handling takes place through account transfers in the bank system between the agency's, the Debt Office's, the bank's and the supplier's accounts.

The Debt Office primarily offers currency forwards in the currencies that form part of the Office's benchmark portfolio, i.e., Euro, US dollars, Swiss francs, British pounds and Japanese yen. The Debt Office has its own flows in these currencies, which means that the Debt Office can match the agencies' flows to other flows of the Debt Office and thereby reduce the aggregate number of exchanges. The administrative advantages are thus the greatest in these foreign currencies.

ISSUES FOR GOVERNMENT AGENCIES TO CONSIDER

In order to improve its planning and appropriations forecasts, an agency should analyse its foreign currency risks. If foreign currency payments constitute a significant share of the agency's aggregate incoming and outgoing payments, the agency may need to develop a foreign currency policy as a part of its financial policy. The agency should in this connection consider the following issues:

- In what foreign currencies shall contracts be entered into?
- In what cases should payments in foreign currencies be hedged?
- At what time should hedging be made?
- What duration should the contract have?
- When shall/should supplementary hedging be made?

In order for an agency to be able to hedge foreign currency flows with the Debt Office, permission from the Government is required, either in the agency's instruction or in a separate letter of regulation. An agency that is of the opinion that it will need to enter into foreign currency forward should thus contact the ministry that is responsible for the operations of the agency. In addition, a foreign currency account is needed from which the payment to the supplier is to be made. An application to open a foreign currency account is made to the Debt Office.

Mikael Bergman, Cash Management Department



CASH FLOW AT RISK

– A MEASURE OF MARKET RISK FOR INTEREST PAYMENTS FORECASTS

Cash Flow at Risk shows that we can be 95 percent certain that the interest payments will not exceed our latest interest payments forecast by more than SEK 3 billion over the forecast period from April to and including December 2005 as a result of changes in interest rates, exchange rates and inflation. This is 11 percent of the interest payments forecast. Currency risk contributes by 65 percent of total risk.

The Swedish National Debt Office has developed a method to calculate market risk for our interest payments forecasts. We call this measure Cash Flow at Risk (CFaR). CFaR states that interest payments are not expected to exceed the interest payments forecast by more than a certain amount over a given time period as a result of changes in interest rates, exchange rates and inflation. The measure thus shows how sensitive the Debt Office's interest payments forecasts are to market risk over the course of the forecast period.

Market risk is isolated by maintaining borrowing requirement and planned financing strategy constant in the calculations. The risk is calculated analytically at a 95 percent confidence level under the assumption of normally distributed movements in interest rates, exchange rates and inflation.

CFaR is a relatively short-term risk measure as it considers only interest payments during the coming forecast period. It is not a measure used for our long-term considerations regarding duration and debt structure. In that case, we instead look at the debt's long-term costs in terms of average issue rate (running yield) and thereby associated risk measure. CFaR shall primarily be seen as a complement to this in the shorter perspective.

CFaR is a further development of Relative Cost at Risk (RCaR) that we developed during 2003 and published in *Central Government Borrowing – Forecast and Analysis 2004:1*. The greatest differences are on the one hand the strict cash-based view in CFaR and that the cash characteristics from derivatives of the central government debt are included in a more realistic manner.

CASH FLOW AT RISK MEASURES MARKET RISK FOR EXPECTED CASH FLOWS

The interest payments forecasts that the Debt Office produces concern actual payments and are therefore cash-flow based. They are based on constant market prices over the forecast period. We thus do not include any specific view of how interest rates, exchange rates and inflation are expected to develop. This means that deviations from the interest payments forecasts arise as soon as interest rates, exchange and inflations depart from their constant forecast values.

In order to create a risk measure that is in accord-

ance with the interest payments forecasts, it must be based on an equivalent cash-based view and that the time periods are concurrent. By the use of CFaR we fulfill both these preconditions.

MARKET RISK IS ISOLATED FROM OTHER FORECAST RISK

The total interest payments forecast risk can be divided into three parts:

Borrowing Requirement Risk + Strategy Risk + Market Risk.

The borrowing requirement risk is the risk that interest payments deviate from forecast as a result of changed borrowing requirements. The strategy risk is the risk that interest payments deviate from forecast as a result of borrowing, amortization and debt management strategy being changed. Both these risks are internally caused and are disregarded in the CFaR model, which calculates only the external market-related risk.

WHY DO WE NEED CASH FLOW AT RISK?

Analogously to Relative CaR, CFaR shall primarily be seen as a simple and intuitive way of describing relatively short-term market risk. Depending on the decisions we make about borrowing and debt management we are affected to a different degree by market risk. The CFaR gives us a sense of how interest payments forecasts can vary as a result of market changes and what market variables have the greatest influence on deviations from forecasted interest rates.

CFaR is too short-term to be used in policy issues of a more strategic nature, i.e. issues about the long-term structure, duration etc., of the central government debt. As a support for this type of decisions we use an average issue rate together with a related risk measure. Average issue rate is the rate that the debt has historically been stated at (running yield). The risk measure is variations in this interest rate.

