Challenges to Central Banking from Globalized Financial Systems

Conference at the IMF in Washington, D.C., September 16–17, 2002

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Central Bank's Role in Reserve and Debt Management: The Danish Experience

Introduction

Danmarks Nationalbank has full independence in monetary policy and the objective is price stability – in the Danish case by means of a fixed exchange rate policy against the euro. Furthermore, Danmarks Nationalbank is one of the few central banks in our part of the world that undertakes all administrative functions related to central government debt management on behalf of the Ministry of Finance and the Bank is also wholesale bank to the government. The objective of government debt policy is to achieve the lowest possible long-term borrowing costs at an acceptable level of risk. To pursue the two objectives within the same organisation can appear to be like "squaring the circle", especially when it is further complicated by the fact that Danmarks Nationalbank has substantial portfolios of foreign assets (exchange reserves) and domestic assets for its own account – within the overriding objective of exchange rate stability all managed with a view to achieve high returns taking into consideration the various risks and political constraints.

The purpose of this paper is to illustrate that the substantial role of Danmarks Nationalbank in debt and reserve management is an efficient way to solve some of the unavoidable needs for coordination of issues related to monetary and fiscal policies. It represents an efficient utilisation of scarce resources in a small economy and it establishes knowledge of most aspects of the financial markets within a single institution. I am not arguing that the Danish solution is the only one. There are plenty of examples of equally successful institutional arrangements with separation of monetary policy and debt management. However, I think that homogeneity among the competent authorities on the objective of a stability oriented economic policy in a broad sense is a precondition for macroeconomic and financial stability. Not only wage formation, fiscal policy and monetary policy, but also government debt strategy, financial legislation etc. shall respect the many interlinkages with a view to ensure stability. In the Danish case the institutional arrangements for monetary policy and government debt management facilitate the necessary homogeneity in this area of economic policy.

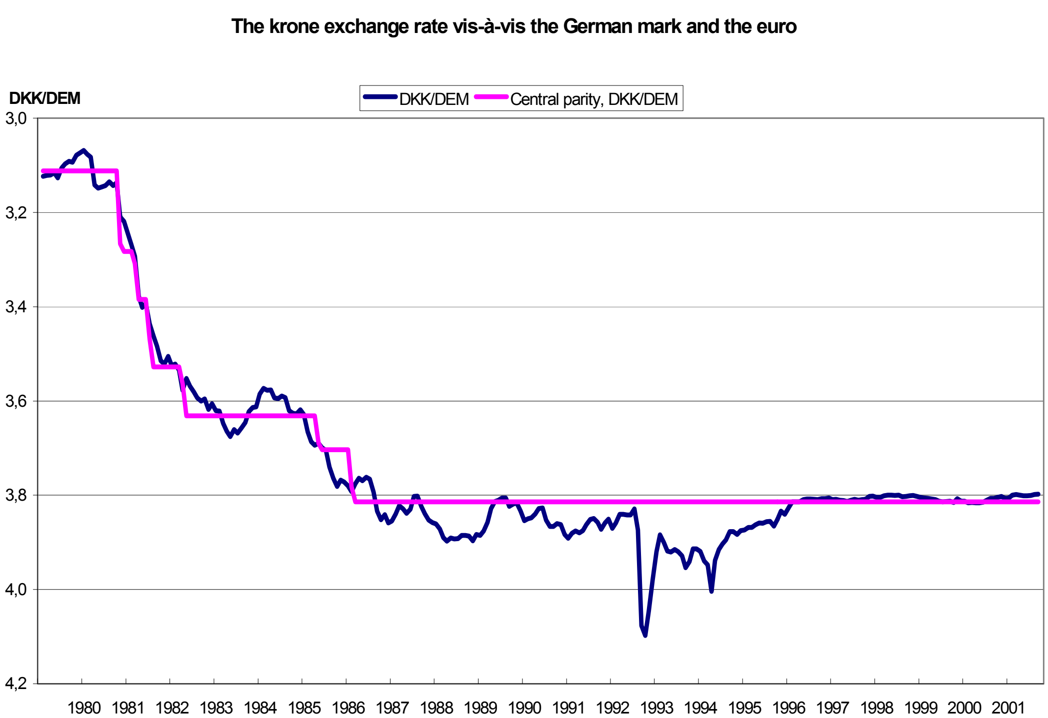
The paper is organised as follows. The first section describes monetary policy in Denmark. The second section covers the relationship between government debt management and monetary policy, and the third section deals with reserve management and monetary policy. The paper ends with a concluding section.

