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RIKSGÄLDS KONTORET
THE SWEDISH NATIONAL DEBT OFFICE

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Central Government Debt Management

Proposed Guidelines 2006–2008

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Summary

In this memorandum, the Swedish National Debt Office submits to the Government its proposed guidelines for the management of central government debt. The proposal is based on the legally mandated aim of central government debt management, which is to minimise long-term costs while taking into account risks inherent in such management. In addition, the management shall be made within the constraints of the requirements imposed by monetary policy.

The main points in the proposal are:

- The percentage of foreign currency loans in the central government debt should be gradually reduced to 15 per cent. The proposed benchmark for amortisation of foreign debt during 2006 is SEK 25 billion. The Debt Office should be allowed to deviate from this benchmark by SEK ±15 billion. The preliminary benchmark for amortisation of foreign currency in 2007 and 2008 should be SEK 25 billion per year.
- The percentage of inflation-linked loans in the central government debt should increase in the long term to 20–25 per cent. The rate of increase should be weighed against the demand for inflation-linked bonds and the costs of borrowing in other forms of debt, taking into consideration risk.
- The remainder of gross borrowing needs should be covered by nominal krona borrowing.
- It is proposed that the benchmark for the maturity (measured in terms of the interest-rate refixing period) in the aggregate nominal krona and currency debt be 3.1 years. This corresponds to the present benchmark of a duration of 2.5 years.
- The Debt Office should be permitted to take interest-rate positions with a maximum duration of 0.5 years.

The proposal largely corresponds to the current guidelines. One question that we have particularly analysed in this year's proposed guidelines is the maturity that the central government debt should have. We point out that there are indications that more durable changes in the relationship between long-term and short-term interest rates may be taking place. We consider none the less that there are reasons to wait before taking any measures in order to be able to make a more well-grounded assessment of the nature of the changes. It should moreover be noted that the current spread in interest rates between short-term and long-term borrowing (up to 10 years) cannot be said to be remarkably low in an historical perspective, and that last year's decision to reduce the maturity of the debt was based on model calculations where the yield curve was rather flatter in the segment up to 10 years than it is at present. The conclusion is that an unchanged maturity appears to be the best alternative in the present situation.

One change that we propose is that the guidelines for the maturity of central government debt are to be stated in terms of the average interest-rate refixing period instead of duration. This means a return to the maturity measure used in 1999. The Debt Office's calculations show that, with a retained distribution between short-term and long-term borrowing according to the loan plan presented in the June forecast, the present duration benchmark of 2.5 years is equivalent to a benchmark for the average interest-rate refixing period of 3.1 years. This can be compared with the benchmark that applied in 1999 which was an interest-rate refixing period of 3.5 years.

The foremost motivation underlying the proposal to change the maturity measure is that the interest-rate refixing period is a more appropriate instrumental measure for the maturity of the central government debt than duration, since it is not affected by changes in market rates. We want to control the interest-rate refixing risk with the choice of maturity, i.e. the risk for major fluctuations in the costs of the debt. This can be done by controlling the composition of short and long maturities. Viewed in this light, it is therefore more appropriate to have an instrumental measure, which is not affected by changes in interest rates. Our loan strategy will then not be affected by these changes and the structure of short and long maturities will be the same regardless of the interest-rate situation.

Another advantage of replacing the maturity measure is that it leads to a clearer connection between our borrowing plans and our borrowing requirement forecasts since changes in the market interest rates no longer affect borrowing. Accordingly, an increased borrowing requirement will lead to larger volumes in bond issues, while a reduced borrowing requirement will lead to smaller volumes. In the present situation, this cannot be assumed. At present, for instance, an increased borrowing requirement combined with falling interest rates can lead to a decrease in bond issue volumes. The reason is that the duration of the debt increases when the interest rate decreases, which must be compensated for by reducing the maturity in the borrowing, i.e. reducing bond issues in favour of increased borrowing in T-bills.

If the maturity measure is changed from duration to the interest-rate refixing period, it is no longer appropriate for the Debt Office's mandate to take interest-rate positions to be expressed in terms of deviations from the benchmark. They should instead be stated in terms of duration as before. The reason is that duration is a more appropriate measure of the *interest-rate risk* in a position, since it is not only a measure of the maturity in the position but also a measure for how sensitive to changes in interest rates the position is (i.e. how much the value of the position changes if the interest rate changes).

The Government's guidelines for the maturity of central government debt can thereby be divided into two components. The first component specifies the benchmark for the average interest-rate refixing period in the nominal krona and currency debt. The second component specifies how large a risk mandate the Debt Office has in terms of duration. With a division of this kind, the difference is clarified between the overall control of central government debt and the strategic and tactical positions that the Debt Office has the right to take to reduce the costs of the debt. Central government borrowing and debt management will then be controlled by guidelines that are adapted for the purpose of each activity.

To conclude, we report on the work of producing a system for how debt components are to be controlled when they have attained their specified benchmarks, and the work on designing a comprehensive maturity measure and a control system for the same. We intend to return to these questions in the next proposed guidelines.

1. Points of departure for the proposed guidelines

In this memorandum, the Swedish National Debt Office presents its proposed overall guidelines for the management of central government debt, as provided by the Instruction for the National Debt Office (1996:311). This proposal is based on the aim formulated in section 5 of the Act (1988:1387) on Central Government Borrowing and Debt Management, which provides that central government debt shall be managed in such a way as to minimise the long-term cost of the debt while taking into account the risks inherent in such management. In addition, management shall take place within the constraints imposed by monetary policy.

In this section, the Debt Office presents the points of departure for the proposal. We account for the important conclusions and positions adopted in earlier Government decisions on guidelines, as well as the priorities established in this year's proposed guidelines.

1.1 Analysis and conclusions to date

1.1.1 Cost and risk measures

Since the trend of future interest rates, exchange rates and the central government finances are not known, the Government's decision on guidelines for central government debt must be made under conditions of uncertainty. Central government debt management must therefore be structured in such a way that there are margins for coping with negative surprises. This viewpoint is reflected in the legally mandated aim of central government debt management, which says that government debt shall be managed in a way that minimises long-term costs while taking into account the risks inherent in such management. The guideline decision thus embodies a trade-off between the expected costs and risks of the debt.

The question of how to define and measure the cost and risk of the central government debt has received considerable attention in earlier proposed guidelines and guideline decisions. In its earlier guideline decision of 2000, the Government stated that in a consideration of the structure of government debt and its maturity, costs should be measured by the *average running yield* and the risk as the variation of *the average running yield (or running yield at risk)*, which would provide a measure of the risk of rising issue rates. The average running yield should also be used when evaluating central government debt management.

In the decision, the Government also stated that the risk should, moreover, be measured in terms of *the contribution that the debt portfolio makes to fluctuations in the budget balance and the debt*. This may be regarded as a *real* risk measure that supplements the above nominal risk measure. The Debt Office obtained inspiration for this risk measure from the asset and liability management (ALM) approach, in which the fundamental concept is that financial risks can be minimised by matching the characteristics of liabilities against those of assets. From the standpoint of central government debt policy, this means that the central government can reduce the risk in its debt portfolio by structuring the portfolio in such a way that interest costs covary with the budget balance (excluding interest payments). This is based on the intuition that a debt portfolio that typically has low costs when government finances are strained, for example, due to a deep economic downturn, is less risky than a portfolio in which the opposite is true.

1.1.2 Structure and maturity of Debt

The structure of the debt

In earlier proposed guidelines, the Debt Office has gradually analysed the issue of the structure of government debt. At the end of June 2005, this debt comprised approximately 25 per cent foreign currency loans, 16 per cent inflation-linked loans, with the remainder consisting of nominal krona loans. The Debt Office recommended in last year's guideline proposal that the percentage of foreign currency loans in the debt portfolio should decrease to 15 per cent, while the percentage of inflation-linked loans should increase to 20–25 per cent in the long term. This assessment is based on a number of factors.

The starting point for the foreign currency debt is that this debt bears a higher level of risk than nominal debt in SEK since it is associated with a currency risk. However, borrowing in foreign currency is a flexible instrument. Experiences from the 1990s show that it can be beneficial to borrow in foreign currency if there is a strong increase in the borrowing requirement. This reduces the pressure on the domestic market and also provides cost benefits to the extent that the large borrowing requirement pushes up krona interest rates and weakens the krona. However, if the state is to have scope to be able to borrow a lot in a foreign currency in the event of a crisis, the foreign currency debt must not be altogether too much to begin with.

However, there are also arguments to indicate that some degree of foreign currency debt is beneficial. Borrowing in several currencies reduces the interest-rate refixing risk by reducing dependence on the interest-rate situation in Sweden. Were there to be a sharp rise in Swedish interest rates without a corresponding change in international interest rates, at the same time as the krona exchange rate is unchanged, the foreign currency debt would contribute to restricting the increase in the total interest costs. A certain percentage of foreign currency debt can therefore be justified.