CFaR can be useful in the tactical perspective, *given* other strategic decisions. This may e.g. concern questions of *how* a certain duration or currency allocation shall be achieved in order to minimize cash-based risk. Different borrowing and debt management instruments have different cash characteristics, which fact affects the short-term market risk.

EXPOSURE AND RISK FACTORS

Expected interest payments are exposed to a number of sources of market risk. In the CFaR model we have refined these to eleven. The aim has been to create a simple and intuitive model that provides as good an approximation of actual conditions as possible. Our opinion is that the eleven risk factors are a minimum required to capture the most significant parts of the market risk we are exposed to.

The market risk can be divided into three main categories – interest rate risk, inflation risk and exchange rate risk.

Interest rate risk is based on Swedish and foreign currencies moving in a direction that is unfavorable to us when at times of issue and repurchase of government bonds and treasury bills, and in interest rate refixing of swaps and the daily settlement (mark-to-market) of bond futures.

Rising interest rates are negative for us in times of issue since the issue prices fall and we receive less money than expected for a certain number of bonds. The reverse is true in case of repurchases.

Increasing interest rates are also negative in interest rate refixing of swaps where we net pay a floating interest rate. The reverse is true for sold bond futures through the daily settlement mechanism.¹

Inflation risk means that CPI increases and leads to coupon payments for inflation-linked bonds becoming higher in nominal terms. The same is true for maturing inflation-linked debt, while the reverse is true in case of issue of inflation-linked bonds.

Foreign exchange risk arises when the krona is weakened as coupon payments and repurchases of the debt in foreign currency lead to higher payments calculated in Swedish krona. We are also exposed on a cash basis to movements in the Euro and Euro-related currencies vis-à-vis other currencies such as the US Dollar and Yen. This effect arises through the passive debt management in foreign currency where we buy and sell foreign currency on forward contracts in order to maintain the foreign currency shares of the benchmark. A certain effect also arises from maturing foreign currency swaps between other currencies than krona.

Table 1 schematically shows the risk factors we used and how we measured the exposure to these. The exposure can be defined as the degree of exposure against movements in the different risk factors, i.e. how we are affected by movements in interest rates, exchange rates and inflation.

A simplification of the CFaR calculations is that we use only *one* interest rate or exchange rate for each exposure. This means that we assume that all issues are exposed to movements in the specific interest rate and that all exchange rate exposures are against krona or Euro index. Reality is of course more complicated, but we believe that the simplification still provides a good description of the risk.

Furthermore, we have used the interest rate that as closely as possible approximates the average duration at issue, and the foreign currency conditions that best correspond to the underlying flows. For foreign currency risk we use two official currencies indices, Swedish TCW index and ECB Euro index.

Table 1. EXPOSURES AND RISK FACTORS IN THE CFaR MODEL

Exposure	Risk factor
T-bills issue and maturity	6-month T-bill interest rate
Government bonds issue and repurchase	5-year Swedish government bond interest rate
Inflation-linked bonds – issue and repurchase	10-year Swedish real interest rate
Interest rate refixing on krona denominated floating swap leg	3-month STIBOR
Interest rate risk for bond futures in Euro	5-year Euro bond rate
Interest rate risk for bond futures in US Dollars	5-year US bond rate
Interest rate refixing on Euro denominated floating swap leg	3-month EURIBOR
Interest refixing on US-dollar denominated floating swap leg	3-month USD LIBOR
Inflation-linked bonds – issue, maturity, repurchase and coupons	Swedish inflation (CPI)
Foreign bonds and swaps – issue, maturity, repurchase and coupons	Swedish krona index (TCW)
Short-term Euro exposure via passive debt management in foreign currencies	Euro index (ECB Euro index)

VOLATILITY AND CORRELATION VARY OVER TIME

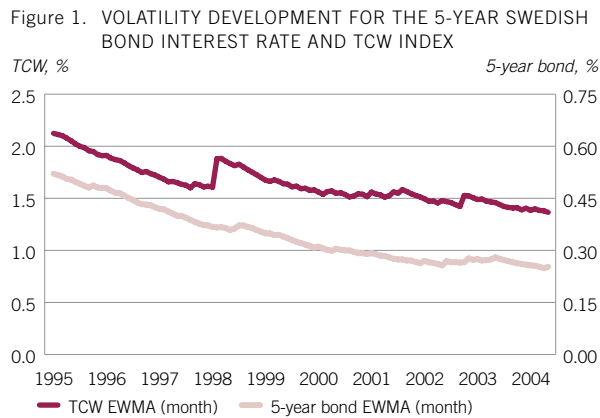
Volatility in, and correlation between, risk factors are measured with the aid of monthly data starting in January 1994. For interest rates absolute changes are used, and for foreign currency index and CPI percentage changes are used.² Monthly volatility and monthly correlation vary over time according to an exponentially weighted moving average function (EWMA). We have used the same basic parameters as RiskMetrics Group use to assess monthly data in their official data series. EWMA may be defined as a simplified GARCH (1.1) process without mean reversion.

² We have chosen absolute changes in interest rates before changes in logarithmic interest rates. The reason is that interest rate exposure is tied to interest rate volatility via an average interest rate risk (dollar duration) which measures exposure against a given absolute change in the interest rate.

