MINISTRY OF FINANCE

Memorandum of the expert working group assessing development needs in central government debt management

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Financial Markets

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Abstract

The amount of central government debt has doubled since the financial crisis, at a time when there has also been a doubling of the government's contingent financial liabilities. The euro-denominated risks associated with government debt servicing have therefore also grown. The operating environment within which debt management is performed has changed as well. Financial market regulation has become more stringent, and more attention has been focused on the governance of financial institutions. Money market interest rates have fallen to zero or below, and a significant proportion of the central government debt of countries in the euro area has been transferred to central bank balance sheets through monetary policy purchases. The rapid development and heightened vulnerability of computer systems, including cyber security threats, have brought greater operating risks to debt management.

The organisation of government debt management as part of the multi-sectoral State Treasury's work is problematic. Debt management is directed from the ministry through two channels, and ICT decisions concerning debt management are made at multiple levels. The supervision and administration of debt management do not in all respects follow the criteria used in the financial sector.

For these reasons the working group recommends that debt management and the management of government transactions be transferred to a separate debt office that would function as a government agency or as a separate unit within the Ministry of Finance. Management would then be performed through a single channel.

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Tiivistelmä

Finanssikriisin jälkeen valtion velan määrä on kaksinkertaistunut samalla, kun myös valtion epäsuorat vastuut ovat kaksinkertaistuneet. Siten myös velanhoitoon liittyvät euromääräiset riskit ovat kasvaneet. Velanhallinnan toimintaympäristö on muuttunut. Rahoitusmarkkinoiden sääntely on kiristynyt, rahoituslaitosten hallintomalleihin on kiinnitetty aiempaa enemmän huomiota. Rahamarkkinakorot ovat alentuneet nollaan tai sen alapuolelle, ja merkittävä osa euroalueen maiden valtionvelasta on rahapoliittisten osto-operaatioiden kautta siirtynyt keskuspankkien taseisiin. Tietojärjestelmien nopea kehitys ja lisääntynyt haavoittuvuus, ml. kyberturvallisuuteen liittyvät uhat, ovat lisänneet velanhallinnan operatiivisia riskejä.

Valtion velanhallinnan organisointi osaksi monitoimialaisen Valtiokonttorin toimintaa on ongelmallinen. Velanhallintaa ohjataan ministeriöstä käsin kaksikanavaisesti, ja velanhallinnan ICT-ratkaisuista päätetään moniportaisesti. Velanhallinnan valvonta ja hallinto eivät kaikilta osin noudata rahoitusalalla käytössä olevia kriteereitä.

Näistä syistä työryhmä suosittelee, että velanhallinta ja valtion maksuliikkeen hoito siirrettäisiin erilliseen velkatoimistoon, joka voisi toimia erillisenä virastona tai erillisenä yksikkönä valtiovarainministeriössä. Samalla toteutettaisiin yksikanavainen ohjaus.

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Efter finanskrisen har statsskulden fördubblats liksom också statens indirekta ansvarsområden. Därmed har också skuldskötselns risker mätt i eurobelopp vuxit. Sammanhanget som skuldhanteringen fungerar i har förändrats. Regleringen av finansmarknaden har stramats åt, det riktas mer uppmärksamhet mot finansinstitutens förvaltningsmodeller. Finansmarknadsräntorna har sjunkit till noll eller under noll och en märkbar andel av statsskulden i euroområdets länder har genom finanspolitiska köpaktioner överförts till centralbankernas balansräkningar. Den snabba utvecklingen av IT-systemen och den ökade sårbarheten, inklusive hoten mot cybersäkerheten, har ökat skuldhanteringens operativa risker

Att överföra statens skuldhantering till Statskontoret, som har många verksamhetsområden, är problematiskt. Ministeriet styr skuldhanteringen via två kanaler och skuldhanteringens ICT-lösningar besluts om i många steg. Övervakningen och förvaltningen av skuldhanteringen följer inte till alla delar de kriterier som används i finansbranschen.

Av dessa orsaker rekommenderar arbetsgruppen att skuldhanteringen och skötseln av statens betalningstrafik överförs till ett separat skuldkontor, som kunde fungera som ett enskilt ämbetsverk eller en enskild enhet inom finansministeriet. Samtidigt skulle styrningen koncentreras till en kanal.

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Contents

TO THE MINISTRY OF FINANCE

On 12 May 2017, the Ministry of Finance appointed a working group to assess the development needs in central government debt management, to prepare the necessary recommendations for developing the process and to submit the recommendations to the Ministry of Finance. The term of the working group started on 30 August 2017 and ended on 1 September 2018.

Assignment of the working group

The assignment of the working group was to assess

- target setting in central government debt management
- the debt management model used by the State Treasury, which is based on a benchmark portfolio, and its workability, transparency and effectiveness
- management of interest rate risks and liquidity risks, considering the rapid growth in implicit liabilities in recent years
- institutional functioning of the currently used debt management model, division of tasks in it and the resources allocated to it
- debt management steering within the Ministry of Finance
- resilience of debt management and continuity management of the process.

Setting up the working group and organising the work

Antti Suvanto, Doctor of Social Sciences, was invited to chair the working group. The members of the working group were: Eeva Grannenfelt, Managing Partner, Grannenfelt Finance Oy; Marjaana Hohti, Principal Adviser, Bank of Finland; Pauli Kariniemi, Financial Counsellor, Ministry of Finance; and Risto Murto, President and CEO, Varma Mutual Pension Insurance Company. Leena Mörttinen, Director General of the Financial Markets Department of the Ministry of Finance served as a working group member from 9 November 2017. Sami Napari, Senior Adviser in the Ministry of Finance, served as the secretary of the working group.

Deputy Director Mika Arola, Director of Finance Teppo Koivisto and Deputy Director Juha Savolainen from the State Treasury served as permanent experts of the working group.

The working group met 16 times during its term.

The working group consulted the following persons as experts at its meetings: Jussi Tuulisaari, Financial Manager and Anna von Knorring, Deputy Director, State Treasury; Timo Ankelo, Partner, KPMG Oy; Petri Viertiö, CRO, Danske Bank A/S; Timo Laitinen, Director General, State Treasury; Helena Tarkka, Director of Administrative Governance and Development in the Ministry of Finance; Arto Eno, Financial Counsellor; Ministry of Finance; Anu Sammallahti, Deputy Director, State Treasury; Tuija Taos, Director General, Financial Stability Authority; and Martti Hetemäki, Permanent Secretary, Ministry of Finance.

Pirre Laaksonen, Assistant, Legal Affairs, in the Ministry of Finance, also assisted the working group in its work.

As part of its task, the working group also examined the approaches of other countries in the management of central government debt. Concerning this, Mikko-Waltteri Sihvola, a university trainee from the Uppsala University, prepared an international comparison of the organisation of debt management. The chair and the secretary of the working group also visited Denmark where they familiarised themselves with the Danish organisation of central government debt management.

The working group is unanimous in its recommendations and respectfully submits its memorandum to the Ministry of Finance.

Helsinki 31 August 2018

Antti Suvanto

Eeva Grannenfelt

Marjaana Hohti

Pauli Kariniemi

Risto Murto

Leena Mörttinen

Sami Napari

Abstract

Central government debt management comprises central government borrowing, investment of central government cash funds, and the management of the risks associated with the debt and the invested cash funds and the management of the risks arising from their management. These debt office tasks are currently performed by the State Treasury. Within the State Treasury, debt management is the responsibility of the agency's Finance Division. The Finance Division also has other tasks, such as the administration of central government lending, interest subsidies and guarantees granted from central government funds.

The current organisational model for central government debt management was introduced in 1999. The amount of Finland's central government debt and the contingent financial liabilities of the State of Finland have doubled since the financial crisis. This means that the euro-denominated risks associated with central government debt servicing have increased accordingly . At the same time, the tasks of the State Treasury have become more diverse. The State Treasury has become a service and development agency that, in addition to providing central government with financing services, also produces financial and human resources management services, as well as compensation and benefit services for citizens and corporations. The State Treasury is also a partner in the development of knowledge-based management and the digitalisation of central government.

There have also been substantial changes in the operating environment of debt management after 1999. With the introduction of the euro, the division into domestic and foreign borrowing became irrelevant, and the exchange rate risk has disappeared almost completely. The investor base is international and most of the issues are carried out through international primary dealer banks.

Since the financial crisis, regulation of the financial markets has been tightened and more attention is now paid to such matters as the governance of financial institutions. The monetary policy has also shaped the operating environment as money market interest rates have fallen to zero or below it and as central banks have, as a result of the

quantitative easing of the monetary policy, become important buyers of government bonds in the secondary market.

As all other areas of financing, debt management is crucially dependent on information systems and their operational reliability. For actors in the financial sector, ICT is part of their core business and not merely a support function. Rapid development and increasing vulnerability of information systems (including cyber security threats) have led to higher operational risks in debt management.

As a multi-sectoral agency, the State Treasury is steered on a multi-channel basis. The steering is coordinated by the Administrative Governance and Development Department of the Ministry of Finance, which is also responsible for the process. Decisions on the allocation of the agency's resources are made by its Director General within the budgetary framework granted by the Ministry of Finance. The ministry does not play any role in the allocation of resources within the State Treasury.

The ministry's other departments take part in the performance management process in accordance with their own core sectors. Central government debt management strategy is the responsibility of the ministry's Financial Markets Department. The Ministry of Finance sets out the overall principles guiding debt management, the financial instruments used in debt management, as well as the risk limits applied in the process.

Organising central government debt management as part of the operations of the multi-sectoral State Treasury is problematic for several reasons.

Multi-channel steering is one of the problems. In the performance management process, the tasks of the State Treasury are seen as parallel duties even though they are very different in nature. Debt management is an operative function, which involves high monetary values. The objectives laid out for the State Treasury's Finance Division do not come from the same channel as the resources allocated to the operations. In such a structure, only limited consideration can be given to the needs of a debt office, especially when decisions on information system investments are made. There are not many synergies between the Finance Division and the other functions of the agency either.

The issue of multi-tier organisation of the ICT solutions used in debt management is related to the above. Debt management does not have any ownership in the ICT architecture that it needs. When problems arise, matters have to be managed through intermediaries, which causes delays in the process. The same applies to development and investment projects. Moreover, development and investment projects must compete with development projects of other State Treasury divisions, which also causes delays and increases the risks associated with the implementation of the projects. All this means

that the organisation and management of the ICT solutions used in debt management constitute an operational risk to central government debt management.

The third problem is associated with administration and supervision. The supervision of the State Treasury's debt management operations is the responsibility of the agency's internal audit, which reports on its work to the Director General. The Financial Markets Department of the Ministry of Finance is the external supervisor of the process. The National Audit Office of Finland is responsible for the external financial and performance audits of the agency. This practice differs from what is normally applied in the financial sector. In the financial sector, reporting on internal audits is normally on the basis of the one-over-one principle, in which the critical audit observations are submitted directly to the Board or the Board-appointed Audit Committee, bypassing the senior management. In the debt management performed by the State Treasury, this would mean direct reporting to the Financial Markets Department of the Ministry of Finance. Especially in the field of risk management and ICT dependency, central government debt management is comparable to financial sector operations in general.

On the basis of this, the working group recommends that

> *debt management and the steering of central government transactions should be transferred to a separate debt office that could operate as a separate agency or as a separate unit in the Ministry of Finance. At the same time, a single-channel steering system would be adopted. In the system, the Ministry of Finance would continue to decide on the debt management strategy and provide the debt office with a budgetary framework. The debt office should have direct ownership in and steering control over the ICT architecture it uses (work stations, data communications, servers, outsourced services and contractual management).*

The working group also considered a third option: placing the debt office under the auspices of the Bank of Finland. This could provide synergy benefits as the expertise and information systems used by the central bank would also be partially available to the debt office. For example, back office functions could be managed using shared resources. The debt office operates under the auspices of the central bank in such countries as Denmark, Iceland and Norway. In these countries, the arrangement can also be justified with the fact that their central banks use foreign currency-denominated borrowing to maintain foreign currency reserves. However, there are no euro area countries where the debt office operates under the auspices of the central bank. Placing the debt office under the auspices of the central bank is poorly compatible with the fact that for monetary policy reasons, a large proportion of central government debt is in the possession of the central bank.

Transferring the tasks of the debt office to a separate agency or a separate unit operating under the auspices of the Ministry of Finance would require legislative changes. Irrespective of the solution, the working group

> *considers it important that, as applicable, the principles commonly used in the financial sector should also be used in the governance of the debt office. The debt office should have an audit committee with a mandate to assess the risk management of and reporting on debt management and whether they are comparable with the standards commonly applied in the financial sector. The audit committee should have representatives of the ministry and some external financial sector experts as members. Implementing the recommendations issued by the audit committee would remain the responsibility of the Ministry of Finance.*

The risk management methods used by the State Treasury's Finance Division are up to date and comparable with the good practices applied in other countries. The interest rate risk is the principal risk in central government debt management. The estimates of the interest rate risk are produced with a model based on the estimation and simulation of the yield curve, which can be used to calculate the expected interest expenses and the distribution of the expenses. The maximum deviation of the interest expenses from expected expenses at desired probability (Cost-at-Risk) can be calculated on this basis. An effective frontier, which describes the amount by which a reduction in interest expense variation would increase the expected expenses under the modelling, can be calculated on the basis of the model. The Ministry of Finance selects the interest rate risk position that is in accordance with its risk preferences from these expense/risk ratios and includes it in the debt management guidelines issued to the State Treasury.