In the case of the inflation-linked debt, the argument is that it contributes to greater diversification in central government debt than if the debt had consisted solely of nominal instruments. This reduces the risk for substantial variations in interest costs. Inflation-linked bonds should also in the long term be slightly cheaper than the corresponding nominal bonds since investors can be assumed to be willing to pay a premium for protection against inflation uncertainty. However, this is partly counteracted by inflation-linked borrowing being associated with a liquidity premium.

In last year's guideline decision, the Government concurred with the Debt Office's assessment of central government debt structure and stipulated that the foreign currency debt should decrease to 15 per cent and that the pace of amortisation for 2005 should be SEK 25 billion. The Government also decided that the percentage of inflation-linked loans should increase in the long term to 20–25 per cent, but that the rate of increase has been to weighed against the demand for inflation-linked bonds and the costs of borrowing in other kinds of debt taking into consideration risk.

Maturity of the debt

The Debt Office has also analysed the choice of maturity (duration) of the nominal krona debt and foreign currency debt. The Debt Office's model simulations made in preparation for the guideline decision for 2001 indicate that short-term borrowing in Swedish kronor might have advantages from both a cost and risk standpoint when costs are set in relation to gross domestic product (GDP). The reason is that short-term interest rates are generally lower than long-term rates and that short-term domestic rates tends to co-vary positively with GDP growth. However, the potential gains from short-term borrowing must be weighed against the increased risk that short-term borrowing may cause in nominal terms.

In last year's guideline proposal, the Debt Office recommended a decrease of the duration benchmark from 2.7 to 2.5 years. This proposal was justified with reference to the reduction in the risk level of central government debt. The reason is that the *aggregate* time to maturity of the debt has increased due to the increased proportion of inflation-linked bonds, and that the proportion of foreign currency debt has decreased. Since this development is expected to continue for some years to come, our assessment was that there is scope for reducing the duration of the nominal debt slightly, in this way reducing expected costs, while maintaining risk at the desired level.

In last year's guideline decision, the Government concurred with the Debt Office's assessment and stated that the benchmark for the duration of the nominal krona and foreign currency debt should be reduced from 2.7 to 2.5 years. The Government also decided that its aim for 2006 and 2007 should be unchanged duration.

Sensitivity analysis

In last year's guideline proposal, the Debt Office developed a scenario model to investigate how interest payments on central government debt are affected by external strains, such as a currency crisis or an interest rate shock. As the model captures the whole of central government debt, it makes possible the type of balancing of risks that underlay last year's guideline proposal, where an increased inflation-linked component and a decreased currency component together provided scope for a slight reduction in maturity.

The conclusion drawn by the Debt Office from the scenario calculations was that the best way to prepare to meet a crisis situation is to reduce the size of central government debt. The Debt Office could also note that it is cheaper to reduce the risk of central government debt by reducing the percentage of foreign currency debt than by extending the maturity of the debt.

The scenario calculations namely shows that even if Swedish central government finances are sensitive to substantial interest rate increases, it is expensive to insure against this by extending the maturity of the debt – even with a relatively flat yield curve. The costs of reducing the share of foreign currency debt appeared, however, as rather low in relation to the impact that a currency crisis would have on central government finances.

1.2 Priorities in preparing this year's proposed guidelines

In this year's Proposed Guidelines, the Debt Office has been assigned to make a more thorough analysis of how the range of fluctuation around the benchmarks for the percentage of foreign currency debt should be designed, and how a comprehensive maturity measure for the whole of central government debt should be defined and handled. The initial investigations show that complex questions are involved and that more time is needed to investigate their operational consequences. The Debt Office is therefore intending to return to these questions in the next guideline proposal. A short summary of this year's work is contained in Appendix 1 at the end of this document.

The question of a comprehensive maturity measure has led to further analysis of what is an appropriate *instrumental*

measure for maturity. In section 3, we argue that guidelines for central government debt should be stated in terms of average interest-rate refixing period instead of duration. This would mean a return to the maturity measure used in 1999.

In connection with this, we have also reviewed the guidelines for the Debt Office's mandate to take *positions in the fixed-income markets*. In the current guidelines, the risk mandate is stated in terms of deviation from the benchmark value. This means that it is expressed in terms of duration. We recommend that the risk mandate continue to be expressed in terms of duration. However, it should be noted that the risk mandate in this case can no longer be expressed in terms of a deviation from the benchmark value if this is changed from duration to the interest-rate refixing period.

Another question that we take up again in this year's guideline proposal is which *maturity* central government should have. It is concluded that there are no reasons at present to change the benchmark for maturity.

The memorandum is organised as follows: In the next section, we analyse the question of which maturity the central government debt should have. In section 3, we discuss what would be an appropriate instrumental measure for maturity. In section 4, we discuss how the Debt Office's mandate for interest-rate positions should be expressed and in section 5 we present our guideline proposal. The memorandum concludes with a review of the decisions delegated by the Government to the Debt Office.

2. Maturity of the central government debt

In this section, the Debt Office returns to the question of the maturity that the central government debt should have. We investigate whether there is reason to change the existing benchmark in the light of the trend in the fixed-income markets. In particular, we look at the longer-term relationship between short and long-term interest rates. The current interest-rate situation is also then examined. In conclusion, we find no reason to recommend a change in the benchmark for the maturity of central government debt.

2.1 Starting points

As a basic hypothesis for the choice of maturity, there is reason to assume that the shorter the maturity, the lower the expected costs will be. This is due to yield curves generally having a positive slope. However, short maturities mean that large parts of the debt must be refinanced in each period at the current interest rate, which makes interest costs more variable. There is thus a clear trade-off between expected cost and risk. The choice of maturity can therefore be regarded as a key issue in central government debt policy, where the state's view of the risk must be expressed in one or another way.

In last year's guideline decision, the Government reduced the benchmark for the average maturity (measured in terms of duration) in the nominal year from 2.7 to 2.5 years. This decision concurred with the Debt Office's recommendation. As reason for the recommendation, we pointed out then, among other things, that the aggregate maturity of the debt had increased due to the increase in the percentage of inflation-linked bonds. The decrease in the percentage of currency loans and the reduction in the debt ratio were also cited as reasons for there being scope to take slightly greater risks in the nominal debt. The intention was accordingly to reduce the expected long-term costs within the framework of a continued well-considered risk level in central government debt as a whole.

2.2 Analysis of the present situation

2.2.1 Long-term characteristics of the yield curve

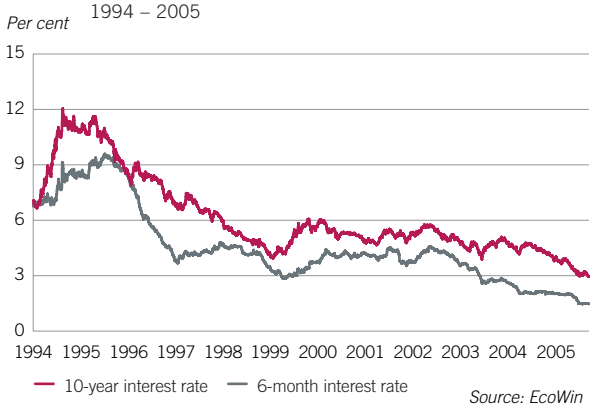
The trend in the fixed-income market has been eventful during the past year. Both short and long-term interest rates have fallen to historically low levels. Despite the long-term interest rates falling more than the short rates, the yield curve continues to have a positive slope, i.e. the direct costs for short-term borrowing are clearly lower than for long-term borrowing. The basic assessment of the cost relationships underlying last year's decision to reduce the maturity is accordingly still valid although the reasons may have weakened.

However, the interest-rate trend means that there is reason to ask whether a *long-term change in the relationship between short and long-term interest rates* has taken place – or may take place. There are, for instance, factors that indicate that demand for long (nominal) bonds has increased and/or will increase. This could lead to durably lower return requirements for long investments and a flatter yield curve on average than has been common in earlier periods. From the point of view of the state, this would mean that it would be less expensive than before to reduce the risk by issuing more long bonds, which – as a single factor – could justify a long-term change in the maturity of central government debt.

The core issue here is to what the state is willing to assume additional cost – which will be the case as long as the curve has a positive slope – to reduce the risk level. This assessment must ultimately be made by the Government, although the Debt Office presents its view below on the underlying prerequisites.

The Swedish long-term interest rates have fallen to lower levels in 2005 than has been seen for many decades. However, short-term interest rates are also lower than before, which means that the difference between the interest rate on ten-year and six-month government securities does not deviate significantly from the average in recent years (see Figure 1 and 2). Short borrowing is accordingly still cheaper than long.