¹ We sell foreign bond futures on a net basis to a great extent in order to achieve the target duration in the central government debt in foreign currencies. By these contracts, we make money when interest rates rise (and futures prices fall) through the daily settlement. As the correlation is strongly positive between changes in Swedish and foreign bond interest rates, the futures portfolio becomes a type of "hedge" against the risk of rising Swedish bond interest rates at planned issues.



Figure 1 shows volatility development of the 5-year Swedish bond interest rate and TCW index according to our EWMA model.



Volatility in both the Swedish krona and the Swedish 5-year bond rate has decreased since 1995. According to the model, we are now in a situation with historically low risk for both these markets.

The calculated volatilities and correlations according to the EWMA model are presented in a correlation matrix that is used, together with calculated exposures, to calculate a monthly value for CFaR. This monthly value is then scaled up to the time period for the interest payments forecast through a so-called “square root of time” approximation.³

CASH FLOW AT RISK IS BASED ON A NORMAL DISTRIBUTION

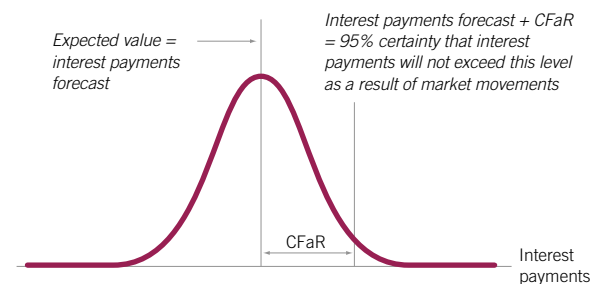
CFaR is a statistical risk measure. We assume that all exposures that affect the interest payments forecast are a linear combination of normally distributed variables. This means that the entire combination, i.e. the interest payments forecast, is normally distributed. We can therefore calculate CFaR as 1.65 multiplied by the forecast period standard deviation (volatility) for the interest rate payments, where 1.65 corresponds to a 95 percent confidence level for a normal distribution.

The calculations give us the ability to say that we are 95 percent certain that interest payments will not exceed the interest payments forecast by more than CFaR over the fore-

³ Monthly volatility is traditionally scaled to longer periods by multiplying by the square root of the number of months in the period. This transformation is based on volatility for all months being constant and independent over time. The EWMA model is based on monthly volatility varying from month to month and that this is not independent of earlier observations. Strictly statistically, EWMA is therefore in conflict with the assumptions behind the “square root of time” approximation. Despite this, it is a common simplification that is used in practice. In our model, monthly volatility is scaled to the interest rate forecast time period by multiplying by the square root of the number of months in half the period. This is based on the assumption that all expected interest flows are continuously realized over the forecast period.

cast period. We can also put CFaR in relation to the interest payments forecast. This gives us an idea of the magnitude of the fluctuations that are to be expected on the basis of market movements relative to the size of the expected interest payments. This may also function as a standardized measure for a comparison of forecast periods with different lengths.

Figure 2. PROBABILITY DISTRIBUTION



We are 95 percent certain that interest payments will not exceed the interest payments forecast by more than Cash Flow at Risk over the forecast period.

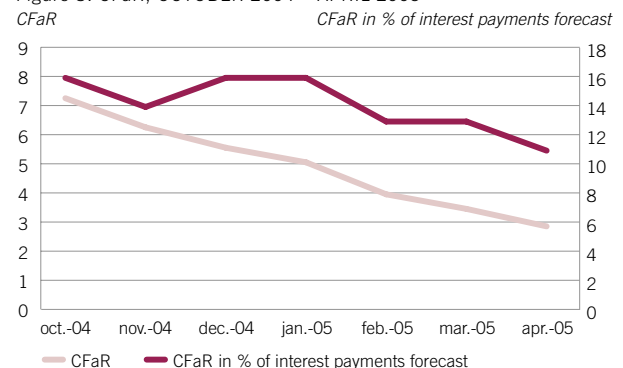
RESULT AND ANALYSIS

– CFaR AND INCREMENTAL CFaR

Our latest CFaR calculation shows that we can be 95 percent certain that the interest payments will not exceed our interest payments forecast by more than SEK 3 billion for the period from April to and including December 2005 as a result of changes in interest rates, exchange rates and inflation. This is 11 percent of the interest payments forecast.

The first time we calculated CFaR for 2005 was in November 2004. Since then we perform new calculations every month. Figure 3 shows how the development for CFaR and CFaR relative to the interest payments forecast. As the figure shows, CFaR has decreased during the period. This is attributable to the forecast period having become

Figure 3. CFaR, OCTOBER 2004 – APRIL 2005



CFaR has decreased during the period until April 2005 as a result of successively shorter forecast periods. The CFaR in relation to interest payments forecast has been more stable at 10 to 15 percent.

successively shorter in each new monthly calculation, since the final date at all times has been December 12, 2005.

Figure 3 also shows that CFaR in relation to interest payments forecast is more stable than CFaR over the entire calculation period from November 2004. This is attributable to both CFaR and interest payments forecast having been reduced during the successively shorter period.

