

**GOVERNMENT CASH MANAGEMENT
GOOD – AND BAD – PRACTICE**

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GOVERNMENT CASH MANAGEMENT: GOOD – AND BAD – PRACTICE

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INTRODUCTION

1. Government cash management has been given less attention than government debt management – by the international agencies, by governments themselves, and by consultants and academics. Maybe this is as it should be: the potential costs of “wrong” debt decisions accrue over many years and can leave an economy heavily exposed at a time of economic stress, whereas the losses associated with poor cash management are shorter term and can be corrected. But bad practice not only wastes money, it can inhibit the development of local financial markets, and undermine the effectiveness of monetary policy.¹
2. Cash management also suffers from a lack of consensus of what it comprises. From the perspective of budget policy or management, it is an internal government function – ensuring that cash flows to where it is needed without wastage or idling. But to debt managers and central banks it is about the impact and management of the government’s cash flows in the financial sector. Both are important.
3. This paper, after defining cash management, suggests why it is important and outlines the wider policy context; identifies some international models drawn from the experience of more developed countries; and then discusses some issues more relevant to developing or emerging countries. The aim is to clarify the policy issues and assist the decision making process particularly in those countries who have identified the need for reform. The paper identifies poor practice – but although good practice has a number of common characteristics, there is no single best practice model; that will depend on the local context and the wider policy approach.

Definition and Objectives

4. Government cash management may be defined as “the strategy and associated processes for managing cost-effectively the government’s short-term cash flows and cash balances, both within government, and between government and other sectors”. Note that:
 - a. This definition includes both policy issues, and the design of the more humdrum processes.
 - b. The management of cash flows and of cash balances gives rise to some different challenges; both need to be addressed.

¹ This paper has benefited from comments from a number of current and past practitioners, notably Ian Storkey, Paul Malvey and former colleagues from the UK Debt Management Office, as well as drawing on my own experience at the UKDMO. I am grateful to all concerned and also for the useful observations during a seminar at the World Bank in October 2003. Errors and the views expressed remain my own.

- c. The definition includes cash management within the government sector and government's interaction with other sectors, particularly the financial sector.
5. Certainly a government must be able to fund its expenditures in a timely manner and meet its obligations as they fall due. But cost-effectiveness, risk reduction and efficiency are additional objectives. More specifically, the objectives of efficient government cash management may be defined as:
 - a. Keeping to a minimum the volume of idle balances held in the banking system, and the extra costs associated with that.²
 - b. Reducing risk – operational, credit and market risk.
 - c. Adding flexibility to the ways in which the timing of government cash inflows and outflows can be matched.
 - d. Supporting other financial policies.
6. The benefits of efficient cash management are the corollary of these objectives; see Box 1.

Box 1: The Benefits of Efficient Cash Management

- Efficient cash handling and control systems **increase certainty** that payments are made properly by the due date; and that receipts are passed without delay to the responsible bodies. They also **reduce operational risk** and the scope for mismanagement or fraud.
- By minimising the volumes of idle cash held by government bodies, most of which is unlikely to be fully remunerated, and reducing payment authorities (and cheques) in transit or awaiting clearance, there is a **direct saving** to government in the form of the borrowing that is no longer needed to finance that cash.
- The linkage of government accounts (so that balances are netted through a single account at the central bank), not only reduces gross balances, it **improves visibility** of flows – opening up the opportunities for active management – and **reduces risk**, whether in terms of exposure to the banking system or to financial market movements.

² The float held within government will typically earn interest at a low or zero rate, but be financed by borrowing, often long-term borrowing at the margin. The sums involved do not need to be very large for the net annual interest costs to be significant.

- A wide range of financing instruments – Treasury bills and other short term borrowing and lending – gives a government **greater flexibility** in how best to manage its financing needs; and it is able to avoid the risk of high borrowing costs associated with less flexible arrangements.
- Active cash management policies, by offsetting flows in and out of the ministry of finance’s account at the central bank, remove one of the major influences on short term changes in money market liquidity. This in turn reduces one of the elements of uncertainty in the central bank’s liquidity forecast and therefore makes **monetary policy interventions less problematic**. More generally it can reduce the volatility of short-term interest rates and uncertainty in money markets.
- Efficient cash management contributes to the development of an **efficient short-term securities market** as well as being facilitated by it.