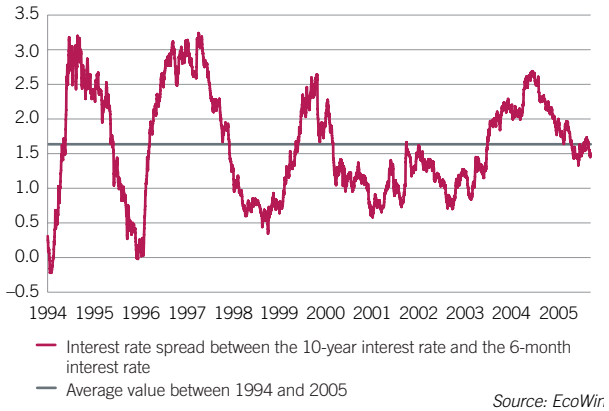
Figure 1. SWEDISH TEN-YEAR AND SIX-MONTH INTEREST RATES, 1994 – 2005



Source: EcoWin

Figure 2. THE INTEREST RATE SPREAD BETWEEN TEN-YEAR AND SIX-MONTH INTEREST RATES, 1994 – 2005

Percentage points

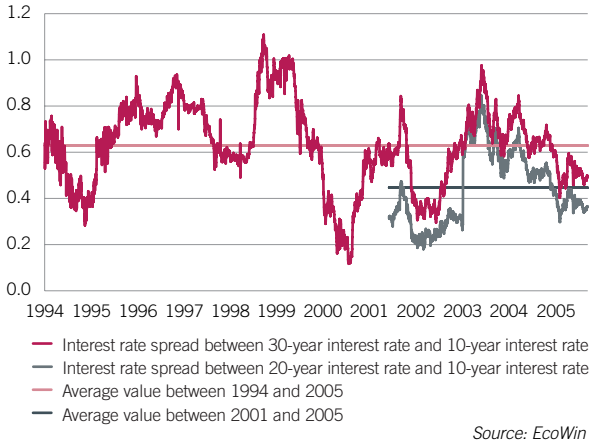


Source: EcoWin

However, there are some indications that interest rates for maturities of twenty years and above are relatively lower than before, i.e. that the yield curve is flatter than normal in the very long segment. This is the case in Germany, for instance (see Figure 3).

Figure 3. THE INTEREST-RATE SPREAD BETWEEN GERMAN THIRTY-YEAR INTEREST RATES AND TWENTY- AND TEN YEAR RATES RESPECTIVELY, 1994 – 2005

Percentage points



Source: EcoWin

One factor which would speak in favour of a flatter curve in the longer term as well is that insurance companies with long-term pension commitments are expected to hold more bonds due to changed rules and experiences of what problems that can arise from deficient matching. This would lead to increased demand for long-term bonds, in particular nominal, since the companies' undertakings are generally determined nominally. Increased demand leads to lower interest rates. However, it is uncertain how large the extent of reinvestment can be, partly because the work on the regulatory framework and its application has still not been completed. An important factor for the trend in the Swedish fixed-income market is, for instance, the conditions on which assets in foreign currency can be used to match undertakings in kronor.

More exactly, an answer is needed to the question of whether the relationship between short and long-term interest rates has changed more durably in such a way as to reduce the average difference between short and long-term interest rates, over, for instance, a complete interest-rate cycle. The Riksbank's repo rate is very low at present. The yield curve has been steepest in the last ten-year period during periods when the repo rate has been low. Compared with previous periods, it can accordingly be noted that the yield curve is at present uncommonly flat taking into consideration that we have such low key interest rates.

As long as the yield curve has a positive slope, the strategic choice of the maturity of central government debt concerns weighing expected costs against risk; the longer the maturity, the higher cost and the lower interest-rate refixing risk. Thereby it is also the case that the flatter the curve is, the lower the additional cost to reduce the risk. Ceteris paribus, and in particular assuming that there is no change in central government's view of the balance between cost and risk, a flattening of the long section of the curve could justify an extension of the maturity of central government debt.

In our assessment, the changes that have taken place to date indicate that it has become cheaper to reduce risk by an extension of the maturity of the nominal debt. However, this assessment is uncertain since the period of observation is rather short and it is not possible, for instance, to overview the effects of the ongoing changes in the regulatory frameworks for life assurance companies.

The question is also whether the long-term change is of such a size that it would give risk in itself to a long-term change of the maturity of central government debt. The interest-rate gap between short and long-term borrowing (up to 10 years) is not remarkably low, viewed in a longer perspective (see Table 1). Neither is it lower than the model assumptions that we made in last year's scenarios calculations, which served as the basis for the Government's decision to shorten the maturity of the debt. Just comparing the present yield curve with the trend for the past year can give a misleading picture of the considerations that we made in previous guideline proposals. The Debt Office is therefore not prepared to recommend an extension of the benchmark for maturity in the present situation.

Table 1. The slope of the yield curve, percentage points

	2 years –3 months	10 years –2 years	15 years –10 years
07.09.2004	0.85	1.59	
07.09.2005	0.54	0.97	0.11
Average: Jan 94 - Sept 05	0.68	1.03	-
Average: May 98 - May 00	-	-	0.24
Average: Jan 05 - Sept 05	-	-	0.13
Average of both periods above	-	-	0.22
German interest rates			
20-10 years: average June 01 - Sept 05	-	-	0.45
20-10 years: 07.09.2005	-	-	0.37
Model assumptions	0.51	0.86	0.17

Source: EcoWin and own calculations

If the long part of the yield curve clearly and permanently becomes flatter or even has a negative slope in the future, if it, for instance, starts to resemble the characteristic situation of the British government securities market where interest rates on very long bonds have been lower than on five- and ten-year bonds for a number of years, it may be possible to reduce the interest-rate refixing risk to low or zero cost. This will also require careful analysis. It may, for instance, be the case that the curve returns to having a positive slope and that short-term interest rates will then be under the level of long rates which the state has fixed loans at. Accordingly, it cannot be assumed that the state will issue long bonds even if long-term interest rates are below short rates.

Depending on the design of the new rules in the insurance sector, and how companies choose to act, more marked changes of this kind may occur in the future. The Debt Office's assignment includes monitoring the interest-rate trend and drawing the Government's attention to changed conditions, at least once a year in connection with the proposed guidelines. There is reason to point out that given the fact that the discussion here is about *durable* changes in yield conditions, it is not crucially important that any adaptation takes place quickly.

Furthermore, it should be noted that central government's view of the balance to be struck between cost and risk cannot be assumed to be constant over time. The size of central government debt is a factor that affects readiness to bear risk. If moreover interest rates are low, the importance of interest on central government debt for central government finances as a whole will be less. This provides scope to take somewhat larger risks with a view to reducing the expected costs. This means, among other things, that a durably flatter yield curve will not self-evidently mean that central government should take the opportunity to reduce the risk level. The effect of a reduction of the cost of insurance can be more than counterbalanced by a reduction in the need for insurance. This example illustrates that complex qualitative assessments are important components in a well-considered central government debt policy.

2.2.2 The current interest-rate situation

There is also reason to discuss how the maturity should be dealt with in a shorter-term perspective even if the starting point for the guideline discussion should be the more long-term balance to be struck between costs and risk.

The Government has given the Debt Office a mandate to choose the benchmarks for the nominal krona and currency debt within an interval of 2.5±0.3 years. A decision to deviate from 2.5 years is to be dealt with as a position and in the first place be based on an assessment of the current interest-rate situation in relation to the long-term interest rate trend and is to be primarily evaluated in terms of market value. This is the same principle as that used to evaluate the strategic currency position in dollars that the Debt Office had from 2001 to 2003.

According to the distribution of responsibility between the Debt Office and the Government, the Debt Office has the task of continuously monitoring and adapting its conduct to the interest-rate trend. The Government's guidelines have a longer time perspective and are primarily to express the view on the balance to be struck between cost and risk, even though this does not exclude the Government's guideline decision being influenced in some cases by current market conditions.

To date, the Debt Office has not taken any strategic maturities position. In recent years, we have continuously monitored the question of whether the long-term interest rates are so low as to make it profitable to temporarily increase the maturity to obtain low fixed long-term interest rates.

Our assessment has been that there has not been sufficient reason for such a position to date. There have been factors that have indicated that interest rates would not rise sufficiently much or sufficiently soon to counterbalance the cost increases that accompany a longer maturity of the debt. To date, these assessments have proven to be correct. The increase has not only not taken place but both long and short-term interest rates have continued to fall.

The Debt Office continuously discusses whether and how we should make use of the mandate to deviate that the Government has given us. Should we find reason to take a strategic maturity decision and moreover conclude that it should be made larger than permitted by the current guidelines, the Debt Office is able to consult the Government with proposals for changed guidelines.

Since we have not taken any strategic maturity decision, we are not either proposing that the Government should change the guidelines based on such considerations.

2.3 Summary

In this section, the Debt Office has discussed whether there are reasons to change the existing benchmark for the maturity of the nominal central government debt in the light of the trend in the fixed-income market.