Monetary policy

Denmark is member of the European Union and capital movements have been fully liberalized since 1988. Denmark has pursued a fixed exchange rate policy for two decades. European monetary cooperation has changed dramatically during this period and since 1999 Denmark has been member of ERM 2 with a narrow fluctuation band of +/- 2,25 per cent around a central parity rate at 746,038 kroner per 100 euro. The central parity vis-à-vis the euro corresponds exactly to the former central rate vis-à-vis the D-mark - unchanged since early 1987, cf. chart 1. For more than five years the krone has been very close to the central parity and the width of the band is not utilised. Monetary policy is unconditionally subordinated to the exchange rate policy, and Danish monetary policy interest rates follow the interest rates of ECB. The interest rate differential – presently at 20 basis points – is changed if conditions in the foreign exchange market require so. Furthermore, Danmarks Nationalbank intervenes in the foreign exchange market in order to dampen fluctuations in the exchange rate vis-à-vis the euro.

Chart 1

The need for foreign exchange reserves under such a policy has strong links to the level of



government borrowing (in foreign currency). The mix between domestic and foreign currency denominated debt is also relevant for monetary policy and the same goes for the liquidity impact from government payments that depends on the timing of government borrowing. However, it is important to bear in mind that the need for cooperation between government debt authorities and monetary authorities that arises from the aforementioned interdependencies also exists in a situation with separate authorities. The forthcoming sections will depict how the coordination issues are solved in Denmark in an institutional structure where Danmarks Nationalbank has responsibility for monetary policy, is wholesale bank to the central government and undertakes for all administrative functions related to central government debt.

First, however, it is important to look at responsibilities for the overall macroeconomic framework. It is a well-established fact that inflation hampers growth in the medium term meaning that there is no conflict between an objective of price stability and goal of full employment. It is equally trivial but nevertheless important to bear in mind that the first best solution to minimize government borrowing costs and maintain a sustainable level of government debt is to keep macroeconomic conditions and public finances sound.

Over the past twenty years the Danish economy has changed remarkably to the better. A state of high inflation, persistent deficits on the balance of payments, substantial unemployment rates, large government budget deficits and long term nominal government bond yields above 20 per cent in the early 1980's has been reversed, cf. table 1. Inflation has been around 2 per cent for ten years and wage increases around 4 per cent. The balance of payments shows a healthy surplus and the economy is operating close to full capacity with an unemployment rate around 5 per cent. The government budget has been in surplus for the past five years and the long term interest rate differential between Danish and German government bonds has fallen from over 10 per cent in 1982 to 0,3 per cent today.

The fixed exchange rate policy has been instrumental in the significant improvement in Danish economic policy that has taken place over the past two decades. The Danish government supported by a large majority in parliament is committed to use fiscal policy if inflation evolves out of line with the exchange rate policy. It has been announced that fiscal policy will be adjusted if Danish inflation is inconsistent with ECB's definition of price stability (0-2 per cent increase in consumer prices). Furthermore, and equally important, the fixed exchange rate policy has brought structural reforms of the tax and benefit systems and the labour market to the policy forefront as the necessary tools to ensure low unemployment and growth in real income. Thus, the Danish macroeconomic policy framework focuses on minimisation of the costs of "home made" shocks stemming from domestic policies – a source of shocks that has been more important than "exogenous" shocks[1].

Table 1

Key economic figures for the Danish economy		
	1982	2001
Consumer price increases (per cent)	11.2	2.3

[1] Jensen (2001) gives a more detailed account of the costs and benefits of the Danish monetary regime.

Wage increases (per cent)	10.4	4.3
Balance of payments (per cent of GDP)	-4.1	2.6
Government budget surplus (per cent of GDP)	-9.1	2.8
Unemployment rate (per cent)	9.3	5.1
Long term bond yield (per cent)	20.5	5.2
Long term interest rate differential vis-à-vis Germany (per cent)	11.5	0.3

Source: Statistics Denmark

The coordination of the interdependencies between monetary policy and reserve and debt management has to respect the stability-oriented framework irrespective of institutional arrangements. This means that the traditional conflict between a government wanting low borrowing costs and a central bank wanting high interest rates to compensate the expansionary impact of a fiscal deficit is a secondary problem compared to keeping the benefits of the stability oriented policy.

The best way to handle the various trade offs between monetary policy and debt management is to establish and provide the markets and the public in general with a clear and transparent framework for debt and reserve management that is consistent with stability oriented macroeconomic policies. This has been the aim of reserve and debt management in Denmark and is seen as crucial instrument to minimise long-term government borrowing costs.