7. Best practice in eight separate areas of policy is explored below. Four of these are largely self-contained, where the government treasury and cash management functions will themselves have the lead responsibility:³

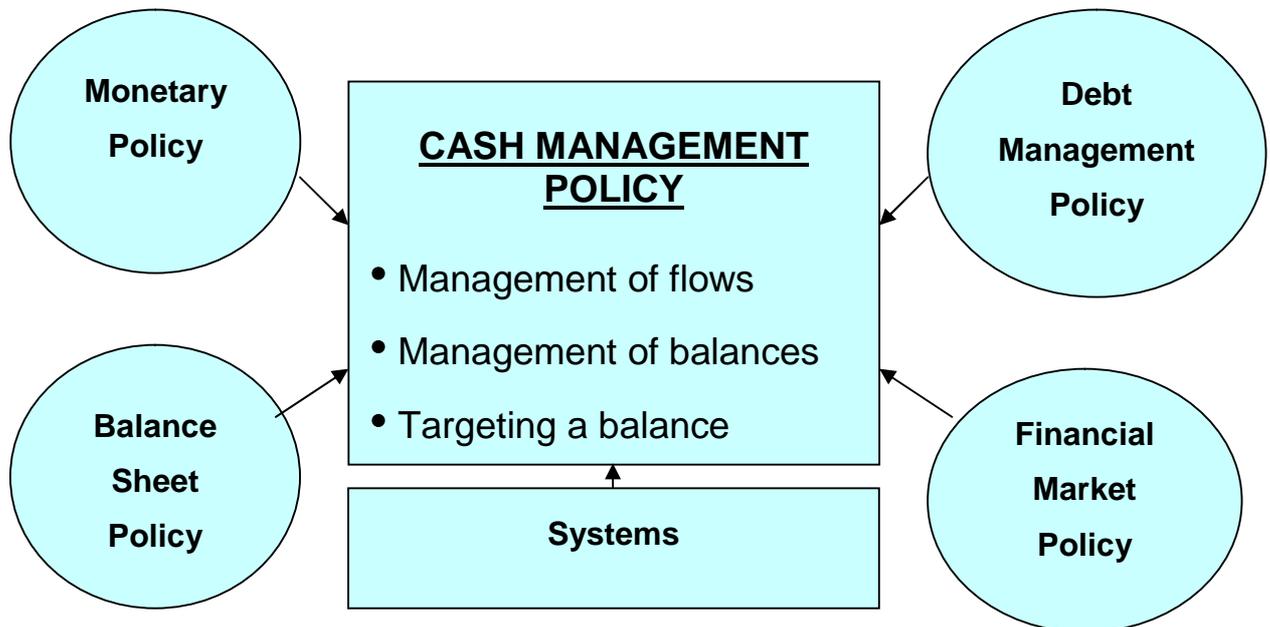
- a. Management of the flow of receipts and payments within government, i.e. by government departments, agencies and other bodies, and the associated account structure and processes, to ensure timely processing and to reduce unnecessary idle balances.
- b. Management, including by investing outside government, of those balances that are (unavoidably) held by government bodies.
- c. Proactive policies to manage short-term borrowing and lending outside government to offset volatility in government cash flows so as to maintain a low target balance at the central bank.
- d. Investment in the associated systems

8. Cash management policies also need to be set in the context of four wider policy areas:

³ The systems and guidance for the management of receipts and payments within government are usually the responsibility of the budgeting or accounting functions, whereas the “cash management function” (the terminology varies) is usually responsible for the management outside government of the net cash flows generated by those systems. As discussed below cash management may be in a separate unit integrated with debt management.

- a. Monetary policy and the related objectives for the control of financial sector liquidity, interest rates and inflation.
- b. The government's objectives for its own balance-sheet and management of balance sheet risk.
- c. Debt management policies.
- d. Financial market development policies.

9. The interaction between these eight policy areas is illustrated below.



CASH MANAGEMENT POLICY ISSUES

Management of Government Receipts and Payments

10. Efficient cash management does not mean trying to control the timing of government expenditures to match the timing of cash receipts. The associated disruption and delay undermines the benefits of the planned expenditure. Efficient government payment systems instead ensure that invoices are processed promptly and obligations met.⁴

⁴ Arguably this council of perfection cannot always apply to the least developed economies; at times when their access to the debt markets may be limited, there must be some contingency arrangements that would allow expenditures to be delayed to ensure that cash inflows are not exceeded. Certainly there has to be scope for adjusting expenditure in the event of economic shocks; but this should ideally be for the budget planning system, not part of budget execution or cash management control.