In the analysis we point out that there are indications that more durable changes in the relation between short and long-term interest rates may be on their way, but that there are reasons to wait before taking any measures in order to be able to make a more well-grounded assessment of the character of the change. Today's interest-rate difference between short and long borrowing (up to 10 years) cannot either be said to be particularly low, viewed in a historical perspective. It should moreover be noted that last year's decision to reduce the maturity of the debt was based on the assumption of a yield curve which was somewhat flatter than the yield curve is today in the segment up to 10 years. There is therefore no reason to propose an extension of the maturity at present.

3. Change of maturity measure from duration to interest-rate refixing period

The maturity of central government debt, i.e. the rate at which outstanding loans mature, can be measured in different ways. In the current guidelines, maturity is governed by a benchmark for *the average duration* of the nominal krona and currency debt. In this section, the Debt Office argues in favour of the guidelines being stated in terms of *average interest-rate refixing period* instead. This means a return to the maturity measure used in 1999. Furthermore, we make proposals on what the new benchmark should be set at.

3.1 Better control with interest-rate refixing period

In terms of calculation, the difference between duration and interest-rate refixing period is small. They both constitute measures of the average period until a bond's future cash flows (coupons and redemption amount). The difference is that while duration is calculated by the time to each cash flow being weighted by the present value of the cash flow (calculated at current market rates), the interest-rate refixing period is calculated by the time to the cash flows being weighted by the nominal values of the cash flows without discounting.

The reason that we recommend a change of maturity measure is that the duration is affected by changes in market rates (ceteris paribus). This means that the Debt Office's loan strategy will be affected by these changes as well. If interest rates increase, we will need to borrow with longer maturities to compensate for the decrease in duration, and if interest rates go down, we will need to borrow with shorter maturities. This is not a desirable characteristic of the control system, since it is not possible to say in advance whether this strategy is profitable or not. If the interest-rate process varies around a mean, the strategy will lead to us systematically making bad deals, while if the interest-rate process follows a long-term trend, we will make good deals. Since it is not possible to know in advance what the interest-rate process will be like, it is preferable to have a control system that is not affected by interest rate changes.

An argument in favour of the interest-rate refixing period being a more appropriate measure than duration is the other aspect of central government debt management, namely the risk aspect. What we want to control by the choice of maturity measure is the interest-rate refixing risk, i.e. the risk of large fluctuation in the costs of the debt. This can be done by controlling the structure of short and long maturities. Viewed in this light, it is more appropriate to have an instrumental measure that is not affected by changes in market rates. The structure of short and long maturities will then be the same regardless of the interest-rate situation.

Besides the principal reasons for the interest-rate refixing period being a more appropriate maturity measure, there is also a practical reason to change maturity measure, namely that it is easier to control the debt in relation to a benchmark expressed according to the interest-rate refixing period compared with one expressed in duration. This is because the interest-rate refixing period is not affected by changes in the interest rate situation.

The Debt Office has on occasions had problems in keeping the duration of the nominal krona debt within the limits of the specified benchmark. This problem will be somewhat less with the new maturity measure even if it is not entirely eliminated.[1] The size of the krona debt means that the maturity can only be affected gradually. Since the borrowing is a small amount in comparison to the outstanding stock, the average maturity of the debt will change at a slow rate even in the event of substantial rearrangements of issues. In other words, it is a small rudder in relation to the ship we want to steer.

A transition to the interest-rate refixing period also means that our borrowing plans will have a clearer connection to the borrowing requirement forecasts, since changes in the market rate will no longer affect loan planning. Accordingly, an increased borrowing requirement will lead to larger volumes of bond issues, while a reduced borrowing requirement will lead to smaller volumes. In the present situation, this cannot be assumed. At present, an increased

[1] *The duration is affected to a different extent by an interest-rate change depending on the structure of the debt. However, it can be said in general that an interest-rate change of one per cent will lead to 0.10 – 0.15 years change in the duration. This might seem a relatively small effect that we could live with. However, there are a number of factors that affect the duration of the debt and taken together this leads to a risk that the duration will exceed the limits set by the board.*

borrowing requirement can, in combination with falling interest rates, entail a reduction in bond issue volumes. The reason for this is that the duration increases in the debt when the interest rates falls, which must be compensated for by reducing the maturity of the borrowing, i.e. reducing the issues of bonds.

However, it should be pointed out that the link between our borrowing requirement forecasts and our loan plan can deteriorate for other reasons as well, such as, for instance, swap volume, the time of year when currency loans take place, premiums, etc. Altogether, however, the transparency of our borrowing should increase slightly with the change in maturity measure.

One possible disadvantage of the change is that duration is a generally known concept in the market, which is not the case for the interest-rate refixing period. Duration can therefore be easier for the market to understand and relate to than the interest-rate refixing period. On the other hand, the market is probably primarily interested in our loan plans, which we also provide information about in the *Central Government Borrowing report* three times a year.

One question that can be asked in this context is why we recommended a change *from* the interest-rate refixing period *to* duration in the proposed guidelines in 1999 and what has happened since then to lead us to change our view of this matter. The most important reason that we advocated a change to duration was that we had certain systemic problems in following up the result of the active management of foreign currency. However, this problem no longer exists in the current computer system.

Another argument was that it is more appropriate to use duration to quantify the Debt Office's interest-rate positions since duration is also a measure of interest-rate risk (i.e. the extent to which the price of a bond will be affected by an interest-rate change). This argument is still valid today, which is why we recommend that the guidelines for our interest-rate positions should continue to be expressed in terms of duration. This issue is discussed in more detail in section 4.

However, it is important in this context to keep separate the overall control of the central government debt and the interest-rate positions we are authorised to take to reduce the cost of the debt. The interest-rate refixing period is used to control the interest-rate refixing risk in the debt, while duration is used to state the Debt Office's risk mandate for interest-rate positions.

To conclude, the interest-rate refixing period is a more appropriate instrumental measure for the maturity of central government debt than duration. The reason is that the interest-rate refixing period is not affected by changes in market rates, which means that our borrowing strategy will not either be affected by these changes. This is a desirable characteristic bearing in mind the risk that we want to control here, namely the interest-rate refixing risk. Moreover, a change of this kind will lead to a closer link between our borrowing strategy and our borrowing requirement forecasts. The Debt Office therefore recommends that the guidelines for the maturity of central government debt be stated in terms of average fixed-interest period instead of average duration. The Debt Office's risk mandate should, however, as before be specified in terms of duration (see section 4).

3.2 Conversion of the duration benchmark to interest-rate refixing period

The Debt Office's calculations show that, with a maintained distribution between short and long borrowing in accordance with the loan plan presented in the June forecast, the present duration benchmark of 2.5 years corresponds to an average interest-rate refixing period of 3.1 years. This can be compared with the benchmark that applied in 1999 which was an interest-rate refixing period of 3.5 years.

The fact that it is proposed to set the present benchmark lower than the benchmark that applied in 1999 is in accordance with the Government having reduced the benchmark for the maturity of the nominal debt on two occasions since then. The first reduction was made in 2000 when the benchmark was reduced from a duration of 2.9 years to a duration of 2.7 years, and the second reduction was made this year when the benchmark was reduced to 2.5 years.

To conclude, we propose that the benchmark for the average interest-rate refixing period in the nominal krona and currency debt be set at 3.1 years. On 30 June 2005, the duration was 2.8 years and the interest-rate refixing period 3.3 years.

4. The Debt Office's risk mandate for interest-rate positions

According to the current guidelines, the Debt Office may determine its own benchmark for the duration of the nominal krona and currency debt which deviates by at most ±0.3 years from the Government's benchmark. However, if the benchmarks for maturity are changed so that the benchmark is stated in terms of average interest-rate refixing period instead of duration, the guidelines for the Debt Office's *risk mandate* should be adapted to this at the same time as their content is retained. The guidelines should therefore no longer be expressed in terms of deviation from the benchmark but should as previously be expressed in terms of duration.

The reason for the Debt Office's risk mandate being expressed in terms of duration is that duration is not only a measure of the maturity in a position but is also a measure of how sensitive to interest rates the position is (i.e. how much the value of the position changes if the interest rate changes). The duration is therefore a more appropriate measure of the risk in the position than the interest-rate refixing period. Stating the risk mandate in terms of duration is moreover in line with the evaluation of the management being made primarily in terms of market value, since the cash flows of the bonds are market valued when calculating duration.

The Government's benchmarks for the maturity of central government debt can thereby be divided into two components. The first component specifies the benchmark for the average interest-rate refixing period in the nominal krona and currency debt. The second specifies how large a risk mandate the Debt Office has in terms of duration. With a division of this kind, the difference is clarified between the overall control of the central government debt and the strategic and tactical positions that the Debt Office is authorised to take to reduce the costs of the debt. The central government borrowing and debt management will then be controlled by guidelines that are adapted to the different purposes of these activities.