The State Treasury's Finance Division makes active use of interest rate swaps to adjust debt duration (repricing). This allows the State Treasury to separate interest rate risk from refinancing risk. Shortening debt duration by means of interest rate swaps has helped to lower average interest expenses. In a situation where short-term interest rates are close to or below zero, it has been more difficult to estimate and interpret the yield curve. The working group is of the view that

> *advanced methods should be used in the estimation of the interest rate risk and that the methods should be reviewed from time to time. Financial research experts should take part in the review process. First, it should be assessed how the consideration of the zero lower bound would impact the estimation of the interest rate risk and expected interest expenses.*

In an estimate of the interest rate risk that is solely based on the interest expenses of central government debt and their statistical variation, no consideration is given to the possible joint variation of the interest expenses and the central government interest income from financial claims or expected tax revenue. Such a broad-based approach in which the focus is on the total central government balance sheet would shift the attention from the variation in expected interest expenses to the variation in the deficits and surpluses of the state budget as a whole. The adoption of such a broad-based balance sheet perspective has been examined in a number of countries. It has also been recommended by international organisations. However, New Zealand is the only country that has adopted this approach. Complexity and problems with access to information have made the broad-based balance sheet model less attractive. The working group is of the view that

> *a broad-based balance sheet perspective in which consideration is given to both debt interest expenses and the joint variation of these expenses between tax revenue and other revenue generated by balance sheet items is the right approach to the risk management of central government as a whole. The working group recommends that the extent that such a central government-level balance sheet perspective would be feasible and realistically possible should be examined.*

1 Introduction

With the rapid growth in central government debt and implicit central government liabilities, central government debt management has assumed an increasingly important role in recent years. At the same time, the requirements arising from financial market regulation have become more comprehensive and technological advances have made the ICT infrastructure a strategically important part of debt management and its functioning is a critical factor in all situations. As a result of such factors as growing cyber threats, continuity management has also assumed an increasingly important role in central government debt management. These background factors, together with the fact that two decades have passed since the last comprehensive audit of central government debt management and its organisation,[1] make it essential to assess the development needs in central government debt management.

The working group had a broad mandate. Its task was to assess

1. the target setting in central government debt management
2. the debt management model used by the State Treasury, which is based on a benchmark portfolio, and its workability, transparency and effectiveness
3. management of interest rate risks and liquidity risks, considering the rapid growth in implicit liabilities in recent years
4. institutional functioning of the current debt management model, division of tasks in it and the resources allocated to it
5. debt management steering function within the Ministry of Finance
6. resilience of debt management and continuity management in the process.

1 The current division of tasks in central government debt management is based on the recommendations issued in 1997 by the VMVK working group comprising Ministry of Finance and State Treasury experts (Ministry of Finance 1997). In 2008, the National Audit Office of Finland carried out an audit of the organisation of central government debt management. According to the National Audit Office, the procedures applied to central government debt management in Finland are in accordance with the best international practices.

The organisation of the debt management and cash management of on-budget entities, and the steering and risk management of this process were set out as the priority areas in the mandate of the working group.[2] A more detailed analysis of the total central government balance sheet was left outside the scope of the working group's mandate.

The main changes in the operating environment of debt management are described in Chapter 2 of the report. Central government liabilities and financial assets, the unconventional monetary policy pursued in recent years, changes in the regulatory environment and information security are discussed in the chapter. Overall organisation of debt management in Finland, the multi-channel steering process of the State Treasury, the general organisational model of the agency, and the organisation of debt management as part of the State Treasury's Finance Division are discussed in Chapter 3. Organisation of debt management in different countries is described in Chapter 4. Chapter 5 contains an overall description of the risks associated with debt management, while in Chapter 6, the focus is on the management of the interest rate risk, the key risk in debt management, and the selection of the strategic interest rate risk position. In Chapter 7, the working group sums up its key observations on central government debt management. In conclusion, the working group presents its recommendations for reorganising the debt management process and for developing risk management.

2 In a number of countries, these tasks are managed by a separate government debt office. In Finland, this function is the responsibility of the State Treasury.

2 Changes in the operating environment of debt management

2.1 Central government debt and contingent financial liabilities

In this report, central government debt means the debt managed by the State Treasury (= on-budget debt). On-budget entities mean the ministries and agencies operating in central government administrative branches. This debt concept differs from the EDP debt concept (Excessive Deficit Procedure), used by Statistics Finland, which describes the general government debt position.[3]

In absolute terms and in relation to the national economy, central government debt has grown substantially over the past ten years (Figure 1). In 2008, Finland's central government debt totalled slightly more than EUR 50 billion. In 2016, it already exceeded the EUR 100 billion mark.[4] Even though the debt has grown, there has been no growth in interest expenses during the period in review (Figure 2). This is because of the historically low interest rates. The rapid growth in the amount of debt has nevertheless heightened the potential impacts of the market risks associated with central government debt (especially the interest rate risk) on central government finances.

In addition to direct central government indebtedness, the risks associated with debt management are also heightened by a rapid increase in government guarantees over the past ten years (Figure 3). According to the figures reported by the State Treasury, government guarantees [5] totalled about EUR 23 billion in 2010, whereas at the end of 2017, they already amounted to about EUR 52 billion.

3 For more information on the differences between these two debt concepts, visit the State Treasury website on central government debt, at http://www.treasuryfinland.fi/en-US/Statistics/Central_government_debt.

4 The whole debt has been in euros since 2007. In 2003, about EUR 1.2 billion of the debt was still in foreign currencies.

5 Government guarantee refers to a legal commitment by the state to assume liability for the debt of another party. Government collateral meanwhile is a legal commitment to compensate for the losses arising from certain activities.

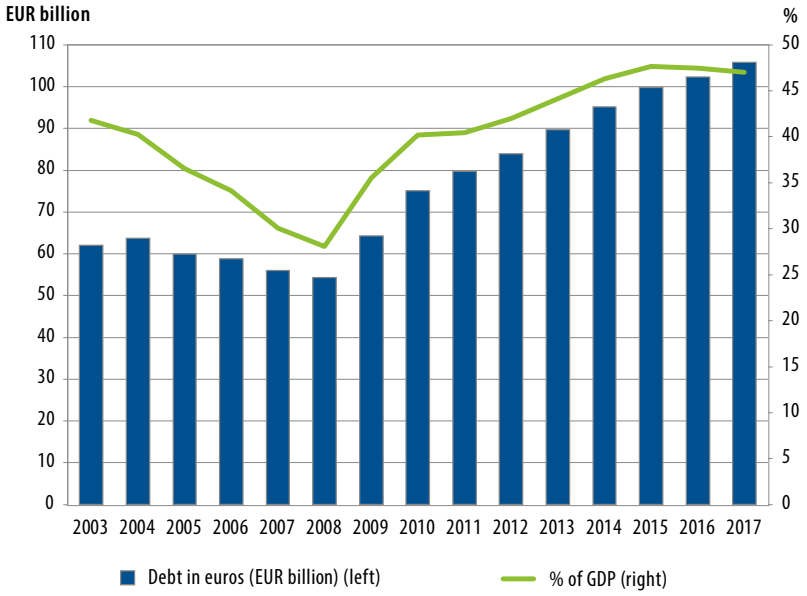


Figure 1. On-budget debt

Source: State Treasury.

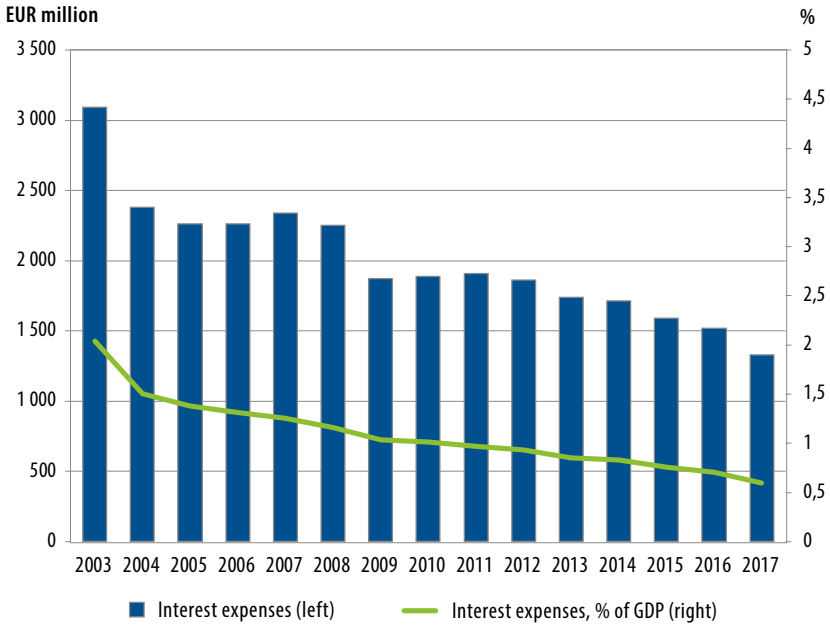


Figure 2. On-budget interest expenses

Source: State Treasury.

There has been a particularly strong growth in the liabilities associated with the debt crisis of the euro area member states and, domestically, in the export financing liabilities for Finnvera. There has also been a substantial increase in liabilities associated with central government funds, most of which are liabilities of the National Housing Fund.

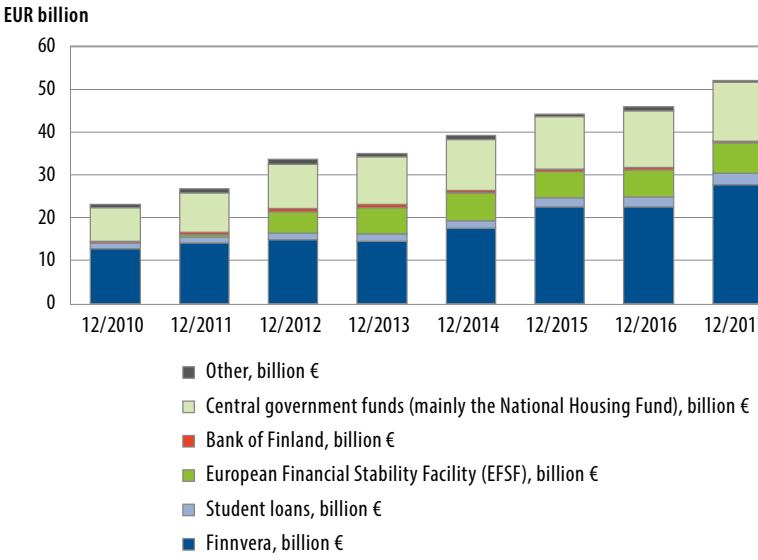


Figure 3. Government guarantees

Source: State Treasury.

In reality, the central government liabilities are more substantial than described above. For example, through its pension scheme, the State of Finland has given a pension pledge to current and former central government employees, which totalled EUR 93 billion at the end of 2017.[6] The State of Finland also has pension liabilities through the self-employed persons' pension scheme. Moreover, Finland's share of the callable capital within the framework of the European Stability Mechanism (ESM) is slightly more than EUR 11 billion. This liability would become at least partially payable if the ESM became insolvent or if its reserve fund and the capital already paid are insufficient to cover the losses. For a more comprehensive description of the direct and contingent financial liabilities of central government, see the risk report published each year by the Ministry of Finance.[7]

Determining which factors have led to an increase in contingent financial liabilities of central government is a relevant topic but nevertheless outside the scope of this report. This issue is also discussed in the risk report published by the Ministry of Finance.

6 Of the method used in the calculation of central government pension liabilities, see the financial statements of the State Pension Fund (VER) (2017, Annex 10.2).

7 The latest report was published in June 2018 (Ministry of Finance 2018).

The risks associated with the growth in contingent financial liabilities of central government and their potential negative impacts on central government debt management are mitigated by the funds accumulated for them. For example, losses arising from export guarantees provided to promote Finnish exports can be primarily covered from the fund for export guarantee and special guarantee operations in Finnvera's balance sheet and secondarily from the State Guarantee Fund.

Finland is not the only country facing an indebtedness challenge as a rapid growth in debt-to-GDP ratios has been a global phenomenon in recent years. For more information about debt trends in Europe, see Figure 4. Since the start of the financial crisis in 2007, the general government debt-to-GDP ratio has grown in nearly all EU countries. However, in Finland, the rate of growth has been significantly faster than in Europe in general. Despite this, Finland's general government debt-to-GDP ratio is still lower than in the rest of the EU on average.

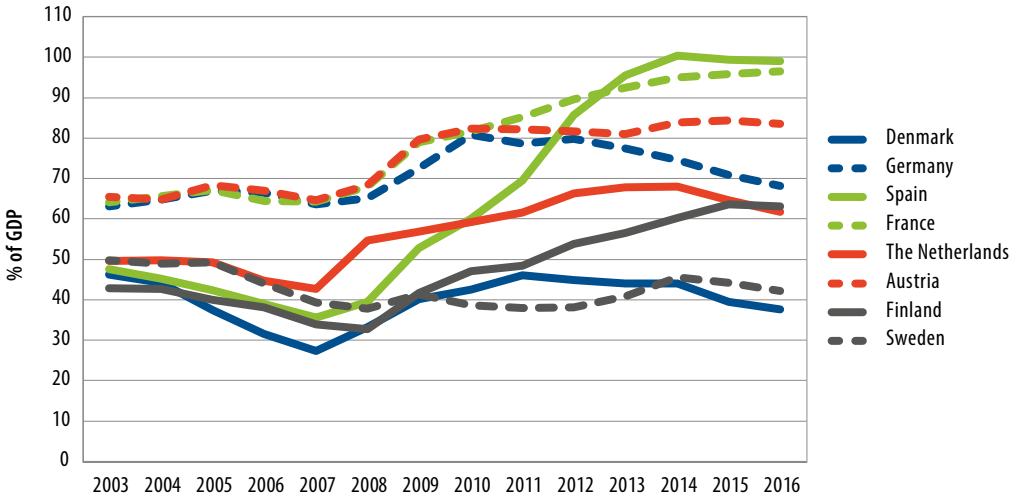


Figure 4. General government debt-to-GDP ratio in EU countries
Source: Eurostat

International comparisons of government guarantees are difficult because of differences between national reporting practices. However, in recent years, Eurostat has made substantial progress in its work to collect comparable material on contingent liabilities of EU Member States. Information on contingent liabilities of a number of EU countries as measured in guarantees is presented in Figure 5.[8] Unlike with the debt-to-GDP ratio, the general government guarantee-to-GDP ratio is higher in Finland than in any other EU country. In the growth rate of the contingent liabilities, Finland has been going against the prevailing trend. In most EU countries, general government guarantees as a proportion of the GDP have been shrinking in recent years, whereas in Finland they have been growing at a rapid rate.