11. Arrangements are necessary to provide tight control over the cash flows within government entities, and between government and the rest of the economy. But such arrangements, although important to ensure regularity and propriety and to guard against fraud, are not sufficient for the efficient management of cash flows.⁵ That in turn requires, among other things:

- a. Identifying efficient cash management as an objective of government, and translating that into operational practices and procedures for the ministry of finance, government departments and the central bank.
- b. Separating the functions of authorisation and control of government's cash flows from those for the settlement and payment of the transactions. This separation ensures that concerns about efficiency are not inadvertently dominated by those of audit control (there are also good risk management reasons for this separation to avoid scope for fraud).
- c. Incentives for efficient cash management through all levels of government to minimise the level of cash balances and create greater certainty around the timing of payments and receipts. Such incentives can range from systems that penalise the holding of excess cash, through strict rules of government accounting, through to direct financial incentives.⁶
- d. Increasing reliance on electronic funds transfer; and the avoidance of an unnecessarily large number of intermediate levels of cash handling and control. Pre-authorisation rather than pre-funding can further reduce the need for balances.
- e. A centralised or linked account structure that allows for the netting and aggregation of balances through overnight sweeping. The highest account in this pyramid will be the ministry of finance's account at the central bank.
- f. Information flows between departments, the ministry of finance or cash managers, and the banking system that allow close monitoring of cash, and facilitate the preparation of consolidated cash flow forecasts.

12. Such arrangements are consistent with the devolution of payment or transactions responsibilities to commercial banks and local autonomy for

⁵ This sub-section draws on Ian Storkey's helpful governance brief published by the Asian Development Bank (2003), which discusses several of these points at somewhat greater length. He defines cash management as "having the right amount of money in the right place and time to meet the government's obligations in the most cost-effective way". That is important; but this paper adopts a wider definition.

⁶ For example, allowing departments to retain as additional expenditure provision the interest implicitly saved from reforms that reduce cash requirements.

government bodies, particularly where combined with electronic transfers that give greater certainty and reduce processing lags. But agreements with banks should be coupled with arrangements to reduce funds held in non-interest bearing accounts. To this end, banks should be required to pass any balances overnight to a higher account (and ultimately to the ministry of finance's account at the central bank). Commercial banks will often have a much greater geographical spread and processing capability than the central bank, and be best placed to supply transaction services. But there is an important distinction between these services, for which fees will be charged and the banks' management of deposit (or credit) balances on which interest is paid.

13. The concentration of balances at the central bank has benefits that go beyond the requirements of effective cash management. It reduces credit risk (government's exposure to individual banks) and moral hazard (the assumption by the banking system that the government will not allow any major bank to go bankrupt for financial stability or depositor protection reasons).

14. The emphasis on the control of cash flows may have to be integrated with budgeting and control systems that operate primarily in accrual terms – see Box 2.

Box 2: Cash and Accruals

The focus of cash management is on cash flows and cash balances. In many countries, however, and in all those with more sophisticated expenditure planning systems, expenditure and revenue aggregates are defined primarily in accrual terms. This is consistent with the preferred definition for wider macro-economic aggregates; where the accrual numbers more accurately reflect demands on resources.

In some countries where spending approvals are given in accrual terms, the relevant spending authority may also be given a cash budget consistent with that. Others may rely on guidance from the centre rather than controls.

Potential problems arise when cash requirements differ greatly from budget approvals, whether because of the investment cycle, movements in debtors and creditors, other timing changes or notional costs or charges. The risk is that spending authorities will have an incentive and ability to draw cash in advance of need, undermining the discipline of the central control arrangements and tending to add to idle balances. This risk has to be mitigated by separate cash flow monitoring systems, but they will need to be integrated with the accruals based systems to ensure internal consistency.

Management of Idle Balances

15. Payment and processing lags, forecasting uncertainties and cash flow volatility mean that governments will inevitably need access to some liquidity; and cash is the simplest form of liquidity. They will, or at least should, expect cash balances to be remunerated.