The question now is how large the Debt Office's risk mandate is to be and the type of interest-rate positions it is to include. According to 2001's guidelines, the risk mandate is to include both the Debt Office's *strategic* positions (which are taken by the board) and *tactical* positions (which are taken in the operational management). In recent years, however, the Government has not made any enumeration of this kind. An approach has therefore evolved where the Government's deviation intervals have been understood as the Debt Office's mandate to take strategic interest-rate positions, while the mandate for the operational management of taking tactical interest-rate positions has been regarded as something additional to this. Since the Debt Office has never taken any strategic interest rate positions, this approach has never been tested against the guidelines.

The active management in foreign currency has been given a risk scope of approximately 0.2 years duration. This means that if the Government's current deviation interval of ±0.3 years is to include both the Debt Office's strategic and tactical positions, there are only 0.1 years left for the strategic decisions. This can be perceived as being rather too small.

The Debt Office therefore advocates that the risk mandate be increased to 0.5 years duration and that the Debt Office, via the board, be mandated to distribute this between the strategic and the operational activity. In kronor and öre, 0.5 years duration means approximately that the Debt Office may take an interest-rate risk of up to SEK 5.7 billion.[2] This means that for every percentage point that interest rates go up or down, we can gain or loss approximately SEK 5.7 billion if the position scope is fully used. The Debt Office is currently considering how the mandate is to be used.

To conclude, the Debt Office proposes that the risk mandate to take interest-rate positions is, as before, to be stated in terms of duration. However, the risk mandate should be increased to 0.5 years duration since 0.3 years is rather too finely cut in the light of the operational management being allocated about 0.2 years of this scope for several years. It appears namely inappropriate that a decision by the Debt Office to take strategic interest-rate positions should restrict the ability of the operational activity to benefit from short-term market movements.

[2] *This has been calculated on a market value of the nominal debt on 31 July 2005 of SEK 1 138 billion. The intuition is that a one per cent interest rate change leads to a 0.5 per cent change of the market value of the debt as a result of the position taken. As the debt amounts to SEK 1 138 billion, this means that the change in value will be around SEK 5.7 billion (0.005 x 1 138 billion).*

5. Proposed guidelines

In this section, the Debt Office presents its proposed guidelines for central government debt management in 2006. The time perspective for the guidelines is three years. The Debt Office is thus also presenting preliminary guidelines for 2007 and 2008.

In its guideline decision, the Government establishes overall limits for central government debt management. The main points of earlier guideline decisions have concerned how the debt should be allocated between the different kinds of debt (nominal krona borrowing, inflation-linked krona borrowing and foreign currency borrowing) and the rate at which this structure is to be achieved. Another point has related to the maturity of the nominal krona and foreign currency debt, measured in terms of duration.

The Debt Office is not proposing any changes in this year's proposed guidelines as regards the structure and maturity of central government debt. However, we are proposing that the Government's decision on the maturity of the aggregate krona and foreign currency debt is to be expressed in terms of the interest-rate refixing period instead of duration. The Debt Office's possibilities to take interest rate positions should, however, as before, be stated in terms of duration.

The remaining part of the section is organised as follows. Proposals are first made on guidelines for central government debt management, inflation-linked debt and the nominal krona debt. Proposals are then made on the guidelines for the maturity of the debt.

5.1 Foreign currency debt

The Debt Office's proposal: The percentage of foreign currency debt should be reduced in the long term to 15 per cent. The proposed benchmark for the rate of amortisation during 2006 is SEK 25 billion. The direction for 2007 and 2008 should be unchanged. The Debt Office should be allowed to deviate from this amortisation rate by SEK ±15 billion.

5.1.1 Guidelines now in force

In November 2004, the Government decided that the proportion of foreign currency debt should decrease to 15 per cent in the long term and that the benchmark for the amortisation rate should be SEK 25 billion in 2005. The Government further decided that the Debt Office should be allowed to deviate from the amortisation rate by SEK ±15 billion. This flexibility is to be used to promote the aim of minimising costs while taking into account risk. Finally, the Government stated that the medium-term direction for the amortisation rate during 2006 and 2007 should be SEK 25 billion per year.

5.1.2 Deliberations and proposal

Percentage of foreign currency debt

In its proposed guidelines for last year, the Debt Office made an overall analysis of the structure that central government debt should have in the long term of nominal krona debt, inflation-linked krona debt and foreign currency debt. It was concluded that the percentage of foreign currency debt should decrease in the long term to 15 per cent. According to our present assessment, there are no new factors that change this conclusion. We therefore propose that the percentage of foreign currency debt is to decrease to 15 per cent in the long term.

The reason for this is that foreign-currency debt is associated with higher risk than nominal krona debt since it is associated with a currency risk. Another reason is that there should be scope to increase foreign currency debt in a crisis situation. Foreign currency borrowing is a flexible instrument. Our previous experiences in the 1990s show that it can be beneficial to borrow foreign currency if the borrowing requirement increases greatly. This reduces the pressure in the domestic market and can provide cost benefits to the extent that the large borrowing requirement pushes up krona interest rates and weakens the krona. In order for central government to have good prospects for large borrowing in foreign currency in a crisis, the foreign currency debt should not be too large in the initial situation, however.

The aim should not be to eliminate foreign currency debt entirely. The foreign currency debt contributes to a diversification of central government debt in terms of interest-rate risk. Including foreign currency debt in the central government debt reduces exposure against the Swedish interest rates. The foreign currency debt is comprised of five different currencies. Since the interest rates in the different countries are not perfectly correlated, the currency borrowing contributes to reducing the refixing risk in the aggregate central government debt. In order for these diversification effects to be noticeable, the foreign currency debt should not be too small.

In summary, the choice of a benchmark for the percentage of foreign currency debt represents a trade-off between the positive properties of the foreign currency debt and the currency risk. The Debt Office considers that the

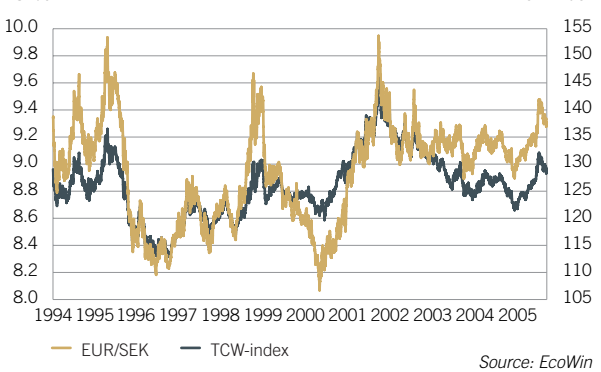
current benchmark of 15 per cent represents a reasonable trade-off between these factors and that nothing has happened that entails that the benchmark should be changed. It is therefore proposed that the Debt Office should be reduced in the long term to 15 per cent.

Pace of amortisation and deviation interval

In previous proposed guidelines, the Debt Office has proposed a gradual reduction of foreign currency debt where the choice of the pace of amortisation should be based on long-term structural considerations. The intention is to reduce the percentage of foreign currency at a pace permitted by borrowing activity given the trend of the state budget and without causing disruptions in the financial markets. The Government states last year, in accordance with the Debt Office's proposal, that the benchmark for the pace of amortisation in 2006 and 2007 should be SEK 25 billion.

In the assessment of the Debt Office, nothing has occurred to entail that these benchmarks should be changed. The krona has weakened during 2005, although not to an extent that would justify a change in the pace of amortisation (see Figure 4). The Debt Office is therefore proposing that the benchmark for the pace of amortisation for 2006 should be set at SEK 25 billion. The same benchmark is proposed for 2007 and 2008.

Figure 4. EXCHANGE RATE TREND EUR/SEK AND TCW, 1994 – 2005



Source: EcoWin

At a continued pace of amortisation of SEK 25 billion, the percentage of foreign currency will gradually decrease (ceteris paribus). At present, foreign currency debt amounts to around 24 per cent (31 August 2005). A simplified calculation of the trend of the debt percentages shows that the proposed foreign currency percentage of 15 per cent will be achieved in (see Table 2).[3]

Table 2. Effect on debt structure, proportion in per cent

	2005*	2006	2007	2008	2009	2010	2011
Foreign currency debt	22.1	19.6	17.0	14.7	15.0	15.0	15.0
Inflation-linked krona debt	15.6	16.5	17.3	18.0	18.7	19.4	20.0
Nominal krona debt	62.2	63.9	65.7	67.3	66.3	65.6	65.0

** Forecast according to Central Government Borrowing 2005:2*
The shares are calculated as per 31 December on the respective year.

The flexibility for how much the Debt Office may deviate from the Government's benchmark should continue to be SEK ±15 billion. This interval is to be used to promote the aim of minimising costs taking into account risk. The exchange rate trend is an important factor in decisions to make use of this flexibility. The budget trend can affect the pace of amortisation, for instance, to avoid too large a part of the borrowing or amortisation being charged to one and the same borrowing instrument.