It is clear that state indebtedness also has an impact on central government debt management. Box 1 describes some of the factors highlighted by the OECD that should be considered in debt management in high-debt environments so that indebtedness-related risks can be mitigated and the consolidation of central government finances supported.

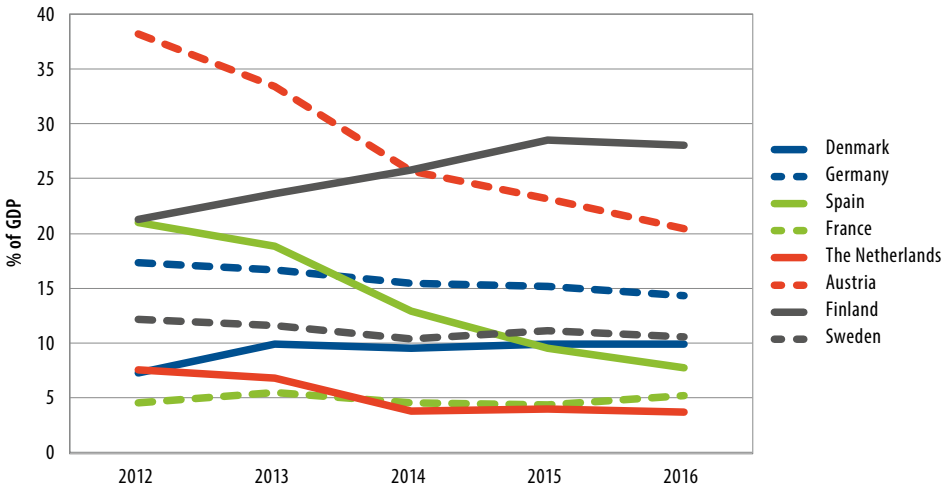


Figure 5. General government guarantees in a number of EU countries
Source: Eurostat

8 Of the provisions and problems concerning the material, see Eurostat (2017).

BOX 1. CENTRAL GOVERNMENT DEBT MANAGEMENT IN A HIGH-DEBT ENVIRONMENT

Rapid growth in central government indebtedness in many countries has been one of the consequences of the financial crisis. The OECD has analysed the factors that should be considered in the management of central government debts and assets in this environment so that the risks associated with central government indebtedness can be mitigated and the consolidation of central government finances supported. Some of the factors highlighted by the OECD are listed below. Not all of them are relevant to Finland. The State Treasury can, for example, shorten the maturity of the debt portfolio by means of interest rate swaps without issuing short-term debt. Read more about utilising interest rate swaps in Box 7.

Managing the costs and risks arising from the debt

Debt structure

Higher debt levels have made central government balance sheets more vulnerable, which highlights the careful selection of the risk position. Exceptionally low short-term interest rates encourage governments to issue short-term debt. At the same time, however, yields are at historically low levels throughout the interest rate curve, which serves as an encouragement to extend maturity and to fix interest expenses for longer periods.

Debt in foreign currencies

There was a slight increase in issues in foreign currencies in OECD countries during the financial crisis as debt offices made efforts to expand their investor base. Despite this, in most OECD countries, debt in foreign currencies only accounts for a small percentage of all debt issues. At the same time, however, foreign investors hold a large proportion of all debt in domestic currencies in many countries. As debt levels have risen, this has heightened the need for credible medium-term consolidation programmes aimed at restructuring general government finances so that the risk of suddenly losing the trust of foreign investors as a result of an unsustainable general government fiscal position can be reduced.

Index-linked debt instruments

It is generally considered that the structure of the central government debt provides opportunities for hedging against macroeconomic shocks. From this perspective, an optimal central government financing strategy should depend on the shocks facing the economy and the structure of the economy. It is, however, extremely difficult to estimate the type of the shocks facing the economy and the manner in which the economy reacts to them. Issuing bonds that are index-linked to economic indicators, such as the price of oil or GDP, provides an alternative hedging method. In practice, however, only a very limited number of index-linked bonds have been issued.

Maintaining price stability

Rapid growth in indebtedness makes debt reduction through higher inflation an attractive option. According to the OECD, the macroeconomic costs of such a policy would, however, exceed its potential benefits and would be in conflict with the policy measures aimed at maintaining and strengthening market trust. Stable inflation expectations also reduce overall debt management costs.

Management of central government assets

In order to reduce the risks arising from indebtedness, countries should also consider the privatisation of specific central government assets. In particular, reducing state ownership should be considered in sectors with pro-cyclical revenue. The privatisation programmes should be based on thorough cost-benefit analyses.

Comprehensive and transparent statistics on debts and assets

Producing an overview of the risks associated with central government assets and liabilities and managing them require comprehensive and transparent statistics on them in different administrative branches.

By lowering risk premiums and refinancing risks, transparent and reliable statistics on assets and liabilities also make it easier to consolidate central government finances.

Source: OECD (2012).

2.2 Central government financial assets

The State of Finland has substantial financial assets, which helps to mitigate the risks associated with central government debt. Over the past decade, central government financial assets have fluctuated between EUR 50 billion and EUR 65 billion (Figure 6). Domestic shares account for the largest proportion of this total constituting more than half of all central government financial assets. At the same time, liquid cash funds and deposits totalled about EUR 4 billion during the second quarter of 2017.[9] In the Figure, the item 'Other assets' comprises investments in short-term and long-term debt instruments, derivatives and employee stock options, as well as other receivables, such as trade credit, advance payments and accrued income.

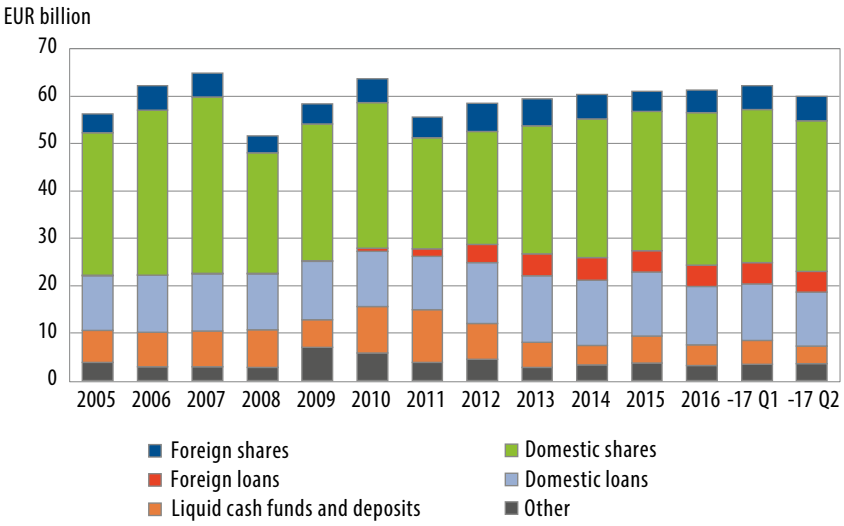


Figure 6. Central government financial assets

Source: Statistics Finland, General government financial accounts.

Central government cash funds, the most liquid part of central government financial assets, is separately detailed in Figure 7. As shown in the Figure, there has been a decline in liquid cash funds and deposits since 2011. Based on its own liquidity assessments, the State Treasury has over the past few years reduced the size of the cash funds it manages. There are two factors behind this: the good funding capacity of the State of Finland and the adoption of liquidity-based cash management. See Chapter 5 for more information about liquidity management.

9 There is substantial seasonal variation and variation within individual months in this item.

In reality, central government assets are larger than the financial assets categorised by Statistics Finland and shown in Figure 6. The State of Finland also has financial assets allowing it to prepare for the payment of future pensions. The market value of the investments of the State Pension Fund totalled nearly EUR 19 billion at the end of last year. In addition to holding financial assets, the State of Finland also owns buildings, stocks and land areas. According to the financial accounts, the value of these real assets totalled about EUR 53 billion in 2015.

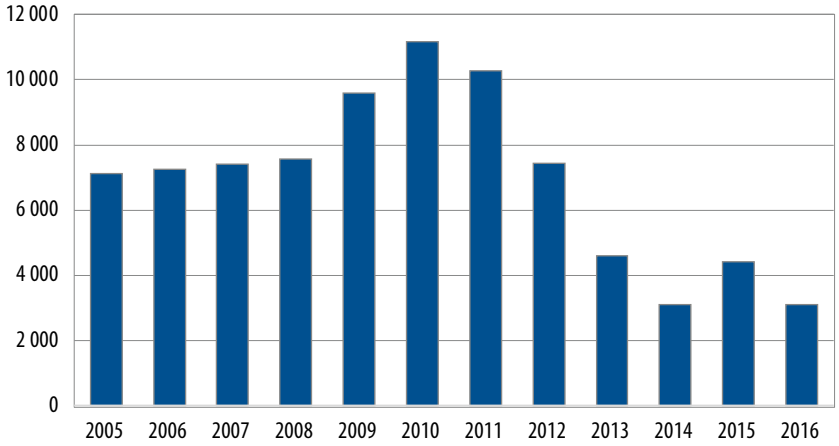


Figure 7. Changes in central government cash funds 2005-2016, EUR million[10]
Source: State Treasury

2.3 Central bank policy

Large central banks first reacted to the financial crisis which began in 2007 and the ensuing economic crisis by lowering central bank interest rates and by supporting the liquidity of banks and, finally, with securities purchase programmes. The central bank policy pursued over the past few years has shaped the overall operating environment of debt management. As a result of the action taken by central banks, short-term market rates have fallen below zero (Figure 8) and the government bond yields are at historical lows (Figure 9). This explains why the State of Finland pays less interest on its debt even though the amount of debt has increased. The differences between national interest rates have also narrowed since the worst crisis years. However, the differences in yields between

10 Here cash funds mean the cash funds managed by the State Treasury, which differ slightly from the central government cash reserves considered in general government financial accounts. The units included in the two sets of figures are not the same, which explains the differences. The cash funds managed by the State Treasury is the key concept when central government liquidity and its management are considered.

countries are still substantial, compared with the years preceding the financial crisis (1999-2008).

At the end of 2017, the book value of the bonds issued by euro area member states and held by the European Central Bank System totalled EUR 1,931 billion. Nearly 30 per cent of the bonds issued by the State of Finland had been entered in the balance sheet of the Bank of Finland.

The possibility of the normalisation of central bank policy in the near future has to be taken into account in debt management. As nominal interest rates increase, the interest expenses of the central government debt will inevitably also go up. This process may also involve substantial changes in the pricing of assets. In many European countries, debt-to-GDP ratios remain high (Figure 4), which will increase the uncertainties associated with the normalisation. For example, in Italy, Portugal, Greece and Cyprus, the ratio is still over 100 per cent. As general interest rate levels increase, interest expenses in these countries will grow more rapidly than elsewhere. This may also have an effect on the risk premiums of highly indebted countries, which in turn may have wider economic impacts in these countries.

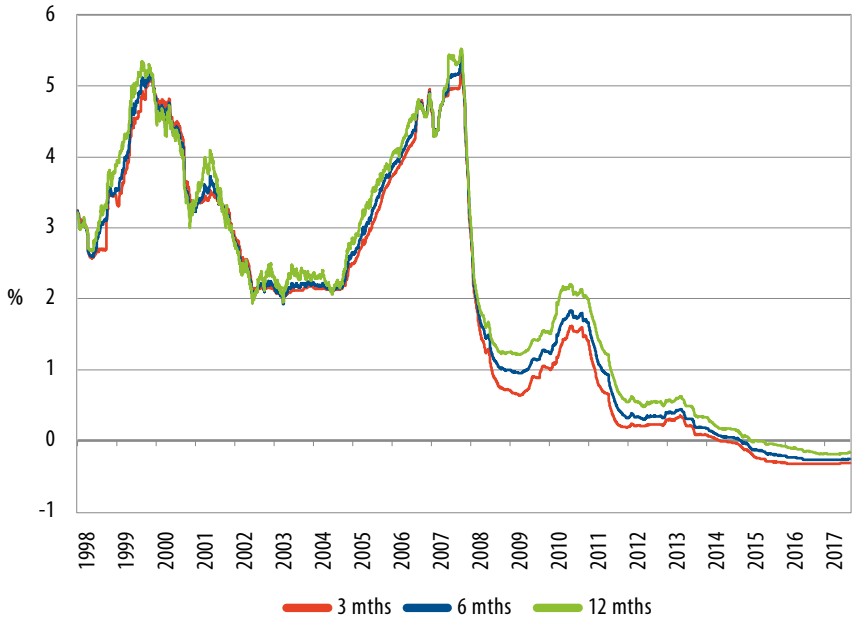


Figure 8. Euribor rates

Source: Macrobond.