16. In some cases all the balances will be held by the ministry of finance at the central bank, who in turn invests them; or, in others, the ministry of finance invests the greater part of them directly, assuming that the credit and other risks can be managed and after allowing for a minimum balance at the central bank for very short-term cash needs.

17. In circumstances where the balances are invested by the central bank, which will be the norm for developing and emerging countries, the ministry of finance will want to know and agree the central bank's policy for investing those balances, i.e. the counterpart on the other side of the bank's balance sheet.⁷ That in turn requires consideration of:

- a. The remuneration of the balances – whether the balances earn a full market rate of return or not.
- b. The credit and liquidity risk associated with the investment.
- c. The treatment of any profit or loss – and whether the central bank bears that or whether it is passed by the bank to the ministry of finance via the annual dividend or equivalent.⁸

18. The central bank may remunerate the balances at its own short-term lending rate to the market, i.e. the central bank's official repo or discount rate. This has logic insofar as the counterpart of a change in the level of the ministry of finance's balances will, other things equal, be an equal and opposite change in the commercial banking sector's net position at the central bank. However, in these circumstances central government is in effect charging the banking sector for the volatility in government cash flows. The banking sector will either have to hold a liquidity buffer or be forced to borrow at a rate that will tend to be above money market rates. If, typically, the

⁷ Note that these paragraphs are discussing the investor as principal. There is a model whereby the central bank in effect acts as agent for the ministry of finance, taking instructions and passing back all interest receipts. In the terms of this section, that is equivalent to the ministry of finance investing the balances.

⁸ The formal relationship between ministry of finance and central bank varies in different countries. However, in most countries the ministry of finance has control over the central bank in the long-term; that is not to say that there cannot be considerable argument in the short-term over the policies of the central bank and which institution has the short-term benefit or cost of profits or losses (e.g. what dividends should be paid). Indeed, in countries where the central bank is in deficit, the income earned from the assets matching the balances may be an important mechanism offsetting that deficit.

balances are invested in central government debt, then the (short-term) interest rate received by the ministry of finance is likely to be less than the (longer term) rate achieved by the central bank. This follows from the normal experience of an upward sloping yield curve, reflecting investors' term premium and the risks associated with holding longer term debt.

19. Under the alternative model, the ministry of finance (or debt office on its behalf) invests the funds directly in the banking sector. Except possibly where the lending is very short-term, collateral should normally be taken to reduce credit risk; for this reason lending is often in the form of reverse repo. Some countries choose to use the central bank as an agent for this, but the investment is directly under control of the ministry of finance.

20. Whatever the approach, the ministry of finance's balances at the central bank should normally be remunerated at a close-to-market rate, even where all bank profits or losses are passed back to the ministry and the ministry has the required leverage over the bank's investment policies. This:

- a. Improves accounting transparency and avoids the implicit cross-subsidy associated with administered rates.
- b. Removes any incentive to take economically inappropriate decisions.
- c. Reduces the risk that some part of the extra "profits" generated within the bank will be lost through leakage to higher administrative or other expenses – a relevant point where a central bank has responsibility for its own administrative budget

21. The treatment of more permanent or structural surpluses raises additional issues – see Box 3.

Box 3: Management of Structural Cash Surpluses

Some countries have generated cash inflows to government that are very substantially above the sums needed for short-term cash or liquidity management. These may be associated with structural factors, the economic cycle, a period of fiscal restraint or one-off windfall gains. Examples include:

- The long term surpluses generated by the natural resource endowments of Norway or Kuwait, most of which are invested in a wide range of overseas assets.
- In 2000 the UK benefited from very large inflows from the sale of third generation mobile phone licences at a time of buoyant government revenue. It chose to run down the cash generated over a period of 3 years, offsetting future debt issuance, in the interim period managing the cash against a market derived short-term sterling benchmark return.

- Russia established in 2004 an Oil Stabilisation Fund into which were channelled excess receipts arising from the unusually high oil prices through much of that year. If oil prices fall the Fund, which will be invested in high quality overseas government bonds, will be run down to help finance the budgetary deficit; alternatively; once the Fund has exceeded a certain size further excess revenue may finance additional expenditure.

The main principles governing management of these surpluses should be:

- The preferred structure of and balance between assets and liabilities on the government's balance sheet.
- The nature of the financial risks over the medium- and long-term, including the economy's exposure to external and internal events.
- The government's trade-offs between risk and return (credit risk and market risk).
- Where the sums are substantial in the local context, the impact on domestic financial markets will also be relevant.