In summary, the Debt Office proposes that the benchmark for amortisation of the currency debt in 2006 should be set at SEK 25 billion, in agreement with the Government's preliminary guidelines in last year's decision. The Debt Office should as before be allowed to deviate from this benchmark by SEK ±15 billion. The pace of amortisation for 2007 and 2008 should be set at SEK 25 billion per year.

5.2 Inflation-linked debt

The Debt Office's proposal: The percentage of inflation-linked loans in the central government debt should increase in the long term to 20–25 per cent. The rate of increase should be weighed against the growth in demand for inflation-linked bonds and the borrowing costs of other types of debt, with due consideration to risk.

5.2.1 Guidelines now in force

The Government decided last year that the percentage of inflation-linked debt in government debt is to increase in the long term to 20–25 per cent. Unlike foreign currency debt, however, it specified no quantitative aims for the pace of change. The Government instead stated that the rate of increase should be weighed against the growth in demand for inflation-linked bonds and the borrowing costs of other types of debt with due consideration for risk.

[3] *In the calculation example, it is assumed that the net borrowing requirement for 2005 and 2006 is SEK 31 and SEK 41 billion respectively (in accordance with the June forecast), and subsequently SEK 50 billion. It is further assumed that the exchange rates are constant and that inflation is 2 per cent per year. This means that the inflation-linked debt is adjusted upwards by 2 per cent inflation annually, while the central government debt otherwise only increases by the net borrowing requirement. Furthermore it is proposed that the pace of amortisation of the foreign currency debt is SEK 25 billion per year, while the inflation-linked debt is assumed to increase by SEK 15 billion per year (in addition to inflation compensation). When the benchmark for the foreign currency debt has been achieved in 2008, this percentage will be maintained.*

5.2.2 Deliberations and proposal

Percentage of inflation-linked debt

In last year's proposed guidelines, the Debt Office made the assessment that the percentage of inflation-linked debt should increases to 20-25 per cent in the long term. According to our current assessment, no factors have occurred to change this conclusion. We therefore propose that the proportion of inflation-linked debt should increase in the long term to 20–25 per cent. Inflation-linked debt currently amounts to approximately 16 per cent (31 August 2005).

The reason that the proportion of inflation-linked debt should increase is that it contributes to reducing the risk in central government debt. An increased component of inflation-linked debt provides a more diversified debt than if the debt had only consisted of nominal instruments. The risk of substantial variations in interest costs is decreased if the debt consists of several different kinds of debt.

Furthermore, the expected inflation-linked borrowing costs may, as a principle, be expected to be lower than for the corresponding nominal borrowing since investors should be willing to pay a premium for protection against inflation uncertainty. The yield requirements are in such case lower than with respect to nominal loans. The central government can be expected to borrow at a lower cost by assuming the inflation risk from the general public. The greater the uncertainty with respect to future inflation, the greater the inflation risk premium would reasonably be. The premium that will accrue to the central government by assuming inflation risk is thereby greatest for bonds with long maturities.

In last year's assessment of the inflation-linked percentage which is reasonable, we also took into account the liquidity of the real and inflation-linked bond markets. It was concluded that the inflation-linked debt should be sufficiently large for the inflation-linked bond market to have sufficient liquidity. At the same time, the percentage of inflation-linked debt must not be increased too much at the expense of the nominal krona debt since this may have negative effects on liquidity in the nominal krona market, which will in turn push up interest costs. It is strategically important for the nominal market to perform well. It is still this market that serves as a buffer in the event of substantial fluctuations in the borrowing requirement.

The concluding assessment of the Debt Office is that the inflation-linked borrowing should be permitted to increase to a percentage of 20–25 per cent. At that point, the inflation-linked bond market will have sufficient volume in order to become liquid and the percentage will be sufficiently large in order for the diversification effects of the inflation-linked debt to accrue to the central government. In combination with a continued reduction of the foreign currency debt, the proposed percentage at the same time provides scope for a large and liquid nominal bond market.

Pace of increase

Inflation-linked borrowing comprises a trade-off between the aim to minimise the expected costs and the possibility to reduce the risk. It is therefore important that the Debt Office as before is provided with the ability to assess the market situation and is not forced to issue inflation-linked bonds in situations where these appear expensive in relation to nominal bonds.

The aim should thus be to increase the percentage of inflation-linked loans in the central government debt in the long term, while weighing the rate of increase against the growth in demand of inflation-linked bonds and costs of other types of debt, with due consideration for risk.

5.3 Nominal krona debt

The Debt Office's proposal: With stated guidelines for inflation-linked borrowing and foreign currency borrowing, it follows by definition that the central government's financing requirements should otherwise be covered by nominal krona borrowing.

5.3.1 Guidelines now in force

The Government decided last year that in addition to inflation-linked borrowing and foreign currency borrowing, the central government financing needs should be met by nominal krona borrowing.

5.3.2 Deliberations and proposal

The guidelines for central government debt management are based on dividing the debt into three components: inflation-linked loans, foreign currency loans and nominal krona loans. With stated guidelines for inflation-linked borrowing and foreign currency borrowing, it therefore follows by definition that the remaining portion of the borrowing need should be met by nominal krona loans.

Since the Debt Office regularly holds auctions for both bonds and T-bills, it is easy in this market to cope with changes in the gross borrowing needs. The nominal krona market thus functions as a buffer in the event of fluctuations in the borrowing need, or if plans for the other two types of debt should change.

5.4 Maturity

5.4.1 Nominal krona and foreign currency debt

The Debt Office's proposal: The benchmark for the average interest-rate refixing period in the nominal krona and foreign currency debt during 2006 should be set at 3.1 years. The guideline for 2007 and 2008 should be unchanged.

Guidelines now in force

The Government reduced the average duration of the nominal krona and foreign currency debt from 2.7 to 2.5 years in last year's guideline.

Deliberations and proposal

We argue in section 3 that the guidelines for the maturity of central government debt should be stated in terms of average interest-rate refixing period instead of duration. We analyse there as well how the duration benchmark is to be translated into a benchmark expressed in terms of the interest-rate refixing period.

The analysis in section 2 concerns whether there is reason to change the maturity of the central government debt, regardless of how it is measured. We point out that there are indications that more durable changes in the relationship between long and short-term interest rates may be taking place. However, we consider that there is reason to wait before taking any measures in order to make a more well-grounded assessment of the nature of the changes. Moreover, it should be noted that the present interest gap between short and long borrowing (up to 10 years) cannot be said to be remarkably low in a historical perspective, and that last year's decision to reduce the maturity of the debt is based on model calculations where the yield curve was rather flatter than the yield curve is at present in the segment up to 10 years. There is accordingly no reason at present for proposing an extension of the maturity.

We want to underline that state will not lose anything by waiting to reduce the risk level in the central government debt to the extent that the changes prove to be more durable. This extension can in this case take place on substantially as favourable terms in the future as well. If, on the other hand, the interest-rate situation should return to previous patterns, the reasons for gradually changing the maturity will no longer exist. In this case, while it would have been beneficial if we had taken a position and temporarily extended the debt, it is fundamentally of minor importance. There is reason to remind that the long-term goal fulfilment of central government debt management is based on the well-considered overall guidelines. The effects on costs (and risks) that can be achieved by temporarily varying the debt around its benchmarks are in this context of secondary importance.

Consequently, the Debt Office proposes that the guidelines for the nominal krona and foreign currency debt should state a benchmark expressed in terms of interest-rate refixing period, which, in principle, corresponds to 2.5 years duration. As shown by section 4, the benchmark should then be set at an interest-rate refixing period of 3.1 years.

5.4.2 Limits for interest-rate positions

The Debt Office's proposal: The Debt Office should take interest-rate positions of at most 0.5 years duration.

Guidelines now in force

The Government decided in last year's guideline decision that the Debt Office should be allowed to set its own benchmarks for the nominal krona and foreign currency debt that gives an average duration deviating at most ±0.3 years from the benchmark.

Deliberations and proposal

In section 4, we argue that the guideline for the Debt Office's ability to take interest rate positions should be changed to reflect the change of maturity measure from duration to interest-rate refixing period. If the maturity measure is changed, it is no longer appropriate for the Debt Office's risk mandate to be expressed in terms of deviations from the benchmark. It should be stated instead in terms of duration exactly as before.

The reason is that duration is a more appropriate measure of the *interest-rate risk* in a position, since it is not only a measure of the maturity in the position but also a measure of how sensitive to changes in the interest rate the position is (i.e. how much the value of the position is changed if the interest rate changes). Stating the risk mandate in terms of duration is moreover in line with the valuation of the management that is to be primarily made in terms of market value, sine the bonds' cash flows are market valued when the duration is calculated.

The Government's guidelines for the maturity of central government debt can thus be divided up into two separate parts. In the first part, the guideline is stated for the average interest-rate refixing period in the nominal krona and currency debt. In the second part, it is stated how large the risk mandate the Debt Office has in terms of duration. With a division of this kind, the difference is clarified between the overall control of the central government debt and the strategic and tactical positions the Debt Office may take to reduce the costs of the debt. Central government borrowing and debt management will then be controlled by guidelines which are adapted to the different purposes of the two activities.