Government debt management

Two issues establish a dividing line between monetary policy and fiscal policy in Denmark. Firstly, the central government borrowing is subject to a set of funding rules based on an agreement between the Danish government and Danmarks Nationalbank. Secondly, the prohibition on monetary financing in the EU Treaty regulates the central bank's role as fiscal agent and bank to the government.

Since the early 1980’s the central government borrowing has been subject to funding rules. The present funding rules have been stipulated in an agreement between the government and Danmarks Nationalbank from 1993, thus replacing the informal understanding from the beginning of the 1980’s.

The agreement establishes a funding rule for domestic borrowing and a funding rule for foreign currency borrowing. The domestic rule ensures that domestic borrowing in kroner matches the central government’s gross domestic financing requirement for the year. The domestic rule sterilises the liquidity impact from government payments for the year as a whole. The purpose of central government foreign borrowing is to ensure an adequate level of foreign exchange reserves. The rule for foreign borrowing stipulates that new loans are raised to refinance redemptions on the foreign debt. If the level of foreign exchanges reserves is considered inappropriate, a decision can be taken to reduce or increase the level of foreign debt. Foreign exchange reserves are owned by the central bank and the central government's account in Danmarks Nationalbank provides the link between government foreign debt and foreign exchange reserves. Danmarks Nationalbank buys the foreign currency proceeds from government foreign borrowing and credit the value in kroner to the government's account.

One of the benefits of the funding rules is that they facilitate homogeneity in policy. It is not possible for the Debt Management Office (DMO) to rebalance the exchange rate exposure on the government debt in way that is inconsistent with the central bank's exchange rate policy. Such a diversity of views on the exchange rate among authorities is not conducive to a stability-oriented framework. In Denmark we have had historical instances where some of state owned and state guaranteed entities sold kroner against euro forcing the central bank to raise interest rates. Such institutions are no longer allowed to undertake transactions that are inconsistent with Danish monetary policy.

The balance on the government's account has to be taken into consideration in the planning of government borrowing. The prohibition on monetary financing in the EU Treaty requires that the balance on the government's account shall be positive at the close of the day. Hence, the issuance of government debt is planned with a view to maintain a minimum deposit of DKK 10 Billion (EUR 1.3 billion) on the account. The government's account is remunerated with the discount rate.

The legal authority for the central government to borrow is stipulated in legislation. It allows the Ministry of Finance to borrow in name of the government and empowers the Ministry to raise loans up to a maximum of DKr. 950 billion. The Ministry may also transact swaps and other financial instruments.

The responsibility to Parliament for central government borrowing rests with the Ministry of Finance. However, since 1991 Danmarks Nationalbank has undertaken all administrative functions related to central government debt management. The division of responsibility is set forth in an agreement between the Ministry of Finance and Danmarks Nationalbank.

Within the framework of the funding rules the over all strategy for central government borrowing is determined at quarterly meetings between the Ministry of Finance and Danmarks Nationalbank on the basis of written proposals from the Bank. The adopted strategy and conclusions are authorized and signed by the Ministry after the meeting. The overall strategy for the coming year is decided at the December meeting. It specifies the expected amount of domestic and foreign borrowing and a set of specific conclusions for the year such as bands for duration of government debt, a list of benchmark issues for domestic debt, borrowing strategy for foreign debt and a lists of government securities eligible for buy-backs and a securities lending facility. The main conclusions are published after the meeting and subsequent important amendments during the year are also made available to the public. On the basis of the conclusions, the central bank handles the necessary borrowing transactions and the ongoing management of the debt.

The potential insider problem between monetary policy and the terms for sale of government securities is often put forward as an argument for separation of the central bank and the DMO. However, the impact of this problem is exaggerated, especially when compared to the situation with an independent DMO that in all circumstances also must be under some kind of political control by the Ministry of Finance. Inside knowledge about prospective budgetary developments are at least as important for bond prices as knowledge about monetary policy. Hence, the potential insider problem cannot be eliminated. It exists under different institutional arrangements.

The Danish government debt strategy aims at a high degree of transparency. The cornerstone in the information policy is the annual report: Danish Government Borrowing and Debt. The report describes debt management activities in the previous year but also includes chapters on specific topics, of which some are considerations of planned changes to debt management. Besides the annual report the authorities provide a whole range of current information of relevance for market participants.