Not until the calculation in June 2005 will the period length be extended to 18 months in connection with the publication of the borrowing requirement forecast and financing until December 2006. This will lead to a higher CFaR in the diagram. CFaR in relation to the interest payments forecast is however expected to be stable at 10 to 15 percent.

CFaR provides an aggregate absolute value for cash flow risk over the forecast period. To further illuminate this risk, it is possible to calculate the so-called incremental CFaR (I-CFaR) for each risk factor. This means that the risk can be split up so that the contribution of each risk factor is shown.⁴

A calculation of I-CFaR for the forecast period provides the following result:

Table 2. INCREMENTAL CFaR PROVIDES AN ANALYSIS OF THE RISK CONCENTRATION

Risk Source	I-CFaR (%)	I-CFaR (SEK Billion)
Currency Effects (TCW and Euro Index)	65	1.9
Sold foreign bond futures	21	0.3
Nominal Swedish government bonds	10	0.6
Total	96	2.8

Table 2 shows that currency effects contribute with 65 percent of CFaR. This is the dominant source of cash flow risk. The risk consists of both the krona's and the Euro's movements vis-à-vis other currencies. After currency risk follows the Swedish and foreign bond rate risk with a total of 31 percent.

Sold bond futures reduce the total exposure to movements in positively correlated Swedish and foreign bond rates. Total CFaR would have been somewhat higher if these had not been part of the portfolio. The significance of the countervailing effect from foreign bond futures increases if the dominance of the currency risk is reduced.

SCENARIO ANALYSIS SUPPLEMENTS CFaR

CFaR is based on assumptions on normally distributed monthly changes in the risk factors. In addition, we cut off the normal distribution at the 95 percent level, which leaves

5 percent of the distribution. In reality, there is always a risk that we absorb both greater, and a greater number of, extreme movements than what is implied by the normal distribution. In order to take this into consideration, the CFaR calculation may be supplemented with subjective assumptions on extreme market movements with the assistance of scenario analysis.

We have developed an extreme scenario for short-term interest rates, long-term interest rates, inflation and foreign exchange rates. The scenario analysis is carried out without assumptions on specific volatility and correlation conditions, i.e., the correlation matrix is replaced with a number of given assumptions of the risk factors which are connected to the exposures that are already given.

The following scenarios are used:

- All short-term interest rates increase by 3 percentage points.
- All long-term interest rates increase by 2 percentage points.
- Inflation increases by 1 percentage point.
- Krona and Euro depreciation by 10 percent.

Table 3. SCENARIO ANALYSIS SUPPLEMENTS CFaR

Scenario	Effect (%)	Effect (SEK Billion)
Short-term interest rates up 3 percentage points	84	5.6
Long-term interest rates up 2 percentage points	-16	-1.1
Inflation up 1 percentage point	-	-
Krona/Euro depreciation by 10%	32	2.1
Total	100	6.7

Table 3 shows that a scenario analysis may yield other results than the strictly statistically conditioned CFaR calculation. The effect of the shock in the short-term interest rate now dominates the total risk, while the CFaR calculation showed that the foreign exchange risk was dominant and that the bond interest rate was the second greatest risk factor (see Table 2). Except for the greater shock in short-term interest rates, this is explained by the statistical volatilities and correlations having been removed.

The countervailing price risk between Swedish bond borrowing and sold foreign bond futures become a strong hedge of the bond interest rate risk in the extreme interest rate scenario. The profit from sold futures is greater than the loss upon bond issues. This taken together with the foreign exchange risk not being permitted to dominate statistically will lead to the short-term interest rate risk in treasury bill borrowing and interest rate refixing on swaps becoming more significant to total risk.

⁴ Incremental CFaR is a result of deriving the total CFaR with regard to each risk factor, i.e., a calculation is made of how much CFaR changes given a marginal change in exposure to a given risk factor.



MARKET INFORMATION

Source: The Swedish National Debt Office, unless otherwise stated

GOVERNMENT BONDS, OUTSTANDING VOLUMES, MAY 31, 2005

Nominal bonds			(Nominal amount)
Maturity date	Coupon %	Loan no.	SEK m
2007-08-15	8.00	1037	74,898
2008-05-05	6.50	1040	54,783
2009-01-28	5.00	1043	71,589
2009-12-01	4.00	1048	49,989
2011-03-15	5.25	1045	49,532
2012-10-08	5.50	1046	44,695
2014-05-05	6.75	1041	69,772
2015-08-12	4.50	1049	47,982
2020-12-01	5.00	1047	36,702
Total benchmarks			498,945
Non-benchmarks			40,505

GOVERNMENT BONDS, AUCTION DATES

Nominal bonds		
Announcement date	Auction date	Settlement date
2005-06-08	2005-06-15	2005-06-20
2005-06-22	2005-06-29	2005-07-04
2005-07-27	2005-08-03	2005-08-08
2005-08-10	2005-08-17	2005-08-22
2005-08-24	2005-08-31	2005-09-05
2005-09-07	2005-09-14	2005-09-19
2005-09-21	2005-09-28	2005-10-03
2005-10-05	2005-10-12	2005-10-17
2005-10-19	2005-10-26	2005-10-31
2005-11-02	2005-11-09	2005-11-14
2005-11-16	2005-11-23	2005-11-28
2005-11-30	2005-12-07	2005-12-12