In section 4, we also discuss the question of how large the Debt Office's risk mandate should be and what is to be covered by the mandate. According to the guidelines

for 2001, the risk mandate is to include both the Debt Office's *strategic* positions (which are taken by the board) and *tactical* positions (which are taken in the operational management). However, we can note that an approach has developed where the Government's deviation interval has been interpreted as the Debt Office's mandate to take *strategic* interest rate positions, while the mandate for the *operational management* to take tactical interest rate positions has been understood as something in addition to this. Since the Debt Office has never taken any strategic interest-rate positions, this approach has never been tested against the guidelines, however.

We also note that if the Government's deviation interval of ±0.3 years is to include both the strategic and tactical positions, this only leaves about 0.1 years for the strategic decisions, since the active management in foreign currency has been granted around 0.2 years. A mandate of this kind for the strategic interest-rate positions appears as rather narrow. We therefore advocate that the risk mandate be increased to 0.5 years duration and the Debt Office, through the board, be mandated to distribute this between the strategic and the operational activity.

In summary, the Debt Office proposes that the Debt Office's risk mandate to take interest rate positions be expressed as before in terms of duration. However, the risk mandate should be increased to 0.5 years duration, since 0.3 years appears rather too narrow in the light of the operational management having been allocated 0.2 years of this scope for a number of years. It appears namely inappropriate that a decision by the Debt Office to take strategic interest-rate positions should restrict the ability of the operational activity to benefit from short-term market movements.

In kronor and öre, 0.5 years duration corresponds to an interest rate risk of SEK 5.7 billion if the position scope is fully used (see calculations in section 4).

5.4.3 Inflation-linked debt

Last year the Government decided to remove the formal limits in the guidelines for the inflation-linked borrowing. The Debt Office considers that this arrangement should continue. It is still the case that the Debt Office will issue inflation-linked loans with an average maturity that is longer than for nominal loans. This is due to the short-term inflation-linked borrowing, for instance, corresponding to that which takes place through T-bills, not being of interest neither to the Debt Office nor investors.

6. Decisions that are delegated to the Debt Office

Alongside of the overall guidelines for central government debt management, the Government delegates a number of decisions to the Debt Office. These are established in the evaluation chapter of the Government's guideline decision. The Debt Office's responsibilities and information are also regulated in the instructions for the Debt Office (*Ordinance (1996:311) containing instructions for the National Debt Office*), and in the appropriation directions (*Government decision 72*).

To draw attention to these decisions, a short summary is given here of the decisions concerned. We also make proposals on how formulations concerning the maturity benchmarks can be changed to reflect any change of maturity measure from duration to interest-rate refixing period (see section 6.2.1).

In the evaluation chapter of the Government's guideline decision, the Government states that the Debt Office is to establish internal guidelines for the operational management based on the Government's guideline decision. These guidelines are established by the Debt Office's board and are to be regarded as *strategic* decisions (see *Operational guidelines for central government debt management 2005*). The internal (or operational) guidelines include a number of central standpoints:

- Decision on allocation of the debt between different kinds of debt within the limits set by the Government.
- Decision on maturity benchmarks for the nominal krona and foreign currency debt and the currency benchmark for the currency debt.
- Decision on goals for debt and market support.

A more detailed review of these decisions is contained in the following section.

6.1 Allocation of debt between different kinds of debt

The Debt Office's mandate with regard to allocation of central government debt between different kinds of debt is given by the interval around the benchmark for the pace of amortisation of the foreign currency debt and the mandate to increase the percentage of inflation-linked loans. The Debt Office shall thus through its board establish new benchmarks for the rate at which debt percentages are to approach their goals. With regard to inflation-linked debt, this usually takes place by the Debt Office confirming the Government's guidelines that the rate of increase is to be weighed against the development of demand for inflation-linked bonds and the costs of borrowing in other kinds of debt taking risk into account.

The Debt Office is also, through its board, to adopt a relatively smooth cost-neutral path for the Debt Office's exchanges between kronor and foreign currency. The Debt Office is to specify a certain fluctuation interval around this path within which currency exchanges may deviate for practical reasons. The interval accordingly aims at providing scope for effective management of exchanges and not to provide scope for active taking of position. This interval is therefore to be regarded as neutral in terms of earnings.

In addition, the Debt Office should state risk limits for how large currency dispositions the operational management may take within the limits of the exchange mandate. At present, this limit is set at zero.

6.2 Benchmark portfolios for the nominal debt

The Debt Office's decision on benchmark portfolios for the nominal and foreign currency debt includes both the maturity of the nominal krona and foreign currency debt and the currency allocation in the foreign currency debt.

6.2.1 The maturity benchmarks

The Debt Office's mandate to take interest-rate positions is regulated in the existing guidelines by the Debt Office being permitted to set its own benchmark for the average duration in the nominal krona and foreign currency debt within the limits for the deviation interval set by the Government. According to the guidelines for 2001, this interval is to include both the Debt Office's strategic positions (taken by the board) and our tactical positions (taken in operational management). The Debt Office is also to decide how the duration is to be allocated between the nominal krona debt and the foreign currency debt by establishing separate benchmarks for these types of debt.

If the guidelines for the maturity of the nominal debt are changed so that these are expressed in terms of interest-rate refixing period instead of duration, the guidelines for the Debt Office's possibilities to take interest-rate positions should also be changed so as to be stated in terms of *duration* instead of *deviation from the benchmark*. In this way, it will be possible

to divide the Government's guidelines for the maturity of the central government debt into two components. In the first part, the benchmark for the average interest-rate refixing period in the nominal and krona foreign currency debt is stated. In the second part, it is stated how large a risk mandate the Debt Office is allocated in terms of duration.

This means that if the Debt Office takes a strategic interest-rate position, it shall no longer be taken by the Debt Office, through the board, setting its own benchmark for the maturity of the nominal debt. Instead, it is to be taken in the same way as positions are taken in the active management of foreign currency. That is to say, any positions are to be placed in their own portfolio with current follow-up of results.

However, this does not mean any major change in reality, but mostly concerns the view taken of the board's positions. In reporting terms, it means, however, that the Debt Office's strategic positions are not to be combined with the rest of the debt when monitoring and reporting on the average interest-rate refixing period.

As regards the Debt Office's ability to have different maturities in the krona and foreign currency debt respectively, it should be made possible for the Debt Office as before to break down the Government's overall maturity benchmark to separate benchmarks for both types of debt. The Debt Office should continue to set risk limits for the active management in foreign currency (see section 6.2.3). How large these can be is limited just as before by the overall risk mandate allocated by the Government to the Debt Office as a whole (at present ±0.3 years duration).

To conclude, it is important to note that the Government in the existing guidelines does not set any interval for how much the actual duration may vary around the benchmark. The Government has delegated this decision to the Debt Office. Accordingly, the Debt Office through its board sets a fluctuation interval for the respective type of debt within which the duration may vary for practical reasons. This order should not be changed by the Government deciding to change maturity measure from duration to interest-rate refixing period.

6.2.2 Foreign currency benchmark

The Debt Office's assignment as regards the foreign currency debt is to establish a foreign currency benchmark for *foreign currency exposure* in the debt. In addition, the Debt Office is to state a fluctuation interval for the respective currency within which foreign currency exposure may vary for practical reasons, and to establish risk limits for the active management of foreign currency (see section 6.2.3).

6.2.3 Active management of foreign currency

The Debt Office has been engaging in active management in foreign currency for many years. This means that the operational management takes active interest and currency positions within the framework of the risk limits that the board has set. The risk limits are stated at present both in terms of daily Value-at-Risk (VaR) and as deviation control for the currency percentages and duration of the debt.

6.3 Goals for debt management and market support

The Debt Office's assignment with regard to debt management and market support is to set goals and priorities for the activity. These are usually the same from year to year. For instance, the board states that the Debt Office is to be transparent and predictable in its lending policy, that the issue volumes are to be spread over a number of loans to restrict the refinancing risk and to promote liquidity in the loan, that the borrowing policy for inflation-linked bonds is to be focused on promoting the market development by creating volume and liquidity in the coupon loans and that the Debt Office is to support liquidity in the government securities market by supplying repo and exchange facilities, etc.

6.4 Summary

Alongside the overall guidelines for central government debt management, the Government delegates a number of decisions to the Debt Office. These are established in the evaluation chapter in the Government's guideline decision but are also regulated in the Debt Office's instruction and appropriation decisions.

In the guideline decision, the Government states that the Debt Office is to establish internal guidelines for the operational management, based on the Government's guidelines for central government debt management. The operational guidelines are to include benchmark portfolios for the nominal types of debt and relate, inter alia, to the allocation of borrowing between different types of debt, strategic interest-rate positions, allocation of the interest-rate refixing period between nominal krona debt and foreign currency debt respectively, and the currency structure of the currency benchmark. In addition, the Debt Office shall also establish fluctuation intervals and risk limits for the operational management of the debt.