The objective of debt management is to achieve the lowest possible long-term borrowing costs taking the associated risks into account. Interest rate risk and exchange rate risk are considered the most important risk factors.

Domestic borrowing is based on establishing large liquid issues in the internationally important maturity segments of 2, 5 and 10 years. The liquidity premium reduces borrowing costs. A range of financial instruments such as domestic interest rate swaps, securities lending facilities, buy-backs and swaps from Danish kroner to euro have been introduced in recent years to ensure large liquid issues. Pricing and measurement of performance are not based on a specific domestic benchmark portfolio because the government is a dominant issuer on the domestic market. Danish domestic bonds are issued in internationally important maturity segments and priced on a competitive market with participation of domestic and international investors. In that respect pricing is based on market conditions.

Foreign currency debt has end-exposure in euro either by direct borrowing in euro or by the use of swap transactions. This minimises exchange rate risk. The development in the relationship between exchange rate risk on foreign debt and foreign exchange reserves is described in the section on reserve management. Foreign borrowing has been changed gradually over the years from small loans- and in some cases structured loans including complicated swaps – to bigger loans with end exposure in euro.

The interest rate risk management is based on the net central government debt as a whole. Therefore, duration can be changed using domestic or foreign instruments including swaps. In recent years the duration of central government net-debt has been reduced from 4.4 years to 3.4 years. This reduction is a result of the falling debt and the reduced interest rate costs that have increased the government's willingness to accept the larger expected volatility in interest rate expenditure from a shorter duration. Smoothening the redemption profile of the debt is also an integrated part of interest rate risk management alongside the duration band.

The strategy for government debt management has undergone many changes in recent years and many new concepts and financial instruments have been introduced such as buy backs, domestic interest rate swaps, securities lending programmes and reliance on large liquid issues. Such kind of innovation is inevitable for the minimisation of borrowing cost and has to be developed and provided by the DMO – also if it is placed within the central bank. In this respect it is important that the central bank is not reluctant to introduce such innovations on grounds related to traditional monetary arguments of limited relevance in the present day. For example arguments like "government's should only issue long term domestic bonds an never buy back" and "short term bonds are included in broad money and should be discouraged" do not carry much weight in a world with free capital movements where the short term interest rate is the only monetary policy instrument. Within a stability oriented framework there is ample opportunity for the central bank to modernise debt management without jeopardising monetary policy.

Reserve management

Danmarks Nationalbank's role as wholesale bank to the government and the link between government foreign debt and foreign exchange reserves are reflected in the balance sheet of the bank, cf. table 2. A demand for stronger coordination between the management of the foreign exchange reserves and the central government foreign debt was also one of the reasons behind the transfer of the DMO to the central bank.

Table 2

Balance sheet of Danmarks Nationalbank (end 2001) (billion DKK)			
Assets		Liabilities	
Exchange reserves	148	Notes and coins	47
Domestic securities	41	Government's account	44
		Monetary policy operations (net)	54
		Net – capital	44

It is evident from the balance sheet that the quantitatively most important market risks arise from the foreign exchange reserves and the domestic securities portfolio[2].

[2] Credit risk, liquidity risk, operational risk and legal risk are not dealt with in detail in this paper.

Prior to 1991 the exchange rate risk on foreign government debt was decided independently of the exchange rate risk on the foreign exchange reserves. The coordinated management of exchange rate risk on government foreign debt and foreign exchange reserves introduced in 1992 was from the outset based on a traditional risk/return portfolio model with the establishment of a benchmark portfolio on the efficient frontier.

However, the approach to exchange rate risk management has changed over the years primarily as a result of the successful exchange rate policy with a very stable euro/krone exchange rate. The portfolio approach and the formal coordinated exchange rate risk management have been replaced with a very simple system: All government foreign end-exposure is in euro and the same is the case for the foreign exchange reserves apart from a small USD exposure. The exchange rate risk in euro is considered negligible and unavoidable for a central bank with foreign exchange reserves. Exchange rate risk in other currencies - beyond what is necessary for political reasons - shall generate an excess return to be worthwhile and in general this has not been the case. It is also our experience that it is not profitable compared to the risks to try to outperform the market by forming different expectations on future developments in the exchange rates. As regards foreign government debt and government entities it has also been realised that "betting" on changes in exchange rates is not core business.