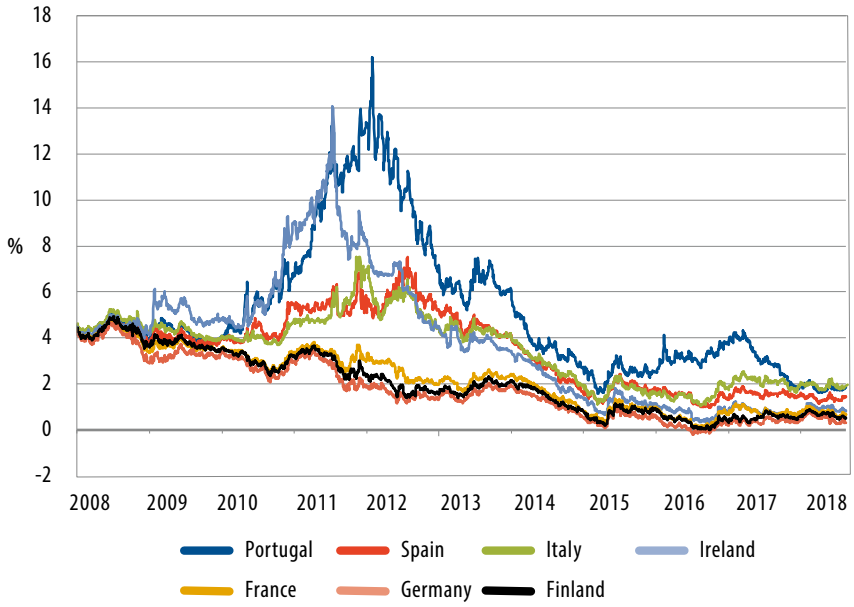


Figure 9. Government bond yields (10 years)
Source: Macrobond.

In addition to having an effect on market rates, the monetary policy pursued in recent years has also had a wide impact on the government bond market. One key aspect is the manner in which the central bank policy has impacted the liquidity of the government bond market. The OECD has analysed the theme on several occasions in recent years (OECD 2016, 2017 and 2018) and the contents of the analyses are summed up below:

Liquidity of the government bond market is a critical issue for a number of reasons. Government bonds play an important role in the pricing of securities in general. The weakening liquidity of the government bond market has a negative impact on this process. From the perspective of the debt offices, weakening liquidity makes bond prices more sensitive to market risks, which will increase risk premiums and, consequently, lead to higher borrowing costs. Moreover, lower liquidity reduces the number of potential buyers, which will also increase borrowing costs. Weaker liquidity in the secondary market means higher expenses for initial issues in the primary market.

Theories suggest that the impacts of the monetary policy pursued in the past few years (especially the growing role of central banks as buyers of bonds) on the liquidity of bond markets are not unequivocal. At the same time, the quantitative easing by central banks may reduce investors' liquidity premiums, which has a positive impact on market liquidity. However, the fact that central banks do not trade in bonds that they have purchased

in connection with quantitative easing weakens liquidity.[11] Ultimately, the impact of a monetary policy on the liquidity of the government bond market is an empirical question.

The survey carried out by the OECD in 2017 gives a twofold picture of the changes in bond market liquidity. The OECD asked representatives of debt offices about their views of the secondary market liquidity. About 37 per cent of the respondents considered that liquidity had weakened, 30 per cent had not detected any changes, while 33 per cent were of the view that liquidity had improved.

When asked about the factors impacting liquidity, the interviewees did not name any single factor with a particularly strong effect. Debt offices named the central bank policy pursued in the last few years and regulatory changes as the key factors behind the developments.

The OECD has also surveyed how debt offices have reacted to the worries about the bond market liquidity. Debt offices have responded to the situation in a number of ways. They have given particular consideration to such issues as the regularity of issuances in different maturities, supported existing benchmark bonds by using tap issues, arranged more frequent and smaller auctions, and used buy-back programmes. The reason for the last-mentioned approach is that, in general, the liquidity of bonds weakens as more time passes from the issue.

11 After the launching of the purchasing programmes, central banks have supported the secondary market liquidity of government loans with securities lending programmes, in which central banks lend government bonds to market actors against other securities or (to a limited extent) against cash collateral.

2.4 Changes in the regulatory environment after the financial crisis

There have been major changes in the regulation of the financial markets in the years following the financial crisis. After 2008, the European Commission has proposed more than 50 legislative and non-legislative measures that have concerned such matters as capital and liquidity regulations for banks, a resolution framework and trading in derivatives.[12] The purpose of the reforms has been to enhance the crisis resilience of banks and make operations more transparent. The ultimate aim has been to ensure the stability of the financial markets and, consequently, support real economic growth. Good governance has also been promoted through regulation.

Changes in the regulatory environment have had extensive impacts on banking operations and business models and they have been examined in a number of reports published over the last few years (for example, EBA 2015). The potential effects of regulatory changes on central government debt management have also been analysed. In 2016, the OECD published the results of its survey in which debt offices gave their views on the impacts of the new regulatory environment on debt management.

Representatives of debt offices have expressed their concern over the potential negative impacts of the new financial market regulation on government bond markets. According to most debt offices, the new regulation has meant higher transaction costs in the government bond secondary market. These costs will inevitably also be passed on to the primary market, leading to higher borrowing costs.

The debt offices are also of the view that the regulatory changes will probably mean lower profits for primary dealers engaged in the government bond market, which will make the activity less attractive. This will have negative impacts on market liquidity and the demand for government bonds, especially in smaller countries. Box 2 contains information on the activities of primary dealers and their role in the management of Finland's central government debt.

12 For a list of the concluded regulatory projects and projects that are still in the negotiation stage, visit the European Commission website at https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-reforms-and-their-progress/progress-financial-reforms_fi

BOX 2. PRIMARY DEALERS AND THEIR ROLE IN THE MANAGEMENT OF FINLAND'S CENTRAL GOVERNMENT DEBT

The good tradeability of the euro-denominated benchmark bonds (serial bonds) of the State of Finland in the secondary market is founded on the system of primary dealers. Such a system is typical of governmental issuers, and it distinguishes them from public and multinational financial vehicle corporations. The Finnish system of primary dealers was established during the recession of the 1990s when central government borrowing requirements increased substantially and the Finnish government set up a system of primary dealers to ensure a smooth borrowing process.

The State of Finland currently has 14 primary dealers.* The operations are guided by a primary dealer agreement, which is renewed each year. The rights and obligations of the banks acting as primary dealers that arise from their role are laid out in the agreement.

Debt issues take place with primary dealers acting as brokers. Only banks designated as primary dealers may take part in government benchmark bond auctions. The principal organisers for the initial issues of new benchmark bonds are selected from among the primary dealer banks on the basis of performance indicators. The indicators are set so that the banks are in an optimal position to support the liquidity of the benchmark bonds, and the objectives laid out for fundraising, debt portfolio management and cash management.

The primary dealer banks also have an obligation to quote bid and ask prices for the bonds in the secondary market. This is a key guarantee for secondary market liquidity and it also supports the pricing of the issues in the primary market. Considering the size of the debt, the secondary market liquidity of Finland's euro-denominated benchmark bonds can be considered reasonable even though there have been some indications that it has weakened since 2015, a consequence of the exceptional monetary policy.

In 2016, in a joint project of European debt offices, a (non-public) survey was carried out among the primary dealer banks in each country, and according to its findings, the model of primary dealers currently used in Finland is fundamentally sustainable. Based on the results, syndication was seen as an effective issuing method. In addition to regulation, the exceptional monetary policy was also considered to have reduced trading volumes. It was also reported that consignment stocks had decreased.

* https://www.treasuryfinland.fi/en-US/Funding_and_cash_management/Banks_and_investors

The surveys carried out among primary dealers also show that primary dealers are worried about the cumulative impacts of the new regulation (OECD 2016). According to the survey results, tighter capital requirements for banks may make primary dealers less interested in supplying liquidity and market-making, which will have impacts on the functioning of the primary markets.

The new regulatory environment has changed the issuing strategies, practices and techniques of the debt offices. Most of the debt offices interviewed by the OECD are now arranging debt auctions more frequently and some of the offices have introduced activities known as mini-tenders. In Finland, the regulatory changes have not yet had any impacts on debt issues.

According to an OECD survey (OECD 2016), the Basel III framework reform is one of the regulatory changes that has caused particular concern in debt offices. In the debt offices' view, the changes involving Basel III have potentially the most serious negative impacts on the primary market.

The capital and solvency requirements contained in the Basel reform have led to a situation where correspondent banks have to finance a larger proportion of bond purchases with their own capital. From the banks' perspective, this will increase the costs of market-making, which in turn will make the operations less profitable and attractive, especially with regard to large trading batches. Box 3 contains information about the key features of the Basel III framework.

BOX 3. KEY FEATURES OF THE BASEL III FRAMEWORK

The Basel Committee, which operates under the auspices of the European Union and the Bank for International Settlements, prepared changes to banking regulation in the aftermath of the financial crisis. The purpose was to correct inadequacies in the regulatory framework in effect before the crisis and to make the banking system more stable and more sustainable. The committee published the first part of the Basel III reforms in 2010. A supplementary regulatory package followed in 2017.

One of the key changes in the Basel III reform is the requirement for a higher minimum capital adequacy ratio and higher-quality capital so that banks can be better prepared for unexpected losses. Core capital (Tier 1) must now account for at least six per cent (four per cent under the old system) of the bank's risk-weighted assets, and at least 75 per cent of this capital must be of the highest quality (common stock, retained earnings). Supplementary capital requirements have been set for global systemically important banks.

Basel III also means tighter capital requirements for market risks. To facilitate comparability and to increase risk sensitivity, there have also been changes to the standard methods used for calculating credit risk, market risk, CVA (credit valuation adjustment) and operational risk. Under the regulatory reform, there are also new restrictions on the use of banks' own risk models.

In order to prevent banks from accumulating excessive debts, it is also required under the Basel III framework that in internationally active banks, core capital must account for at least three per cent of the banks' non-risk weighted assets. There are also additional requirements for global systemically important banks concerning their minimum capital adequacy ratio.

The fourth set of reforms concerns liquidity improvements in banks. Under the reforms, a liquidity coverage ratio will be introduced and there will also be limits on liquid assets and restrictions concerning banks' funding structures. Under the liquidity coverage ratio, banks must keep adequate amounts of highly liquid assets in their balance sheets. These assets must cover all short-term liquidity obligations in a liquidity stress lasting for 30 days. In order to ensure that banks do not rely excessively on short-term funding, the Basel III reform also contains the requirement for a net stable funding ratio.

The last major component in the Basel III package concerns the aim to balance the impacts of cyclical changes on banks' lending. For this purpose, the reform contains the requirement for a countercyclical capital buffer under which banks must accumulate additional capital during periods of rapid economic growth so that they can release this capital when the economic cycle turns. In that case, banks can also provide loans for the real economy during periods of weaker growth.

Sources: BIS (2018), Sarviharju (2016)

The regulatory changes have both direct and indirect impacts, which makes it difficult to assess their overall effects. One example of this is MiFID II (Markets in Financial Instruments Directive), which contains provisions on investor protection and the transparency of the trading in financial instruments. Even though the State Treasury does not have any trade reporting or other market reporting obligations as laid down in MiFID II, the changes resulting from the directive have, nevertheless, an indirect impact on central government fundraising. The key impacts concern extending trading transparency to the bonds issued by the State of Finland and the derivative instruments used in asset management. This may have an impact on the profitability of market-making concerning government benchmark bonds and, consequently, on their liquidity.

Changes in the regulatory environment have also led to a lively debate on the financial market actors' governance models and the key principles applied in them. A number of international organisations (such as the OECD, BIS and EBRD) have drawn up guidelines on the principles of good governance in the banking sector. As the State Treasury's Finance Division is comparable with banks and special credit institutions, good banking sector practices (as adapted to the requirements of central government) should be reflected in the organisation of its governance. The recommendations of the Basel Committee for corporate governance principles in the banking sector are described in Box 4.

BOX 4. RECOMMENDATIONS OF THE BASEL COMMITTEE FOR CORPORATE GOVERNANCE PRINCIPLES IN THE BANKING SECTOR

The Basel Committee has issued recommendations for corporate governance principles in credit institutions. The lessons learned from the financial crisis have been considered in the latest recommendations. A summary of the recommendations issued by the committee is given below.

1. Board's overall responsibilities

The board has overall responsibility for the bank, including approving and overseeing management's implementation of the bank's strategic objectives, governance framework and corporate culture.

The board is responsible for ensuring that the bank has a strong risk management framework. The board must play an active role when the bank's risk appetite is defined. It must ensure the effectiveness of the risk management framework and internal audit functions. The board must also ensure that the bank operates in compliance with all regulations and statutes.

2. Board qualifications and composition

Board members should be and remain qualified, individually and collectively, for their positions. They should understand their oversight and corporate governance role and be able to exercise sound, objective judgement about the affairs of the bank.

3. Board's structure and practices

The board should define appropriate governance structures and practices for its own work, and put in place the means for such practices to be followed and periodically reviewed for ongoing effectiveness.

The definition of the governance structures includes the decision to establish committees, such as the audit committee.

The board should conduct regular reviews of its own work, rules, committees and individual members. The chair of the board should be an independent or non-executive board member.

The audit committee should be made up of independent or non-executive board members. The chair of the audit committee should not be the chair of the board or of any other committee.

The tasks of the audit committee include the overseeing of the financial reporting process, interacting with the bank's internal and external auditors, approving, or recommending to the board for its approval, the appointment, remuneration and dismissal of external auditors, reviewing and approving the audit scope and frequency, receiving key audit reports and ensuring that senior management is taking necessary corrective actions in a timely manner to address the inadequacies or cases of non-compliance identified by auditors and other control functions. The audit committee is also responsible for reviewing the third-party opinions on the design and effectiveness of the overall risk governance framework and internal audit system.

4. Senior management

Under the direction and oversight of the board, senior management should carry out and manage the bank's activities in a manner consistent with the business strategy, risk appetite, remuneration and other policies approved by the board.