It should be underlined in this context that what is crucial for costs and risk in central government debt management is the debt's aggregate characteristics. The guideline decision controls the allocation of the debt between the main types of debt and the average maturity. The considerations in preparation for these decisions will then be of crucial importance. Small deviations from the guidelines, within the intervals around the guidelines, will be of secondary importance. However, this does not means that they are insignificant, but that it is important to identify which management decisions are primary in relation to the goal.

Annex:

The work of the Debt Office with guidelines for percentage control and a comprehensive maturity measure

In this year's proposed guidelines, the Debt Office has been commissioned to make a more in-depth analysis of how the fluctuation interval around the debt percentages' benchmarks should be designed, and how a comprehensive maturity measure for the whole of central government debt should be defined and handled. The initial investigations show, however, that these questions are complex and that more time is needed to investigate the operational consequences of the questions. The Debt Office therefore intends to return to these issues in the next proposed guidelines. The following section contains a short summary of the work to date.

1 Percentage control

In the work of how the control system for the debt percentages should be designed, we have looked at the criteria that a system of this kind should comply with, and the operational consequences that the system would have. A short summary of this work is given in the following section.

1.1 From which measure of central government debt should the percentages be calculated?

The control of the allocation of central government debt between different types of debt should be based on shares expressed as percentages of the total debt. However, the central government debt can be measured in a number of ways. An initial question then is from which central government debt measure the percentage should be calculated.

A natural starting point is to use the official central government debt measure, *unconsolidated gross debt*. This is the debt measure used in *The Swedish central government debt* as well as the measure the Debt Office used in previous guideline proposals for analysing and producing guidelines for central government debt management.

The measure entails that

- the debt is measured including derivatives,
- instruments are valued at nominal final value,
- accrued inflation compensation on inflation-linked instruments is included,
- instruments in foreign currency are valued at the current currency rate.

1.2 When will we achieve the stated percentages?

The Government has stated that the percentage of foreign currency debt is to decrease in the long term to 15 per cent and the percentage of inflation-linked debt is to increase in the long term to 20-25 per cent. On 30 June 2005, the percentages amounted to around 25 per cent of foreign currency debt, 16 per cent of inflation-linked debt and 60 per cent of nominal krona debt.

Provided that we continue to amortise the foreign currency debt at SEK 25 billion per year and increase the outstanding volume of inflation-linked bonds by SEK 15 million per year, we will achieve the stated percentages in 2008 and 2011 respectively (see Table 1)[4]. The exact allocation will, however, depend on a number of factors, for instance, the trend of the borrowing requirement and the exchange rate and inflation trends.

Table 1. Effect on debt structure, percentage components

	2005*	2006	2007	2008	2009	2010	2011
Foreign currency debt	22.1	19.6	17.0	14.7	15.0	15.0	15.0
Real krona debt	15.6	16.5	17.3	18.0	18.7	19.4	20.0
Nominal krona debt	62.2	63.9	65.7	67.3	66.3	65.6	65.0

** Forecast for 2005 according to Central Government Borrowing 2005:2 The shares have been calculated as per 31 December in the respective year.*

[4] *In the calculation example, it is assumed that the net borrowing requirement for 2005 and 2006 is SEK 31 and 41 billion respectively (in accordance with the June forecast), and subsequently SEK 50 billion. Moreover, it is assumed that the exchange rates are constant and that inflation is 2 per cent per year. This means that the inflation-linked debt is adjusted upwards by 2 per cent inflation annually, while the central government debt otherwise only increases by the net borrowing requirement. When the benchmark for foreign currency debt is achieved in 2008, this percentage will be maintained.*

1.3 What criteria should the control system comply with?

The control system for percentages should comply with the following criteria.

They should:

- be consistent with, and contribute to, the overall goal for central government debt management of keeping cost to a minimum while taking account of risk and the requirements of monetary policy,
- contribute to good control of the debt portfolio,
- be simple to understand, robust and easy to use operationally,
- as far as possible contribute to predictability of central government debt management.

1.4 Conclusions to date

The control system must balance the need for good control against practical and operational aspects. The need for good control points to a system with exact benchmarks. Ideally the debt percentages would then always be at their benchmarks. Practical aspects point, however, in a different direction since it is almost impossible to keep the debt percentages constant. At least not without substantial transaction costs.

Excessively strict control also conflicts with the goal of keeping costs to a minimum since it leads to measures that are not commercially defensible. This is clearest for the foreign currency debt. If the krona falls in value, the percentage of foreign currency debt of the total increases. With a benchmark stated in per cent of the debt, the Debt Office, to neutralise this effect, would need to redeem currency loans during periods when these are highly valued. Conversely, the central government would borrow a larger amount in foreign currency during periods when the krona is strong since the percentage will then decrease. There is reason to assume that exchange rate movements are temporary in many cases and that the exchange rate will tend to return to a mean. In this case, a principle of keeping the percentage of foreign currency loans constant will make the government consistently borrow or amortise when it is expensive, which would be patently in conflict with the goal of minimising cost.

It is therefore a matter of finding a system which as far as possible eliminates undesired negative consequences at the same time as the control is not undermined. A control system where the percentages are allowed to vary within an interval is probably the most realistic alternative. The size of the interval must, however, be based on a trade-off between control and commercial and practical aspects.

At present we have no view on how large the intervals around the debt percentages benchmarks should be. Nor the frequency at which the percentages should be reconciled with the benchmarks. To depart from daily measurements, or to introduce some form of inertia in the measurements (for instance, by measuring the average value over time), can be justified by practical reasons. The debt is per se very difficult to control due to its size and our endeavour to be predictable (mainly in the nominal and inflation-linked krona market). It can therefore be beneficial to take this into consideration already during the design of how the percentages are to be calculated and measured.

However, we do not either want in this situation to exclude other alternative systems. For instance, it is conceivable for the Government to state guidelines in terms of benchmarks for the debt percentages, but that we operationalise these by stating benchmarks for new borrowing. We will then review the operational guidelines at regular intervals (for instance, in connection with our borrowing report) to ensure that we do not move too far away from the Government's intentions.

1.5 Summary

In summary, we can note that the debt percentages should be calculated on the basis of the official central government debt measure, unconsolidated gross debt. These should be calculated as percentage shares of the total debt.

The control system must balance the need for good control against commercial and practical and operational aspects. This indicates a system where the percentages are allowed to vary within an interval. We have no view at present on how large this interval or these intervals should be.

The percentages can fluctuate for a number of different reasons, such as, for instance, changes in the borrowing requirements, coupon payments, maturity, etc. It is also important to keep in mind that the central government debt is difficult to control due to its size. This can argue in favour of another form of follow-up than daily checks. To obtain a view of how large the intervals should be and how the follow-up should be designed, further analysis is required. The Debt Office intends to return to this question in the next proposed guidelines.

2 A comprehensive maturity measure

In the work of producing a comprehensive maturity measure for the central government debt, we have looked at which maturity measure we should use, and how they are to be weighed together. Additional work is required, however, to investigate how the control system is to be arranged or whether a comprehensive maturity measure is desirable.

2.1 The maturity should be weighed together one-to-one

When we calculate the duration of the nominal krona and foreign currency debt at present, the duration of the different

types of debt (kronor, dollar, euro, etc.) is weighed together in a one-to-one relationship. This means that each type of debt (and instrument) is weighed together according to its share of the total market value. Given that we expand the maturity measure to include the whole debt, there are reasons to do the same thing for the inflation-linked debt. This applies regardless of whether we retain the existing duration maturity measure or go over to the interest-rate refixing period, which we recommend in section 3.

2.2 How is the control system to be designed?

As regards the control system, we have, however, still a lot to think about. This partly concerns the design of the control system itself. There is a lot to indicate that we should continue in approximately the same way as today, when we do not continuously monitor the overall maturity measure but instead break it down to separate goals for the individual types of debt and then follow the trend of these. However, at the same time, we do not want to exclude other alternatives.

It is also important to bear in mind that the inflation-linked debt confronts us with quite different challenges than the nominal krona and foreign currency debt. For example, we cannot parry maturity in inflation-linked debt by borrowing in T-bills as we do for the nominal krona debt. Nor can we issue new loans with the same regularity. The duration trend in the inflation-linked debt will therefore be more uneven and have discrete jumps, which argues in favour of the permitted deviation from the maturity benchmark being larger for inflation-linked debt than for nominal krona and foreign currency debt.

2.3 Summary

To sum up we can note that there is a lot to investigate with regard to the design of the control system around the comprehensive maturity measure. However, we feel reasonably certain that the inflation-linked debt should be given the same weight as the nominal krona and foreign currency debt if the Government choose a maturity measure of this kind. Accordingly, the duration of the different types of debt should be weighed together in a one-to-one relationship.