As regards interest rate risk there are gains to be made from keeping duration above zero on the central bank's assets[3]. The Board of Governors decide a duration band based on the maximum loss in kroner if interest rates were to increase by 1 per cent. There is a duration band for the domestic portfolio and a band for the foreign assets. Interest rate risk is managed separately from the exchange rate risk. Foreign assets are placed in secure and liquid bonds and predominantly collateralised bank deposits in many countries but the currency exposure is swapped to euro. Danmarks Nationalbank is a small participant in the global bond markets and can act freely in its transactions only taking the internal guidelines on creditworthiness, liquidity, duration etc. into consideration. This is not quite the case for the domestic portfolio.

How can the bank make transactions in the domestic bond market for its own account when it at the same time sells governments bond on a daily basis on tap and, furthermore, when it does not want to have any responsibility for long term interest rates for monetary policy reasons? Again the answer lies in clear and transparent procedures that are well known to the market. The market participants know that the Bank's domestic portfolio is never used for monetary policy purposes. The last attempt to steer long-term interest rates dates back to the mid-1980's. The monetary policy facilities can achieve all monetary policy objectives without recourse to the domestic portfolio. Furthermore, the domestic portfolio is an investment book, not a trading book meaning that transactions are on the low side compared to market standards. Finally, the prohibitions on monetary financing in the EU Treaty do not allow the central bank to purchase government bonds in the primary market – that is at the time of issuance.

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[3] It is evident from the balance sheet that the duration on the liabilities is zero for all practical purposes.

An important element of the Danmarks Nationalbank's approach to risk management is transparency. The main principles as well as the exposures and the results are described in the Bank's annual report and in separate and more detailed articles in the quarterly Monetary Review. In a modern society the public has to bee informed how the central bank carry out its responsibility for managing of a portfolio of this size.

Conclusion

Only a few countries have no government debt so it is fair to say that the tasks related to government debt management and monetary policy have to be carried out in any society. However, in a small country with scarce resources it is important that not too many people do the same thing. It is inevitable that a central bank shall have financial expertise to carry out its monetary policy functions and in a small country it is consequently worthwhile to consider to utilise this expertise in government debt management.

Some of the economies of scale are most prevalent in the area of governance of debt and reserve management. Over the past ten years Danmarks Nationalbank has concurrently established guidelines, manuals of procedures and decision-making responsibilities among departments in both areas. A common denominator in this approach has been to introduce simple solutions based on well-known instruments and a definition of core business, for instance the simple approach to exchange rate risk and the replacement of structured foreign loans and complicated swaps with plain vanilla products. This has reduced operational and legal risk in asset and debt management, and many issues have been of the same character with similar solutions. One of the benefits is that the staff of the bank in reserve and debt management, respectively, has covered a lot of ground in common, which forms an excellent platform for sharing knowledge.

The development of risk assessment systems has also revealed differences in the objective functions for foreign reserves and government debt, respectively. As a financial institution Danmarks Nationalbank is interested in the market value of assets and liabilities. This means that Value-at-Risk is used as a measure to monitor the risk position of the Bank. For the government the market value of outstanding debt does not carry as much weight as interest expenditure in the budget. Therefore, the risk monitoring system developed by the bank for government debt and utilised in decisions on the composition of the maturity profile and duration of new debt is termed Cost-at-Risk. The different objective functions are also a reason not to manage duration of central bank reserve assets and central government foreign debt in common.

Finally, the responsibilities of Danmarks Nationalbank in government debt management add value to the bank in its other functions. Danmarks Nationalbank is not responsible for supervision of financial institutions. However, like other central banks it has a role in macro prudential supervision and financial stability. The role in debt management provides market contacts - domestic and international - and a better understanding of financial markets, financial infrastructures such as organisation of the bond market, market making, securities settlement and custody arrangements. The development and use of risk management systems provides insight to the way banks and other market participants carry out the same tasks. It is a well-known fact that market participants are much more interested in a dialogue to provide information if you transact business. Hence, the central bank is in a better position to acquire knowledge of the real world. This practical knowledge is helpful for financial stability and the Bank's participation in the formation of national financial legislation.

The institutional arrangements in Denmark provide a clear dividing line between monetary and fiscal policy that facilitates the necessary coordination among authorities. It also provides a transparent framework with a clear and well-understood approach to the various risks in debt and reserve management, and the responsibilities for decisions are precise. At the same time, the institutional arrangements allow innovation in debt and reserve management.

I do not think that strong central bank involvement in debt management is neither a necessary nor a sufficient condition for macroeconomic stability and minimisation of government borrowing costs. However, in our case it has been a useful instrument in the significant transformation of the Danish economy over the past two decades.

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