T-BILLS, OUTSTANDING VOLUMES, MAY 31, 2005

		(Nominal amount)
Maturity date		SEK m
2005-06-15		74,338
2005-07-20		20,035
2005-08-17		15,048
2005-09-21		60,013
2005-12-21		43,765
2006-03-15		33,788
2006-06-21		21,289
2006-09-20		21,280
Total Treasury bills		289,556

T-BILLS, AUCTION DATES

Announcement date	Auction date	Settlement date
2005-06-01	2005-06-08	2005-06-10
2005-06-15	2005-06-22	2005-06-24
2005-06-29	2005-07-06	2005-07-08
2005-07-20	2005-07-27	2005-07-29
2005-08-03	2005-08-10	2005-08-12
2005-08-17	2005-08-24	2005-08-26
2005-08-31	2005-09-07	2005-09-09
2005-09-14	2005-09-21	2005-09-23
2005-09-28	2005-10-05	2005-10-07
2005-10-12	2005-10-19	2005-10-21
2005-10-26	2005-11-02	2005-11-04
2005-11-09	2005-11-16	2005-11-18
2005-11-23	2005-11-30	2005-12-02
2005-12-07	2005-12-14	2005-12-16

INFLATION-LINKED BONDS, OUTSTANDING AMOUNTS, MAY 31, 2005

Maturity date	Coupon %	Loan no.	SEK m
2008-12-01	4.00	3101	34,847
2014-04-01	-	3001	18,887
2015-12-01	3.50	3105	62,580
2020-12-01	4.00	3102	38,219
2028-12-01	3.50	3103	3
2028-12-01	3.50	3104	41,917
Total inflation-linked bonds			196,454

INFLATION-LINKED BONDS, AUCTION DATES

Announcement date	Auction date	Settlement date
2005-08-18	2005-08-25	2005-08-30
2005-09-01	2005-09-08	2005-09-13
2005-09-15	2005-09-22	2005-09-27
2005-09-29	2005-10-06	2005-10-11
2005-10-13	2005-10-20	2005-10-25
2005-10-27	2005-11-03	2005-11-08
2005-11-10	2005-11-17	2005-11-22
2005-11-24	2005-12-01	2005-12-06
2005-12-08	2005-12-15	2005-12-20