5. Governance of group structures

In a group structure, the board of the parent company has the overall responsibility for the group and for ensuring the establishment and

operation of a clear governance framework appropriate to the structure, business and risks of the group and its entities. The board and senior management should know and understand the bank group's organisational structure and the risks that it poses.

6. Risk management function

Banks should have an effective independent risk management function, under the direction of a chief risk officer (CRO), with sufficient stature, independence, resources and access to the board.

7. Risk identification, monitoring and controlling

Risks should be identified, monitored and controlled on an ongoing bank-wide and individual entity basis. The sophistication of the bank's risk management and internal control infrastructure should keep pace with changes to the bank's risk profile, to the external risk landscape and in industry practice.

8. Risk communication

An effective risk governance framework requires robust communication within the bank about risk, both across the organisation and through reporting to the board and senior management.

9. Compliance

The bank's board of directors is responsible for overseeing the management of the bank's compliance risk. The board should establish a compliance function and approve the bank's policies and processes for identifying, assessing, monitoring and reporting on compliance risk.

10. Internal audit

The internal audit function should provide independent assurance to the board and should support board and senior management in promoting an effective governance process and the long-term soundness of the bank.

Internal audit provides the board and senior management with independent information on the quality and effectiveness of the bank's internal control, risk management and governance systems and processes. The internal audit function should have a clear mandate, be accountable to the board and be independent of the audited activities. In order to ensure independence, the internal audit function's primary reporting line should be to the board, and its reports should be provided to the board without management filtering.

11. Remuneration

The bank's remuneration structure should support sound corporate governance and risk management.

12. Transparency

The governance of the bank should be adequately transparent to its shareholders, depositors, other relevant stakeholders and market participants.

13. The role of supervisors

Supervisors should provide guidance for and supervise corporate governance at banks, including through comprehensive evaluations and regular interaction with boards and senior management. Supervisors should require improvement and remedial action as necessary, and should share information on corporate governance with other supervisors.

Source: BIS (2015), KPMG (2015)

2.5 Cyber security[13]

As a result of technological advances, ICT architecture has become an inseparable part of the strategic core of financial market actors and it is critical to ensure its functioning in all circumstances. Growing knowledge intensity, closer integration between information and communications systems and more extensive use of open data networks have contributed to the wellbeing of citizens but at the same time, they have also given rise to new threats and risks. Cyber attacks aiming to paralyse the information and communications systems of companies or public sector actors may have significant negative impacts on business operations and the public sector. The costs arising from such interference may be substantial, not to mention the problems caused by a situation in which part of the critical infrastructure and essential services are disabled.

The phenomenon is particularly important from the perspective of the management of operational risks associated with government debt management. Information systems are core functions of debt management. Nowadays, debt is issued digitally and secondary market trading takes place at electronic market places. This highlights the reliability of key ICT solutions in debt risk and liquidity management.

As operating environments have changed and technologies have become more sophisticated, cyber attacks and cyber crime have increased in the world. The actors behind them have also become more professional and nowadays they also include government-level players. For this reason, the threats facing the cyber domain have become increasingly destructive.

Inevitably, these developments also impact Finland. In many respects, Finland is one of the most highly advanced information societies of the world and it is dependent on the functioning of electronic networks. This makes Finland an attractive target for cyber operations.

In fact, the information systems of Finland's public administration and Finnish companies are continuously targeted by cyber attacks. Figure 10 contains information on the frequency of cyber attacks against central government between 2002 and 2015. In 2015, nearly 40 per cent of all central government organisations had experienced attacks in which malware had interfered with the use of information systems. At the same time, about 20 per cent of the organisations had detected attacks giving rise to special measures, while 10 per cent had experienced targeted attacks.

13 According to Finland's Cyber Security Strategy, cyber security means the desired end state in which the cyber domain is reliable and in which its functioning is ensured. Cyber domain means an electronic information processing domain comprising of one or several information technology infrastructures. Finnish Government (2013).

The figure shows that cyber attacks against central government actors are fairly common and they constitute a serious threat to the continuity and uninterrupted functioning of the services. Central government information security and cyber experts have also pointed out that according to international studies, a growing proportion of all cyber attacks remain undetected. Thus, cyber attacks targeting central government are probably more common than indicated by Figure 10.

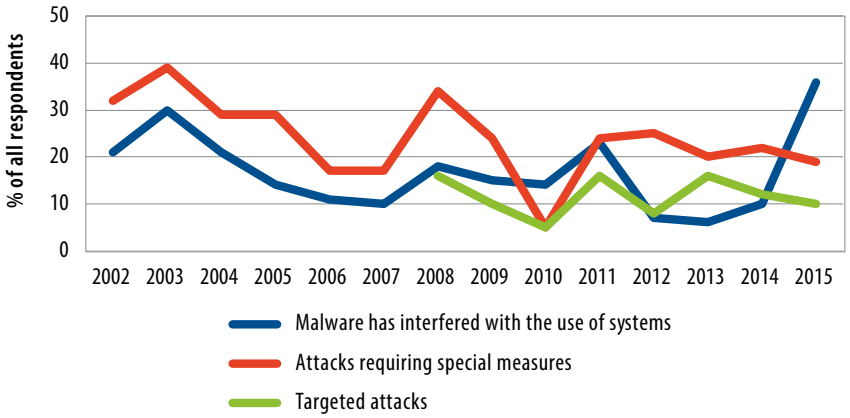


Figure 10. Frequency of cyber attacks targeting central government
Source: Ministry of Finance (2016, p. 36)

3 Organisation of central government debt management in Finland

3.1 Organisation of debt management before 1999

The last time the division of labour in central government debt management and the organisation of the process were extensively reviewed was in 1997. That year, the matter was examined by the VMVK working group chaired by Johnny Åkerholm, Permanent Under-Secretary in the Ministry of Finance, and comprising representatives of the ministry and the State Treasury (Ministry of Finance 1997).

The working group was appointed in a situation where, as a result of the introduction of the euro, advances in information technology and closer integration of the financial markets, the operating environment of the debt management was rapidly changing. It was therefore necessary to examine the workability of the existing organisational model in a changing environment.

At the time, central government borrowing was based on an authorisation granted by Parliament, setting up the upper limit for the debt. Parliament authorised the Government to borrow, to conclude derivative contracts as part of risk management, and to delegate the borrowing and hedging to the Ministry of Finance and the State Treasury.

Within the framework of this model, the Government authorised the Ministry of Finance to make decisions on the loans sought from international financial markets, whereas domestic fundraising was the responsibility of the State Treasury. The State Treasury was also responsible for the investment of cash funds and for government transactions.

The VMVK working group assessed the advantages and disadvantages of five different organisational models:

1. retaining the model used at the time
2. transferring responsibility for all aspects of debt management to the Ministry of Finance
3. transferring responsibility for all aspects of debt management to the State Treasury
4. establishing a separate debt office
5. outsourcing debt management to a body outside central government.

The working group was of the view that, as a result of substantial changes in the operating environment of debt management, the division of labour between the Ministry of Finance and the State Treasury had to be clarified so that the objectives set for debt management could be achieved. Based on an analysis carried out by the working group, it was concluded that the borrowing and asset management should be made the responsibility of a single body. The working group noted that there were good reasons for establishing a separate organisation but added that setting up such a body would take a great deal of time and generate additional administrative costs. This would also have been contrary to the general trend in central government towards larger administrative units, which reflected the drive for cost-efficiency.

In fact, the working group recommended that borrowing and the practical aspects of asset management should be transferred to the State Treasury. In the working group's view, achieving the objectives set out for the change required that debt management functions should be clearly separated from other State Treasury functions and the activities should have a sufficiently high profile. This in turn also meant that more resources should be allocated to the activities. The model proposed by the working group was implemented in 1999.

3.2 Current organisation and steering of debt management

Under the current debt management operating model, which was introduced in 1999, the State Treasury is responsible for the operational functions of central government borrowing and debt management, as recommended by the VMVK working group (Figure 11). The sole task of the Ministry of Finance is to provide the State Treasury with strategic guidelines.

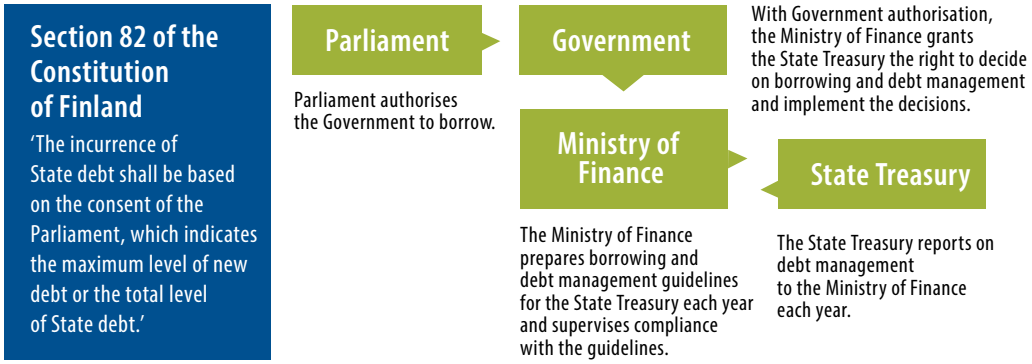


Figure 11. Current organisation of central government debt management
Source: State Treasury.

Under the Ministry of Finance's rules of procedure, the ministry's Financial Markets Department is responsible for the steering of the core areas of debt management, prepares the matters that concern the strategic steering and supervision of central government borrowing, central government debt management and the investment of cash funds. At a practical level, strategic steering takes place on the basis of the guidelines on debt management approved by the Ministry of Finance. These guidelines include the general debt management principles and objectives, the instruments used, risk limits and other limitations, as well as the reporting responsibilities.

Under the guidelines issued by the Ministry of Finance, the aim in central government debt management is to cover the borrowing needs of on-budget entities and minimise the costs arising from the debt in the long term at acceptable risk level. The risks refer to market risks, financing risks, credit risks, legal risks, operational risks and model risks. These risks are described in detail in Chapter 5.

The debt management guidelines are reviewed each year. There are regular discussions on this matter during the year between the experts of the State Treasury's Finance Division and the experts of the ministry's Financial Markets Department.

The debt management guidelines are also discussed in the steering meetings between the Financial Markets Department and the State Treasury's Finance Division. The decisions on the guidelines are made by the Minister of Finance at the presentation of the Permanent Secretary.

In addition to strategic steering, the Ministry of Finance is also tasked with supervising the implementation of central government debt management guidelines on the basis of the reporting by the State Treasury's Finance Division. In addition to monthly risk and performance reports, the Finance Division also prepares more extensive tertial reports.

3.3 General performance guidance of the State Treasury

In addition to debt management, the responsibilities of the State Treasury also include other central government development tasks (see section 3.4 on the tasks of the State Treasury) and for this reason, the agency's performance guidance is on a multi-channel basis. The performance guidance is coordinated by the Administrative Governance and Development Department of the Ministry of Finance, which is also responsible for the process. Under the ministry's rules of procedure, the Administrative Governance and Development Department prepares the matters that concern the development and coordination of performance guidance in the ministry's administrative branch, as well as operational and financial planning. The Administrative Governance and Development Department is also responsible for the steering and coordination of the administrative branch's human resources, information management and premises, as well as other infrastructure matters. The ministry's other departments (including the Financial Markets Department) mainly take part in the performance guidance process within the framework of the performance guidance of their own core areas. General performance guidance includes the preparation of the performance agreement between the Ministry of Finance and the State Treasury.

Over the years, the State Treasury has developed into a multi-sectoral agency, which is responsible for a broad range of different tasks. This makes the general performance guidance of the agency a challenging and complicated process. The Ministry of Finance is not the only ministry steering the State Treasury, which is an additional complicating factor in the steering process. The objectives for the functions and the resources allocated to them do not come from the same channel, which is one of the key challenges in multi-channel steering.

3.4 General organisational model of the State Treasury

The current organisational model of the State Treasury is described in Figure 12.[14] The agency which originally had debt management as its sole task has, over the years, evolved into a multi-sectoral and development body, which in addition to traditional debt office duties also produces services for central government in the field of economy and human resources, manages central government bookkeeping, accident and indemnity insurance compensations, grants citizens compensations for military injuries and criminal damage, as well as administers the loans, interest subsidies and guarantees granted by the state.

14 D9 means the digi-team set up in the State Treasury, which supports the implementation of digitalisation projects and speeds up the transformation of public services into customer-oriented processes utilising digitalisation.

The debt management tasks are the responsibility of the State Treasury's Finance Division, the duties of which are described in detail in section 3.5.

Parallel to its core activities, the State Treasury also has support functions (Administration and Development, Internal Auditing and IT Management), which serve all divisions of the agency. The communications of the Finance Division is an exception to this. The Finance Division has a single expert who manages the communications tasks of the entire division. The same applies to IT Management. The State Treasury has a single IT management function, excluding the financial IT management, which is responsible for the maintenance and development of the core systems of the Finance Division.

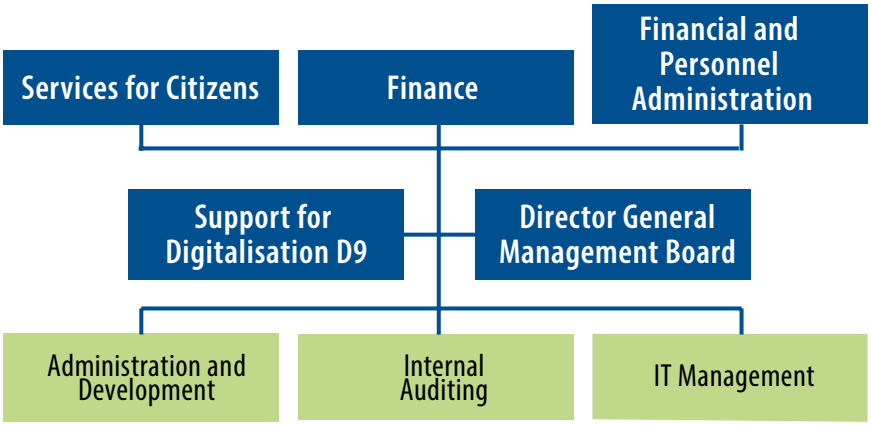


Figure 12. Organisational model of the State Treasury
Source: State Treasury.