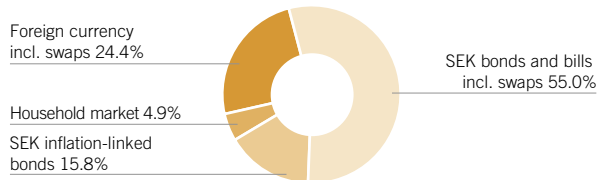
RATING

	Debt in SEK	Foreign currency debt
Moody's	Aaa	Aaa
Standard & Poor's	AAA	AAA

DEBT STRUCTURE

Total debt SEK 1,246 billion

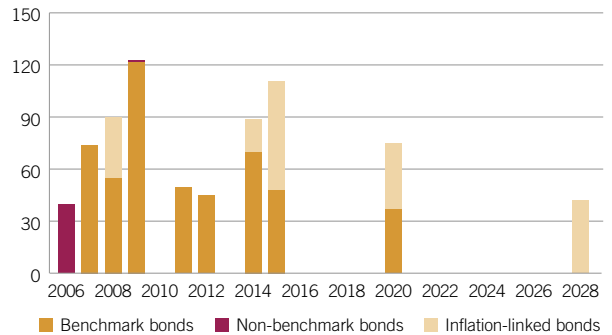
May 31, 2005



MATURITY PROFILE, SEK NOMINAL AND INFLATION-LINKED BONDS

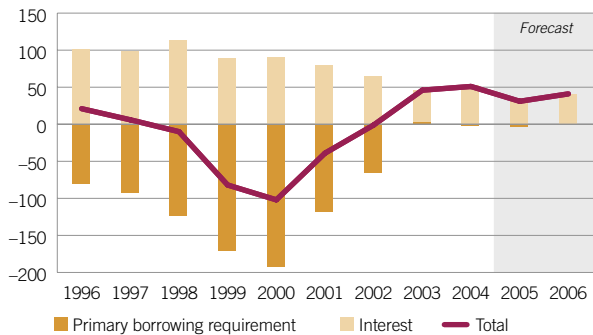
SEK billion

May 31, 2005



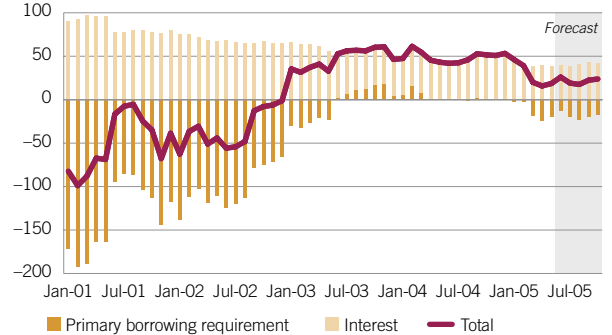
CENTRAL GOVERNMENT BORROWING REQUIREMENT, 1996-2006

SEK billion



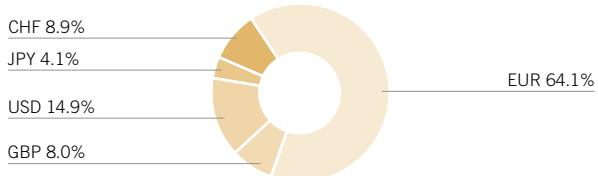
SWEDISH GOVERNMENT BORROWING REQUIREMENT, 12 MONTHS

SEK billion



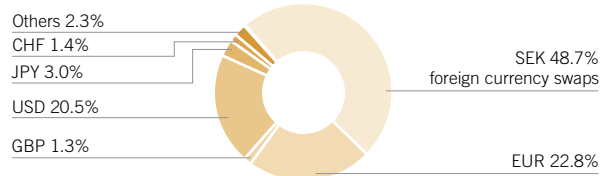
FOREIGN CURRENCY EXPOSURE, INCL. DERIVATES

May 31, 2005



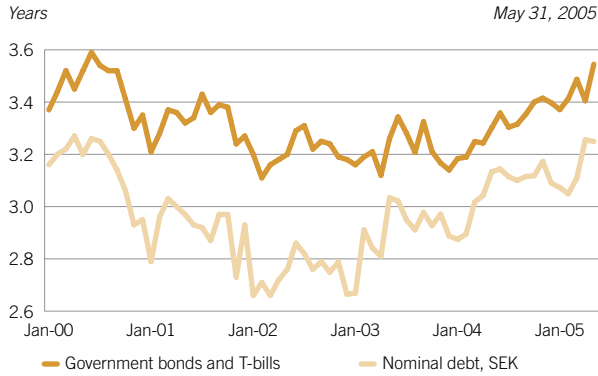
FUNDING IN FOREIGN CURRENCIES

May 31, 2005

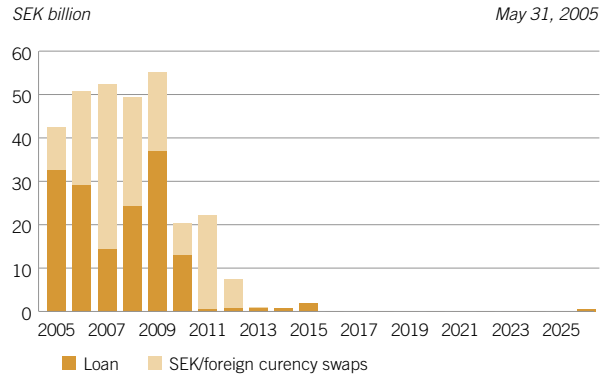




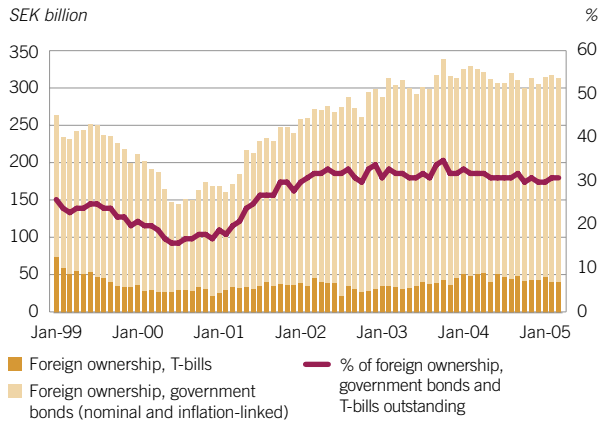
DURATION OF NOMINAL DEBT



MATURITY PROFILE, FOREIGN CURRENCY LOANS
EXCL. CALLABLE BONDS

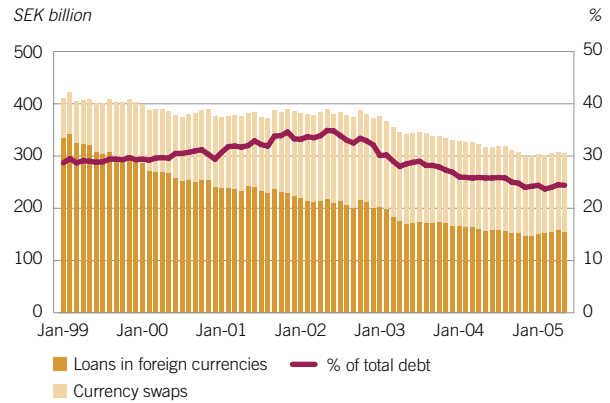


FOREIGN OWNERSHIP OF GOVERNMENT BONDS AND T-BILLS



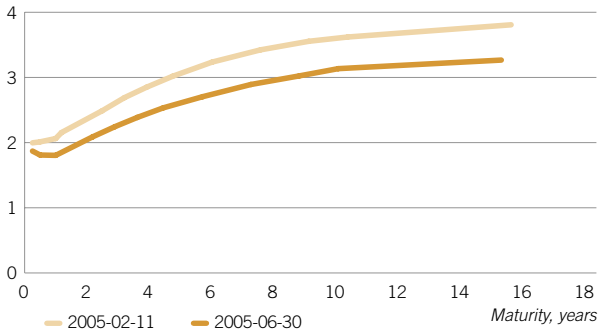
Source: The Riksbank

CENTRAL GOVERNMENT DEBT EXPOSURE IN FOREIGN CURRENCIES

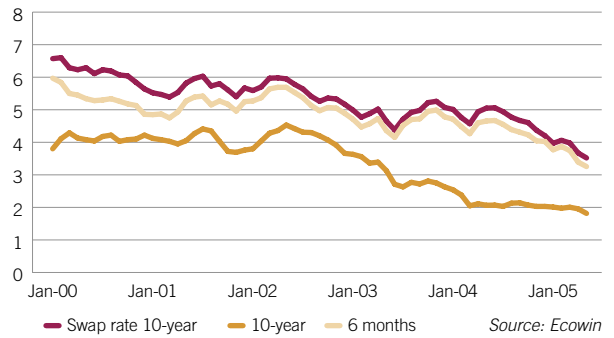




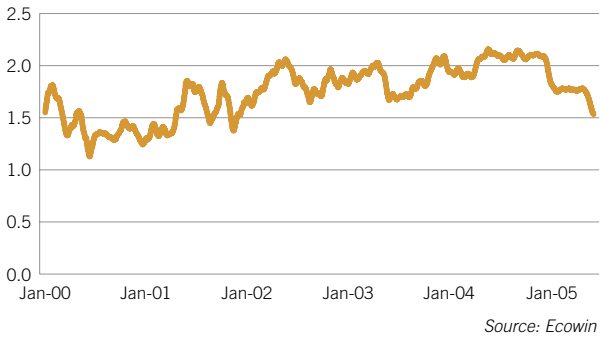
YIELD CURVE, SWEDISH GOVERNMENT SECURITIES
%



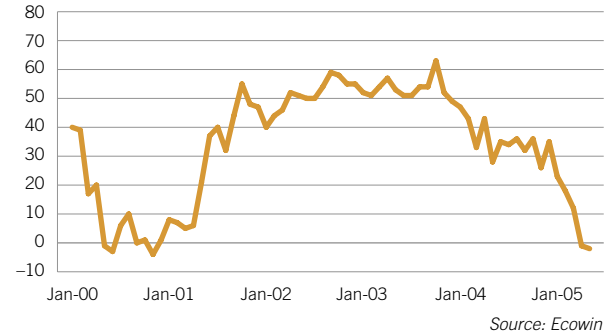
INTEREST RATE DEVELOPMENTS
%



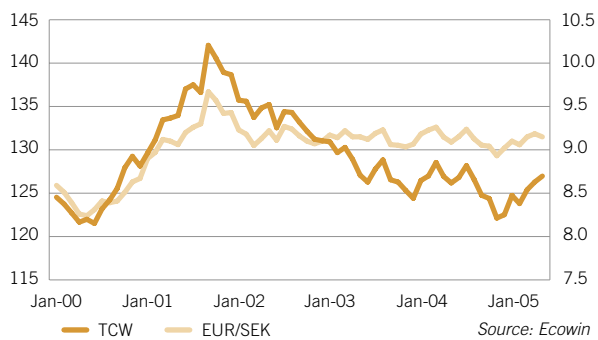
BREAK-EVEN INFLATION
%



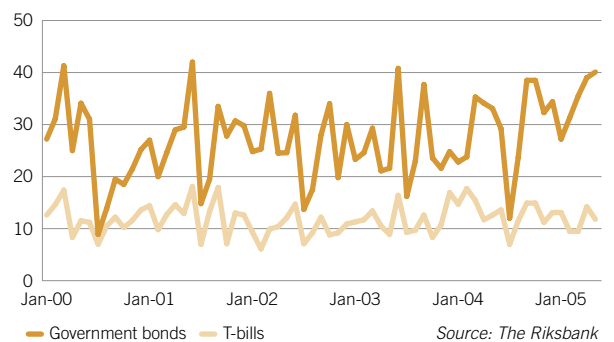
INTEREST RATE SPREAD VS GERMANY – 10-YEAR
Basis points