The sector-independent information technology services and solutions for the State Treasury are produced by a service agency operating under the auspices of the Ministry of Finance, which provides services for all central government actors. It has also administered the service agreement covering the systems of the State Treasury since 2014. The ICT architecture for debt management is the responsibility of the service agency, which provides the architecture as its own work or purchases it from a private contractual partner as a subcontracted service. Debt management does not have any direct ownership or steering control over the ICT solutions that it uses.

At the end of 2017, the State Treasury had a staff of 299 (State Treasury's annual report 2017). Because the State Treasury is a development agency, there has been substantial variation in the number of employees over the years (between 300 and 1,000) as some of the agency's original functions have been transferred elsewhere. The State Treasury has also been forced to undergo substantial operational restructuring in the past few years.

Strong annual variation in the agency's staff numbers is a problem in debt management because debt management and its development are long-term activities.

Under the Act on the State Treasury (305/1991), the State Treasury is headed by the Director General. The Management Board assists the Director General in the strategic planning, management, supervision and operational development of the agency. In addition to the Director General, the Management Board also comprises the Heads of Divisions and a Personnel Representative. The Ministry of Finance is responsible for the external supervision of the State Treasury. External financial and performance audits of the agency are carried out by the National Audit Office of Finland.

Under the Act on the State Treasury, the Director General has wide powers to decide on the activities of the agency and matters concerning it. In practice, however, some of the powers in core matters have been delegated to Heads of Divisions, a reflection of State Treasury's role as a multi-sectoral agency. The State Treasury operates in a wide sector of fields and the matters coming under its responsibility require in-depth expertise, which is one argument in favour of delegated decision-making.

Decisions on the allocation of the agency's resources are made by its Director General within the budgetary framework granted by the Ministry of Finance. The ministry does not play any role in the allocation of resources between the agency's divisions. With regard to investments, each of the State Treasury's divisions prepares its own investment plan and the appropriations required for the purpose are included in the draft State Treasury budget submitted to the Ministry of Finance. The investments of the State Treasury are funded from the operational appropriations, except for the investments of the Financial and Personnel Administration Division, which are funded from separate appropriations. The State Treasury has a single investment budget from which the funding for all investment projects is allocated. Divisions must submit investment proposals to obtain new funding for their investments. In investments of more than EUR 60,000, the Development Director and the division in question first assess the feasibility of the project after which the Head of Division presents the project to the Management Board. The final decision on appropriating funds for the project is made by the Director General. In projects totalling less than EUR 60,000, the funding decision is made by the Head of Division.

From the perspective of debt management, the current investment model applied in the State Treasury and the multi-tier organisation of its ICT solutions do not optimally support the capacity of debt management to quickly react to changes in market conditions and the need for changes and improvements in the debt management ICT infrastructure arising from them.

3.5 Debt management as part of the State Treasury's Finance Division

The tasks of the State Treasury's Finance Division are shown in Figure 13. The Finance Division is responsible for central government fundraising (see Box 5), liquidity management and the management of the interest rate risk associated with on-budget debt, cooperation between central government and credit rating agencies, and communications in this sector. These duties, which are marked in blue in Figure 13, constitute the debt office tasks included in the working group's mandate.

In addition to these tasks, the Finance Division is also responsible for interest equalisation portfolio management services associated with the export financing granted by the state, assignments carried out as part of the National Nuclear Waste Management Fund's investment portfolio, and fundraising for Senate Properties. The Finance Division is also responsible for the tasks included in the collateral arrangements for Greece and Spain.

BOX 5. CENTRAL GOVERNMENT FUNDING STRATEGY

In its funding, the State of Finland applies a borrowing strategy based on euro-dominated benchmark bonds. The State of Finland aims to issue one or more new serial bonds every year, which, at the time of issue, immediately achieve the size, liquidity on the secondary market and sufficiently wide investor base required of the benchmark bond. Once the serial bonds have achieved benchmark bond status, the government's primary dealer banks quote bid and ask prices for them.

For the initial issue of benchmark bonds, the State of Finland uses syndicated bond issues. This ensures that a new loan has a broad investor base and fosters price stability in the secondary market. The stock of outstanding benchmark bonds can be increased at a later date, through State Treasury auctions. In addition to benchmark bonds, the State of Finland can also issue long-term debt instruments in non-euro currencies. Under the framework of the Euro Medium Term Note programme, bonds can be issued in different currencies. The EMTN programme serves as a complementary form of funding augmenting the benchmark bond strategy.

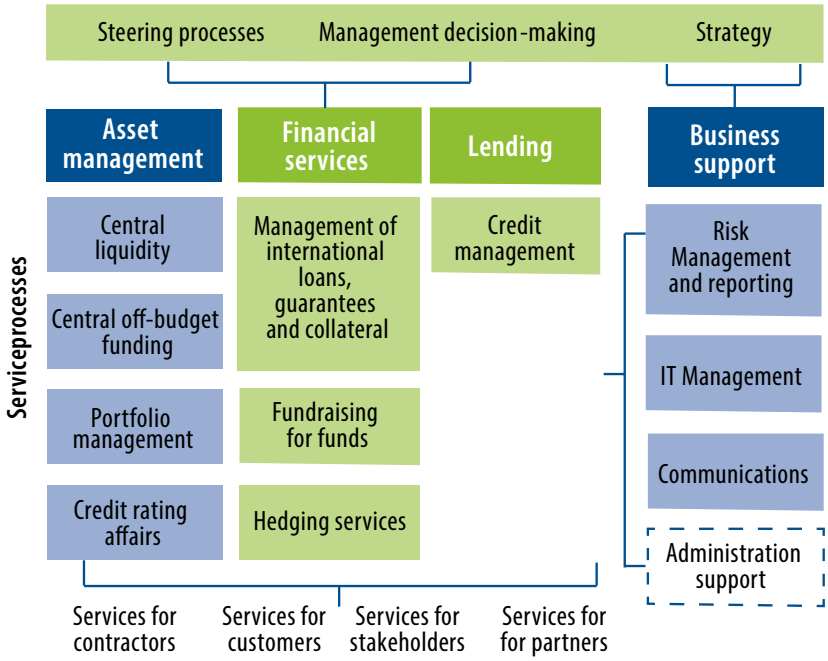
Treasury bills provide central government with a flexible, short-term funding channel. One year is the maximum maturity period for treasury bills. The State Treasury issues treasury bills throughout the year, depending on investor demand and liquidity requirements.

In cash management, the key task is to maintain and secure central government's liquidity management. Depending on the situation, the State Treasury can invest its cash funds or take out short-term loans from the financial markets.

The Finance Division is also responsible for the management of central government lending, interest subsidies and government guarantees, as well as for economic restructuring of rental and right-of-occupancy housing corporations.[15]

The Finance Division has a staff of about 70 and about 30 of them work in the lending unit. Similarly to the State Treasury as a whole, the Finance Division has also been forced to adjust its personnel resources in accordance with tighter budgets in recent years. Most of the staff cuts have taken place in the lending unit, where the number of employees has decreased by 35 per cent since 2007.[16]

Figure 13. Operations and tasks of the State Treasury's Finance Division
Source: State Treasury



At the same time, there has been a rapid increase in the Finance Division's volume of operations and the risks associated with the work, while the challenges in the operating environment have become more complex. These are described in Chapter 2. In addition to the change factors in the operating environment highlighted in the chapter, the increasingly international operating environment of the Finance Division, in a situation where Finland is now a member of the Economic and Monetary Union (EMU), has also

15 The decisions on new loans are made by the National Housing Fund (ARA), while the decisions on problem credits are made by the State Treasury. At the moment, no fundraising is required for the lending because the National Housing Fund granting the loans has a surplus.

16 Most of the personnel reductions have been achieved through retirements and resignations and the absence of new recruitments.

added to the expertise challenges facing the division's staff. Most of the primary dealer banks used by the State Treasury and parties investing in Finland's central government debt are foreign actors.[17]

Comparisons between the staff numbers and operating volumes in the Finance Division, Finnvera, Municipality Finance and OP Group are given in Table 1. The asset items managed by these four financial institutions are very similar. The table shows that in relation to the size of its balance sheet, the Finance Division operates with fairly limited resources.[18]

Table 1. Size of the State Treasury's Finance Division in comparison with a number of other financial institutions

	State Treasury	Finnvera	Municipality Finance	OP Group
Loan portfolio, EUR billion	6	6	21	82
Guarantee and collateral portfolio, EUR billion	28	19	-	-
Fundraising portfolio, EUR billion	106	7	30	35
New long-term fundraising, EUR billion	13		10	4
Liquidity portfolio, EUR billion	3	3	9	23
Balance sheet total, EUR billion	106	10	35	137
Personnel	68	357	119	12 269

Source: State Treasury, OP Group financial statements bulletin 2017, Finnvera Annual Report 2017, Municipality Finance Annual Report 2017

The Finance Division is supervised by the State Treasury's internal audit, which collects information on the performance of individual divisions, reliability of the information that they produce, and compliance with the provisions governing their operations. Internal audit is headed by the State Treasury's Director General to whom internal audit also reports on its observations. In this respect, the practice observed in the agency differs from the principle normally applied in the financial sector in which the critical observations made by the internal audit are reported directly to the body steering the function.

The State Treasury's internal audit also commissions operational audits from external consultants. The last such audit of the Finance Division was carried out in 2016 and it covered continuity management in central government debt transactions. In summer 2018, the State Treasury also prepared its first long-term audit plan.

17 For more information on the primary dealer banks used by the State Treasury, click the link in Box 2. For an example of a benchmark bond issue and its investor base, see https://www.treasuryfinland.fi/en-US/Finland_issued_new_benchmark_bond(58844).

18 In this comparison, the State Treasury's balance sheet means the total amount of the central government debt and not the balance sheet in the traditional sense.

4 Organisation of debt management – international comparisons

Experts of the International Monetary Fund and the World Bank have jointly prepared guidelines for an efficient administrative model for central government debt management (IMF 2014). In them, the emphasis is on a solid legislative framework and clear organisational arrangements in which different actors have clearly defined mandates so that overlaps in functions can be avoided.

The guidelines prepared by international institutions also highlight the role of transparent and accountable debt management, which requires regular publication of information on the objectives, principles and strategies of debt management together with central government financing needs.

The consensus in the debt management guidelines has been that the measures taken as part of central government debt management should be made the responsibility of a single administrative unit so that an efficient and well-coordinated debt management process can be ensured. At the same time, the views on the institutional location of the debt management measures have differed.

In literature, debt management models have been roughly divided into three categories: debt management can be the responsibility of the Ministry of Finance, the central bank or a separate debt management office.[19] The different solutions applied by European countries in this respect are shown in Table 2. In most countries, the debt management office is part of the Ministry of Finance. There are also many countries with a separate debt management office. At the same time, only a small number of countries have made debt management a central bank responsibility. Denmark is the only EU country where debt management is a central bank function. Of the other Nordic countries, Iceland and Norway also use this model.

19 The reality is, however, more complicated than this and other models also exist. For example in Spain, debt management is the responsibility of the Ministry of Economy and Business.

The Finnish model is not categorised in a uniform manner in all international surveys. The OECD is of the view that Finland has a debt management office that operates as a separate body but is nevertheless part of the Ministry of Finance. At the same time, in a report published by the European Central Bank in 2005, debt management in Finland is classified as a function located in the Ministry of Finance (Wolswijk and de Haan 2005). The fact that the ministry is responsible for the supervision of debt management and issues the guidelines for government debt management was used as a justification for the categorisation.

International comparisons show that there is no superior solution in the organisation of debt management and that all models have their own strengths and weaknesses.

Table 2. Organisation of central government debt management in European countries

Country	Location of the debt office
Euro area countries	
Austria	Separate office
Belgium	Ministry
Cyprus	Ministry
Estonia	Ministry
Finland	Partially separate office
France	Ministry
Germany	Separate office
Greece	Separate office
Ireland	Separate office
Italy	Ministry
Latvia	Separate office
Lithuania	Ministry
Luxembourg	Ministry
Malta	Ministry
The Netherlands	Ministry
Portugal	Separate office
Slovakia	Separate office
Slovenia	Ministry
Spain	Ministry
Non-euro countries	
Bulgaria	Ministry
Croatia	Ministry
Czech Republic	Ministry
Denmark	Central bank
Hungary	Separate office
Poland	Ministry
Romania	Ministry
Sweden	Separate office
United Kingdom	Separate office
Other Nordic countries	
Norway	Central bank
Iceland	Central bank

Source: Sihvola (2017).

5 General description of the risks associated with debt management

The risks associated with debt management can be divided into market, financing, counterparty, operational and model risks. Market risk means the risk of economic losses arising from changes in exchange rates and interest rates. Central government does not take any currency risks in its borrowing as it hedges against them by means of derivative contracts (see Box 7). The interest rate risk (the key risk factor in debt management) and the way in which it is managed, are described in Chapter 6.

Financing risk means the risk associated with the access to financing or the terms of financing. The risk may involve the threat of insolvency or higher debt expenses arising from exceptional market conditions or the downgrading of central government's credit rating. Financing risk is divided into liquidity risk and refinancing risk.