HISTORICAL EXCHANGE RATES
TCW – Trade-weighted index

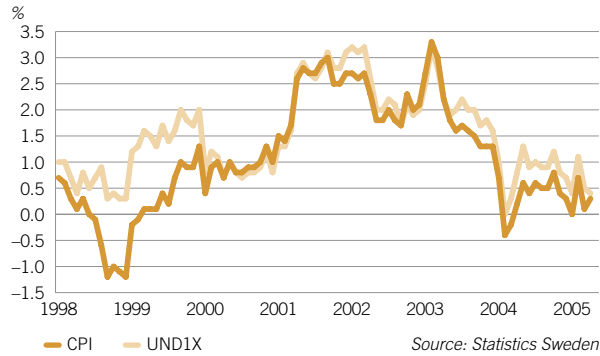


TRADING VOLUME, SWEDISH GOVERNMENT SECURITIES
SEK billion

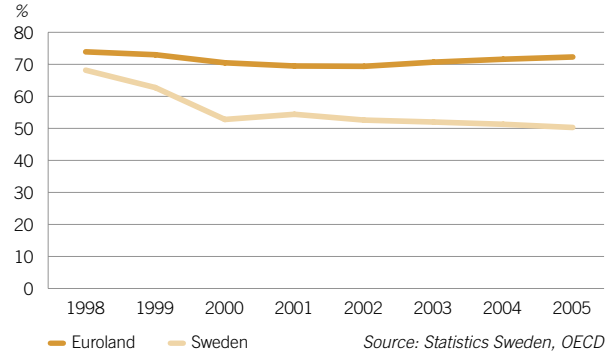




INFLATION INDEX: UND1X AND CPI IN SWEDEN 1998–2005



GENERAL GOVERNMENT DEBT IN RELATION TO GDP



NATIONAL ACCOUNTS, PERCENTAGE CHANGE

Supply and demand	2003	2004	2005	2006
Gross domestic product ¹	1.5	3.5	3.0	2.9
Imports	4.9	6.7	8.0	6.9
Household consumption expenditure	1.5	1.8	2.6	3.1
Government consumption expenditure	0.8	0.3	1.1	0.4
Gross fixed capital formation	-1.5	5.1	7.6	6.7
Stock building	0.4	-0.3	0.2	0,0
Exports	5.0	10.2	6.7	6.1

Selected statistics	Mar-05	Apr-05	2003	2004	2005	2006
CPI, year-on-year		0.3	1.3	0.3	0.7	2.6
Unemployment rate		5.8	4.9	5.5	5.1	4.6
Current account	9.0		5.9	7.8	6.9	6.3

¹ SEK 2,438 billion (current prices 2003).

Sources: Statistics Sweden, The Riksbank; forecasts: National Institute of Economic Research.

	Telephone	Reuter-page
ABN Amro Bank NV	+46-8-506 155 00	PMAA
Danske Consensus	+46-8-568 808 44	PMCO
E Öhman J:or Fondkommission AB	+46-8-679 22 00	PMOR
FöreningsSparbanken	+46-8-700 99 00	PMBF
Nordea	+45-33-33 17 58	PMUB
SEB	+46-8-506 23 151	PMSE
Svenska Handelsbanken AB Publ.	+46-8-463 46 50	PMHD

The next issue of Central Government Borrowing: Forecast and Analysis will be published on Wednesday October 26, 2005, at 9.30 am.

For more information:

Borrowing requirement and government debt: Lars Hörngren +46-8-613 47 36 or +46-8-613 47 40
 Funding: Thomas Olofsson +46-8-613 47 82

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Last year in review		2005:1
The Debt Office borrowing scores high in client survey	<i>Maria Norström</i>	2005:1
The state's liquidity management	<i>Anna Sjulander</i>	2005:1
Credit cards and purchasing cards - a good deal for the state	<i>Anita Schönbeck</i>	2005:1
The proposed guidelines in brief		2004:3
Retail borrowing in Sweden and comparisons to other countries	<i>Malin Holmlund</i>	2004:3
The lending of the state should be regulated	<i>Sara Bergström and Christina Hamrén</i>	2004:2
A new budget target for long-term sustainable central government finances	<i>Per Franzén</i>	2004:2
Common maturity dates for nominal bonds		2004:1
Inflation-linked bonds – an instrument for risk diversion	<i>Joy Sundberg and Thomas Wigren</i>	2004:1
Active management of the foreign currency debt – an asset on the liability side	<i>Lars Boman</i>	2004:1
New risk indicator for central government debt – Cost-at-Risk	<i>Anders Holmlund</i>	2004:1
The inflation-linked market is growing – Italy is now issuing inflation-linked bonds		2003:3
Strategic EUR/USD position closed – foreign currency- and interest gain of 4.5 billion		2003:3
Market development work in Sweden and a few other European countries	<i>Anders Holmlund</i>	2003:3
Pricing of state guarantees in practice	<i>Niclas Hagelin and Magnus Thor</i>	2003:3
The state payment system and new framework agreements	<i>Lennart Sundquist</i>	2003:3
Small borrowers in the euro zone	<i>Eric Morell and Thomas Wigren</i>	2003:2
Borrowing strategy if Sweden joins the currency union	<i>Thomas Olofsson</i>	2003:2
State guarantees – proposal for an even better rule system	<i>Lars Hörngren</i>	2003:2
Risks and derivatives	<i>Anne Gynnerstedt and Per-Olof Jönsson</i>	2003:2
The Debt Office's method for risk analysis	<i>Johan Palm</i>	2003:1
Analysis of foreign currency debt structure	<i>Magnus Andersson and Lars André</i>	2003:1
Borrowing and funding during 2002		2003:1
How central government debt is funded	<i>Thomas Olofsson</i>	2002:3
Swaps in central government debt management	<i>Anders Holmlund</i>	2002:3
Electronic trading in the fixed income market	<i>Tord Arvidsson</i>	2002:3



**RIKSGÄLDS
KONTORET**

THE SWEDISH NATIONAL DEBT OFFICE

Visiting address: Norrlandsgatan 15 • Postal address: SE-103 74 Stockholm, Sweden
 Telephone: +46-8-613 45 00 • Fax: +46-8-21 21 63 • E-mail: rgk@rgk.se • Internet: www.rgk.se