Liquidity risk means a situation where the sources of central government liquidity (such as the cash funds held in central government accounts in financial institutions and the invested on-budget and off-budget cash assets) are insufficient to cover all known central government payment obligations in a cost-efficient manner over the next 12 months. A financing risk extending beyond that point is called a refinancing risk.

A liquidity risk is managed by maintaining an invested liquidity buffer meeting known payment obligations and by issuing short-term debt. When investment decisions are made, priority is given to credit risk-free options (such as securitized instruments). Treasury bills are the prime source of short-term funding. The Ministry of Finance regulates the liquidity risk by setting limits on the size of forecasted uncovered payments. The State Treasury uses a cash forecasting system in liquidity management.

With respect to liquidity, the views of the credit rating agencies concerning the ability and willingness of the State of Finland to manage its economic obligations is of key importance because investors use credit ratings when assessing the risks associated with their investments. Despite weak economic growth over the past few years and growing

central government debt, Finland's credit rating has remained high.[20] In its funding, the State of Finland mainly relies on medium-term (about five years) and long-term (about ten years) benchmark bonds. In order to manage the refinancing risk, these bonds are issued so that temporal risk concentrations can be avoided. The Ministry of Finance limits the refinancing risk by setting periodic maximum values for debts falling due. The purpose of this is to ensure that the cash flows associated with the debt are evenly distributed over the coming years.

By means of interest rate swaps, the State Treasury can separate refinancing risk from interest rate risk. Using derivative contracts, the State Treasury can, when issuing bonds, focus on factors concerning market demand and the refinancing risk and consider the management of the interest rate risk separately. Box 7 in Chapter 6 describes how derivatives are used in the management of the interest rate risk.

Counterparty risk means the risk of losses arising from the insolvency of the contractual counterparty. The state may incur a counterparty risk as a result of derivative contracts, cash funds and invested liquidity. The aim in the management of counterparty risks is to minimise them. This is done by diversifying the counterparty risk among different counterparties, by requiring high credit ratings from the counterparties and by concluding securitized derivative contracts.

Operational risks arise from inadequacies in operating practices, information systems, personnel or internal control. External threats and emergencies (such as power failures and cyber threats), as well as the legal risks associated with the danger of financial losses arising from non-compliance with laws, market practices and agreements can also be considered as operational risks.

The aim in the management of operational risks is to minimise them. The State Treasury does this by regularly reviewing debt management processes and systems. The State Treasury prepares debt management audit plans covering several years, reports on the findings of internal audits to the Ministry of Finance and takes corrective action if inadequacies in systems or operating practices are detected in the audits.

The State Treasury's Finance Division prepares for external threats and emergencies by drafting and maintaining appropriate continuity plans. The State Treasury also has secure facilities for debt management and arrangements ensuring their functioning. The aim in the continuity management is to ensure that the provision of critical debt management services is not endangered in normal conditions, in disruptions occurring in normal conditions or in unexpected situations requiring special measures. In its continuity plan,

20 https://www.treasuryfinland.fi/en-US/Economy_and_credit_ratings/Credit_ratings

the Finance Division has described the most critical tasks included in its functions, their dependencies and the manner in which they can be produced in all the situations referred to above. The plan covers the key debt management processes (liquidity management, funding and portfolio management), as well as their support processes. Operations in emergencies are outside the scope of the continuity plan. Operations in emergencies are laid out in the Ministry of Finance's contingency plan. The services purchased from debt management service providers on a contractual basis for which the service providers prepare their own continuity plans are also outside the scope of the continuity planning.

According to the Basel Committee on Banking Supervision, a legal risk can be defined as a potential obligation arising from a supervisory measure or an illegal procedure to make the party in question accountable for its action. In practice, a legal risk often arises from non-compliance with legislation and market practices, non-implementation, invalidity, inadequate documentation or vagueness of agreements or decisions. When realised, a legal risk may lead to a situation where unspecified claims can be presented against a state or it may cause unexpected losses or make it less likely that the state can pursue its own claims.

In order to minimise legal risks, the State Treasury follows developments in domestic and international legal operating environments so that it has the information on relevant legislation, case law and legislative projects that is required for debt management. As a rule, the State Treasury should also use commonly accepted master agreements.[21] For contractual management, the Finance Division has a register in which all funding agreements in effect have been entered. The State Treasury also minimises legal risks by observing strict counterparty credit rating criteria (which also reduces the counterparty risk) and by selecting large actors with a high degree of solvency as counterparties for risk management measures.

As described in section 2.4, the pace of change in the legal operating environment has been rapid in the past few years, a result of increasing regulation. This has made legal risks a more significant factor in debt management.

Model risk means the risk of financial losses arising from the use of models in debt management. The risk arises from erroneous or inadequate modelling, erroneous use of the models, or erroneous interpretation of their results. Model risks can be minimised by identifying model-related risks, by maintaining and developing modelling-related expertise and by ensuring detailed documentation of modelling-related matters.

21 For example, when concluding derivative contracts, the State Treasury should use the ISDA Master Agreement and CSA standard agreement, while in repurchase agreements, the Global Master Repurchase Agreement should be used.

6 Selecting strategic interest rate risk position and debt management model

6.1 Selection of strategic interest rate risk position and modelling of interest rate risk – general observations

The understanding of the nature of public debt and the manner in which economic risks are perceived play a role when central government determines its strategic interest rate risk position. The generally accepted objective in the selection of the interest rate risk position is to minimise the costs of central government borrowing in the medium term or long term at the selected risk level. This objective is set out in the guidelines for managing general government debt prepared by the experts of the International Monetary Fund and the World Bank (IMF 2014). However, the concepts 'expenses' and 'risk' are not specifically defined in the guidelines. In fact, there is no commonly accepted practice or theoretical base for defining them. Defining risks and expenses is, however, of key importance when the results of an interest rate risk analysis are examined.

As there are no universally applicable definitions for expenses and risks, the modelling of the interest rate risk position has to be based on principles that should be applied in the modelling process in general. Investability, accessibility, transparency and relevance are some of the general modelling principles often presented in literature (for example, Bacon and Riddles 2015).

Investability means that interest rate risk modelling should be based on instruments that are actually available in the market and that can also be used. Accessibility means that the data and methods used in modelling should be feasible and available. Transparency means that it should be possible to assess the modelling method and to compare it with potential alternatives. Relevance means that the modelling and the definitions used in it should be appropriate and generally acceptable in respect of the objectives laid out for the modelling. In accordance with this last-mentioned principle, the general view is that the state does not have any specific reasons to take visionary/speculative interest rate risks.

6.2 Current approach to the modelling of interest rate risk

The modelling used by the State of Finland and the selection of the interest rate risk position founded on it are based on the market rate modelling carried out by the State Treasury and the simulation of the expenses arising from central government debt produced with the modelling. Simulated expenses are examined on a long-term basis (Box 6). The aim is to analyse the expenses and risks arising from different interest rate risk positions in the long term. The results of the model significantly depend on the baseline assumptions made (such as the selected time frame). The Ministry of Finance selects the risk position on the basis of the expense/risk ratios modelled by the State Treasury.

BOX 6. CURRENT MODELLING OF CENTRAL GOVERNMENT INTEREST EXPENSES AND RISKS

When modelling interest expenses, the State Treasury focuses on the interest expenses arising from on-budget net debt[22]. With respect to the debt coupon expenses, the State Treasury considers deferred costs, while in other areas (buy-backs and terminations), cash-based costs are examined. Risk is understood as a deviation from the average expenses of net on-budget debt, as calculated for a period of 15 years.

In the model used, the calculation of expenses and risks is based on a situation where all components of the model are in the long term equilibrium. In this situation, the interest rate probability distribution (and the shape of the yield curve) and the structure of the debt portfolio do not depend on the time of the examination. The period used as a basis for the calculation of expenses (15 years) together with the regression towards the mean character of the model, do, however, have an impact on the estimated expense/risk ratios .[23] Alternative debt management strategies are formulated from the debt management instruments specified in the debt management guidance provided by the Ministry of Finance (see section 3.2) and from a separately specified debt portfolio created using them. Average expenses and risks are calculated for the portfolio using simulated interest rate data on a long-term basis. Determining efficient debt management strategies is based on traditional Markowitz optimisation.

The simulation of the interest rate data is based on the primary component analysis model and the Nelson-Siegel method.[24] These models are commonly used in the simulation of interest rate data. The interest rate models are calibrated using historical interest rate data. The State Treasury uses the monthly yields on the bonds issued by Germany since 1986 and swap yields since 1997.

22 Central government cash funds subtracted from on-budget debt.

23 In this process, the aim is to find the debt management strategies that minimise expected debt costs at a given risk level. In Markowitz optimisation, the combination of these debt management strategies is called the efficient frontier. On the efficient frontier, expected debt management costs can only be reduced by accepting a higher risk level.

24 The assumption in the principal component model is that the interest rate curve can be largely explained with a small number of factors (principal components). The State Treasury simulates principal components using stochastic differential equations. Read more about the Nelson-Siegel model at Nelson and Siegel (1987), and Diebold and Li (2006).

Focusing on interest expenses and on changes in them may lead to a situation where the variation in on-budget interest expenses are minimised, resulting in unnecessarily high interest expenses. With the current central government debt and the difference between short-term and long-term interest rates, as examined in the long term, the average cost difference between interest rate risk positions is more than one billion euros.

With respect to its time frame assumptions and the theoretical debt portfolio structure, the modelling used by the State Treasury differs from the modelling used by most other debt offices. In them the costs and risks are determined by prevailing interest rates and debt structures.

Even though the interpretation of the internationally used models is connected with actual interest expenses, their results depend significantly on the shape of the yield curve on the analysis day, and the risk examination time frame. Actual interest expenses are emphasised because monitoring and forecasting of on-budget costs are key guiding factors for central government.

Use of derivatives plays a key role in the management of market risks in the Finnish debt management model. They allow the separation of the interest rate risk and refinancing risk, so that the State Treasury is able to give better consideration to market demand when issuing debt. Use of derivatives in the management of market risks is described in Box 7.

BOX 7. USE OF DERIVATIVES IN THE MANAGEMENT OF MARKET RISKS

In the management of the market risk associated with central government borrowing, derivatives play a key role in the Finnish debt management model. Within the limits and restrictions set in the debt management guidance provided by the Ministry of Finance, the State Treasury uses derivative contracts (mostly interest rate and currency swaps).

By using interest rate swaps, the State Treasury can, when issuing bonds, examine aspects concerning the interest rate risk separately and focus on market demand and refinancing risks. In other words, by using interest rate swaps, the State Treasury is able to adjust the interest rate risk profile of the central government bond portfolio separately from the financing risk.

At the same time, with currency swaps, the state is able to hedge against fluctuations in exchange rates. For example, when issuing a dollar-denominated treasury bill, the state can simultaneously conclude a currency swap in which it receives payments in dollars and makes payments in euros. In accordance with the debt management instructions of the State Treasury, the State of Finland does not take any exchange rate risks in its borrowing. After hedging, all debt of the State of Finland is in euros.

Derivative contracts are constructed so that the market value of the contract is zero at the time of the establishment of the contractual relationship. However, the value of the contract changes as interest rates and exchange rates change. In a situation where the value of the derivative contract is positive from the Finnish perspective, the contract is associated with a counterparty risk. The State Treasury manages this risk with collateral.

Since spring 2018, the State Treasury has had a mandate to conclude two-way collateral agreements (to receive and deliver collateral in derivative transactions). Before this, the State Treasury was only authorised to receive collateral in derivative activities. A changed market practice was a key reason for the changeover to the two-way collateral practice. Tighter financial market regulation has weakened the pricing of derivatives made under one-way collateral agreements. In fact, many countries have changed over to the two-way arrangement or central counterparty clearing, or are in the process of doing so.

In accordance with general market practices, the State Treasury accepts treasury bills and cash collateral of countries and financial institutions with sufficient credit rating.

6.3 Broad balance sheet perspective and modelling it

Balance sheet perspective provides an alternative approach to guide the selection of the central government interest rate risk position. Its aim is to find an answer to the question of what kind of interest rate risk position can best secure the balance between central government revenue and expenses. The theoretical basis of the balance sheet perspective is clear and it has been extensively studied in contexts outside central government debt management. It is connected with solvency and the problem of minimising the bankruptcy risk associated with it, which is used in banking and insurance sectors. The perspective taken in the balance sheet analysis is broader and, in a theoretical sense, more justified than an analysis that is solely based on variation in debt interest expenses. Furthermore, the balance sheet perspective is not particularly sensitive to baseline assumptions (such as the time frame selected). In fact, international organisations and a number of researchers have highlighted the need to examine the central government interest rate risk from a broader balance sheet perspective.[25]

With the balance sheet perspective, the examination covers both interest expenses and other balance sheet items (such as tax revenue). The aim is to achieve interest rate position, which will reduce fluctuations in central government primary balance and, consequently, will help to cut budgetary surpluses and deficits connected with economic cycles. For example, in an economic downturn, central government tax revenue decreases and this is often accompanied by a fall in market rates. Likewise, a rise in interest rates is not necessarily a risk to central government if its revenue also increases.

The definitions of the balance sheet perspective are also in accordance with the general central government economic policy goals and support their achievement. These include the deficit target set out in the EU treaties and the closing of the sustainability gap, an objective set out by the Government. It is also known that credit institutions and investors assess the total central government balance sheet when making their credit and investment decisions.

The simplest way of applying the balance sheet perspective would be to include both the variation in interest expenses and the variation in central government tax revenue in the models used. It would be natural to do this by using existing models, such as the Kooma model of the Ministry of Finance or the Aino model of the Bank of Finland.

Even though a number of institutions consider the balance sheet analysis in their recommendations, it is not yet extensively used in any country. New Zealand has

25 For example, OECD (2005), IMF (2011), IMF (2014) and Blommenstein & Koc Kalkan (2008).

advanced furthest on the balance sheet approach path but its analysis also leaves out the tax revenue, which is the most important central government income category (Koc 2014).

Many reasons have been given for the low popularity of the balance sheet analysis. One such factor is the technical complexity of the approach, which makes the dissemination of the modelling results a challenging process. The limited amount of practically oriented research information on the balance sheet approach has also been given as a factor preventing more widespread use of the approach.

Operationalisation of the balance sheet approach would require close coordination between the institutions that are involved in the management of central government liabilities and assets, something that would probably require institutional changes. This could be one obstacle to more widespread use of the balance sheet analysis. [26]

In countries with their own currency, the use of the balance sheet analysis is often prevented by obstacles arising from the role of the central bank and price stability. In that case, in order to strengthen the independence of the central bank and the credibility of the price stability objective, the policy is to keep the management of central government liabilities separated from the management of central government assets (see for example, Cassard and Folkerts-Landau 1997).

26 In practice, however, modelling of tax revenue is sufficient because it accounts for most of central government income. In this case, operationalisation of the balance sheet analysis would not require institutional coordination.

7 Observations of the working group

7.1 General observations

In accordance with its mandate, the working group has examined the target setting in central government debt management, a debt management model based on the benchmark portfolio, risks inherent in debt management and governing them, institutional organisation of the debt management, and the steering of debt management. In its work and conclusions, the working group has used reports and studies on the topic and heard the views of a large number of experts.

The working group is of the view that debt management is a critical central government function that must be secured in all circumstances. Efficient debt management safeguards central government liquidity and ensures that central government borrowing needs can also be met in difficult times. This in turn helps to maintain room for manoeuvre in fiscal policy.

The working group is also of the opinion that the current overall target setting in central government debt management, in which the aim is to cover on-budget borrowing needs and to minimise debt-related expenses in the long term at acceptable risk levels, is justified in the current situation. It has generally become the key objective in central government debt management in Finland's reference countries and it is also in accordance with good debt management practices.

Furthermore, the working group does not see any need to change the overall division of labour in central government debt management, in which, based on parliamentary and government authorisation, the debt office takes care of the operational debt management tasks within the strategic steering framework provided by the Ministry of Finance. In good international practices, the emphasis is on the clear definition of the mandates of different actors and the concentration of the operative aspects of debt management in a single administrative unit. The overall division of labour in central government debt management is in accordance with these principles.

The working group is also of the view that there are no major problems in the steering of the key aspects of debt management between the Ministry of Finance's Financial Markets Department and the debt office. The role of the debt management guidance as a steering instrument is considered to work properly and it is prepared in close cooperation between the Financial Markets Department and the debt office.

With respect to the process of selecting the strategic interest rate risk position for the debt, the working group considers the current model-based approach in the examination of expense/risk ratios of optional strategic interest rate risk positions as justified. From these options, the Ministry of Finance selects the strategic interest rate risk position that is in accordance with its risk preferences. Determining risk preferences thus plays a key role from the perspective of on-budget entities. Examining the expense/risk ratios of interest rate risk positions does not require that views should be taken on future interest rate trends at each point of time.

With respect to the interest rate risk analysis, the working group states that in the current approach, consideration is given to the interest rate sensitivity of the interest expenses arising from the net debt comprising the debt and cash funds. According to the analysis, decreasing the risk always means increases in expected costs. For this reason, there are good grounds for selecting any interest rate risk position on the basis of the current analysis. In economic terms, the decision is highly important because with current debt volumes, there may be differences of up to one billion euros in expected annual costs under different strategies.

The decision on the strategic interest rate risk can be justified by using exclusively the restrictions of the current analysis. In that case, reducing variation in on-budget interest expenses is an important argument for the decision. In an alternative approach, the aim is to reduce the variation in budgetary surpluses and deficits by means of managing the interest rate risk so that such factors as covariation in the interest rates and tax revenue is taken into account. In the working group's opinion, the impacts of the latter approach should also be assessed.

The working group is of the view that the refinancing risk is properly managed. The purpose of central government borrowing is to meet the central government funding requirements in a cost-efficient manner and in a manner that ensures access to financing in all circumstances. In order to ensure this, the debt office diversifies its borrowing with respect to maturity, instruments and investor base.

Long-term central government borrowing is based on the system of central government benchmark bonds. The debt office regularly issues benchmark bonds through primary dealer banks. These banks also maintain the secondary market for benchmark bonds. In

the working group's view, from the perspective of ensuring successful borrowing, the debt office should continue to maintain close contacts with the investors investing in Finland's central government debt and with credit rating agencies.

Short-term central government funding is based on the issuing of treasury bills. The working group is of the opinion that treasury bills are an efficient and flexible instrument to ensure central government liquidity. In order to ensure the liquidity, the State Treasury also maintains the central government's cash buffer. Cash management is based on a cash forecasting system administered by the debt office, in which the revenue and expenditure forecasts of all central government accounting units are entered. In the working group's view, the cash forecasting system is in accordance with the best international practices, and it allows effective management of the liquidity risk.

The working group is of the opinion that in its own area of responsibility, the debt office has properly maintained and developed resilience and continuity management of debt management. Debt management has been provided with secure facilities and the workability of the facilities is tested on a regular basis. A comprehensive continuity plan, which has been properly maintained and updated, has also been prepared for debt management. However, it has not been possible to implement all measures enhancing the resilience of the information systems in the desired manner in cooperation with the ICT service agency.

The working group is satisfied with the manner in which legal risks are managed. Legal risks are minimised in debt management by using commonly accepted master agreements and by carefully selecting the counterparties on the basis of strict criteria.

7.2 Critical observations

The most important critical observations of the working group are as follows:

1. In the working group's opinion, the organisation of the debt office within the multi-sectoral State Treasury is problematic. The debt office has few synergies with the other functions of the State Treasury, which are very different in terms of their nature and target-setting, compared with the tasks of the debt office.[27]

27 In addition to managing the traditional tasks of a debt office, the State Treasury's Finance Division is also responsible for the management of the loans and guarantees provided by the State of Finland and a number of other financing services. The working group noted that these tasks are not core tasks of the debt office and, in terms of risk management, they differ significantly from the duties of a debt office. At the same time, the debt office and lending use the same risk control, ICT and financial communications. The working group is of the opinion that in any organisational changes, the relationship between the debt office and the other tasks of the Finance Division should be carefully examined.

In the working group's view, the multi-sectoral agency model brings benefits in administrative efficiency when all its functions have a similar objective function and when the ICT infrastructure and administrative needs of its functions are sufficiently similar. According to the working group, the current model of the State Treasury does not meet these prerequisites. The objectives and ICT infrastructure needs of the debt office are substantially different from the needs of the State Treasury's other divisions.
In the working group's opinion, the current setting in the State Treasury, where one function (debt office) is significantly more critical than the other functions potentially increases the total operating costs at least through two channels. First of all, the higher quality of the ICT services required by the debt office may (unnecessarily) also lead to stricter requirements in other functions. Secondly, due to the nature of the debt office's operations, its staff members are required to possess expertise that is relatively rare in central government, and in recruiting situations, the debt office has to compete with other financial sector actors. The higher salaries paid to debt office personnel will over time also put pressure on the State Treasury to introduce pay increases in other divisions.

2. The working group sees major problems in the State Treasury's current multi-channel steering model.[28] In the general performance guidance process, the tasks of the State Treasury are seen as parallel even though they are actually very different in nature. The steering system is further complicated by the role of the State Treasury as a multi-sectoral agency that, in addition to the Ministry of Finance, is also steered by other ministries.

   One key problem with the current steering system is that the objectives and requirements laid out for the debt office do not come from the same channel as the resources for the work and that these two have become increasingly separated over the years. In such a structure, only limited consideration can be given to the special requirements and development needs of the debt office. The matter has also been highlighted in an internal audit covering the entire Finance Division carried out by an external party.

28 In the report on the general performance guidance of the State Treasury that was produced in the Ministry of Finance in spring 2018, it was also concluded that the steering of the State Treasury is a complicated process and that the State Treasury is the only agency in the administrative branch of the Ministry of Finance that is subject to performance guidance by more than one department.

The problems of the multi-channel steering system have also been reflected in the implementation of the recommendations for the Finance Division presented in the internal audit. Taking the required measures is made more difficult by the State Treasury's general steering system in which prioritisation of matters takes place between different needs.

3. The working group notes that the reporting on internal audit observations in the Finance Division is not in accordance with the one-over-one principle commonly applied in the financial sector. The observations are first reported to the Director General and not to the steering body (Ministry of Finance).

4. The working group notes that even though the overall debt management operating environment has become more challenging as a result of technological advances, stricter regulation and increasingly complicated financial markets, and that a rapid growth in debt and contingent central government liabilities has increased debt management risks, the resources of the Finance Division have remained the same.

   The scarcity of resources was also highlighted in the internal audit carried out by the external party. The working group is of the opinion that in order to be able to respond to the requirements posed by an increasingly complicated operating environment, debt management must be provided with adequate resources for its processes, the development of its ICT architecture, continuity management and preparedness so that operational risks can be minimised.

5. The working group sees major problems in the organisation of debt management ICT solutions. The ICT solutions for the State Treasury were originally produced from the perspective of the agency as a whole and its operating expenses. In this approach, ICT has been seen as a centralised support function.

   For many of the State Treasury's functions, this is a workable solution. In debt management, however, ICT is part of a critical core function of central government. Debt management takes place in real time and the response times may only amount to a few hours. Moreover, financial market and debt management processes are

also highly digitalised. These factors set high requirements for the debt management ICT infrastructure. In recent years, the strategic significance of the ICT infrastructure has been further enhanced by technological advances.

The sector-independent information technology services and solutions for the State Treasury are provided by a service agency operating under the auspices of the Ministry of Finance. The service agreements covering the State Treasury's systems (servers and data networks) and work stations have also been outsourced to the service agency. The user services for central government debt management systems are produced in the service agency or the agency has outsourced them to a private company. Under the current model, the State Treasury is unable to directly supervise the activities of the service agency's contractual partner in such areas as transaction and liquidity management services, as these are the responsibility of the service agency. The delivery times of the service agency providing ICT services are long compared to the critical debt management response times.

The service agency has to be contacted if problems arise, which causes delays in the problem-solving process. The same applies to development and investment projects in debt management's ICT infrastructure that the service agency produces on the basis of its own service strategy. Development and investment projects must also compete with development projects of other State Treasury divisions, which also causes delays and increases the risks concerning the implementation of the projects.

The working group is of the view that the current organisation and administration of the debt management ICT solutions constitute a clear operational risk to central government debt management.

6. During its assignment, the working group has been provided with a report on a broader balance sheet approach for an analysis of the interest rate risk and the strategic interest rate risk position.

   The working group is of the opinion that from a theoretical perspective, the balance sheet analysis has several advantages and considers it an interesting approach to the management of the interest rate risk. The working group notes, however, that New Zealand is the

only country where the balance sheet analysis approach is extensively used. In the working group's opinion, a changeover to a broader-based balance sheet analysis approach would require further analysis.

7. The working group is of the view that the methods used by the debt office in the calculation of the expense/risk ratios of different interest rate risk positions are commonly used and acceptable. The working group notes, however, that the yield curve estimation method used by the debt office does not take into account the zero lower bound. In the prevailing interest rate environment, this is a methodological shortcoming that may have an impact on the estimation results of the relationship between interest expenses and their variance.

8 Recommendations of the working group

Based on its critical observations that are presented above, the working group makes the following proposals for developing risk management and steering of debt management:

1. Debt management and the steering of central government transactions should be organisationally separated from other State Treasury tasks that do not have clear synergies with debt management duties. They should be made the responsibility of a separate agency or a separate unit in the Ministry of Finance. Of the other tasks currently managed by the State Treasury, the steering of central government transactions could be made part of the agency's debt management function because this function is the principal user of the service. With the transfer, the management of the key central government banking relations would be the responsibility of a single function. The decisions on the detailed organisational model and the tasks of the debt management function would be made by the Ministry of Finance. When correctly implemented, the proposed organisational models would strengthen the profile of the central government debt management function as a financial market actor meeting the highest international standards.

   At the same time, the steering of the debt office should be made into a single-channel process in which the Ministry of Finance would continue to decide on the debt management strategy and provide the debt office with a budgetary framework. The objectives of the debt office and the resources for achieving them would be set by the same entity . The debt office should have a more direct ownership and control over the ICT architecture that it uses (work stations, data communications, servers, external services and contractual management).

2. The working group is of the opinion that, as applicable, the governance principles commonly used in the financial sector should also be used in the governance of the debt office. The debt office should have an audit committee with a mandate to assess the risk management of and reporting on debt management and whether these are comparable with the standards commonly applied in the financial sector. The audit committee should comprise representatives of the ministry and external financial sector experts. Ultimately, implementing the recommendations made by the audit committee would remain the responsibility of the Ministry of Finance.

3. The working group considers it important that advanced methods are used in the estimation of the interest rate risk and that the methods are regularly reviewed. Financial research experts should take part in the review process. First, the relevance of taking into account the zero lower bound in the estimation of the interest rate risk and expected interest expenses, should be analysed.

4. According to the working group, there are several aspects in a broad balance sheet approach to central government risk management that are interesting and worth supporting. However, the working group is of the view that there is not yet enough information available on the balance sheet approach so, therefore, it would be too early to take steps towards it in central government risk management. The working group recommends that it should be examined to what extent a central government-level balance sheet approach would be feasible and realistically possible. Studying the experiences of a balance-sheet-based approach gathered in other countries should also be included in the work.

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