It is likely that the surpluses of this kind will be managed differently from the management of day-to-day cash flows. It may be appropriate to manage the fund against a target or performance benchmark, on the analogy of institutional funds. The management team may be institutionally separate from the operational cash managers and possibly also the debt managers. But there should be a common understanding about the operational parameters of the different functions; there may also be arrangements whereby the cash managers can have access to liquidity within the fund in specified circumstances.

Target Balances at the Central Bank

22. A number of countries take further the logic of the ministry of finance investing surpluses balances. In particular, in the UK, Sweden and all the Eurozone countries, the ministry of finance takes responsibility for investing all government balances, keeping only a specified minimum balance at the central bank. The minimum is set as a target and has to be backed by short-term borrowing and lending options that ensure that the ministry of finance is able to meet this target. This requires both capacity to handle a range of financial market instruments, and systems that allow the effective monitoring and forecasting of government cash flows.

23. This approach is particularly relevant for those countries that have taken the decision to give the central bank monetary policy responsibilities that it

formally exercises entirely independently from the ministry of finance's fiscal and debt management policies.⁹ Monetary policy is discussed below, but the logic of separation – greater transparency, fewer institutional conflicts of interest, and reduced uncertainty in financial markets – applies equally to cash management. In particular, there are two advantages of giving the ministry of finance complete responsibility for managing its cash flow to hit a low target balance:

- a. It removes one of the variable influences on money market liquidity, in turn making the central bank's liquidity management task more straightforward.
- b. It avoids uncertainty in financial markets as to whether the actions of the central bank in the money market are driven by technical cash management considerations or are signals of future interest rate policy intention.

24. Under this model, there is little scope for meeting a target balance unless responsibility for managing short-term surpluses is integrated with responsibility for managing short-term borrowing – whether through bill issuance, selling securities or money market borrowing.

25. There are intermediate models. Some countries – e.g. the US – have policies that actively seek to invest balances in the market with a view to maintaining a low level of government balances at the central bank. However, it is left to the central bank to manage the residual fluctuation as part of its open market operations or other liquidity management policies. Australia seeks to minimise the excess balances somewhat through the profile for its Treasury bill issuance; but the central bank is nevertheless left with substantial government deposits which have to be taken into account in the formulation of monetary policy.

Systems

26. Effective cash management is technically challenging. Active management in particular needs a strong commercial sector infrastructure with efficient banking, settlement and clearing systems and adequate data transfer capacity. Within government, as well as skilled staff, it requires efficient information management systems and the associated analytical capabilities. Operational risk can be better managed if these systems are also integrated.

⁹ In the case of the Eurozone countries, this split is necessary insofar as one institution – the European Central Bank - has monetary responsibility across the whole area, while individual governments retain their fiscal and debt management responsibilities. Both the UK and Sweden, although independently deciding to give the central bank interest rate setting responsibilities, have set up cash management arrangements that are consistent with those in the Eurozone, thereby minimising the additional changes with would be needed in the event of their joining the zone.

27. The systems required for cash management are something of a step jump above those needed for debt management, budget execution and the associated accounting functions. The main systems involved are shown diagrammatically below. Those coloured blue will be needed in any government financial environment:

- a. The databases needed for government expenditure monitoring and control
- b. Financial accounts and published financial information will usually be driven off the expenditure monitoring and control systems.
- c. Debt management also requires accurate recording and reporting systems, both for producing reliable debt data and ensuring timely payment of debt servicing obligations. Debt management systems will feed back into government accounting information. More sophisticated ones will have the analytical tools need for portfolio modelling and scenario testing.
- d. Securities issuance and settlement brings with it both a demand for additional systems, integrated with the debt management system, and the ability to send financial information securely to the relevant settlement systems and to validate and reconcile transactions. More active debt managers will need transactions processing (front office) systems integrated with their (back office) database.

28. Government cash flow forecasting needs additional capability over and above expenditure monitoring and control. Some of that will be needed however sophisticated the cash management function (the green box). But as cash management develops, there is a greater need for early information, and the ability to compare successive forecasts and incorporate changing data without delay. These additional needs of active cash management are indicated by the yellow boxes on the diagram:

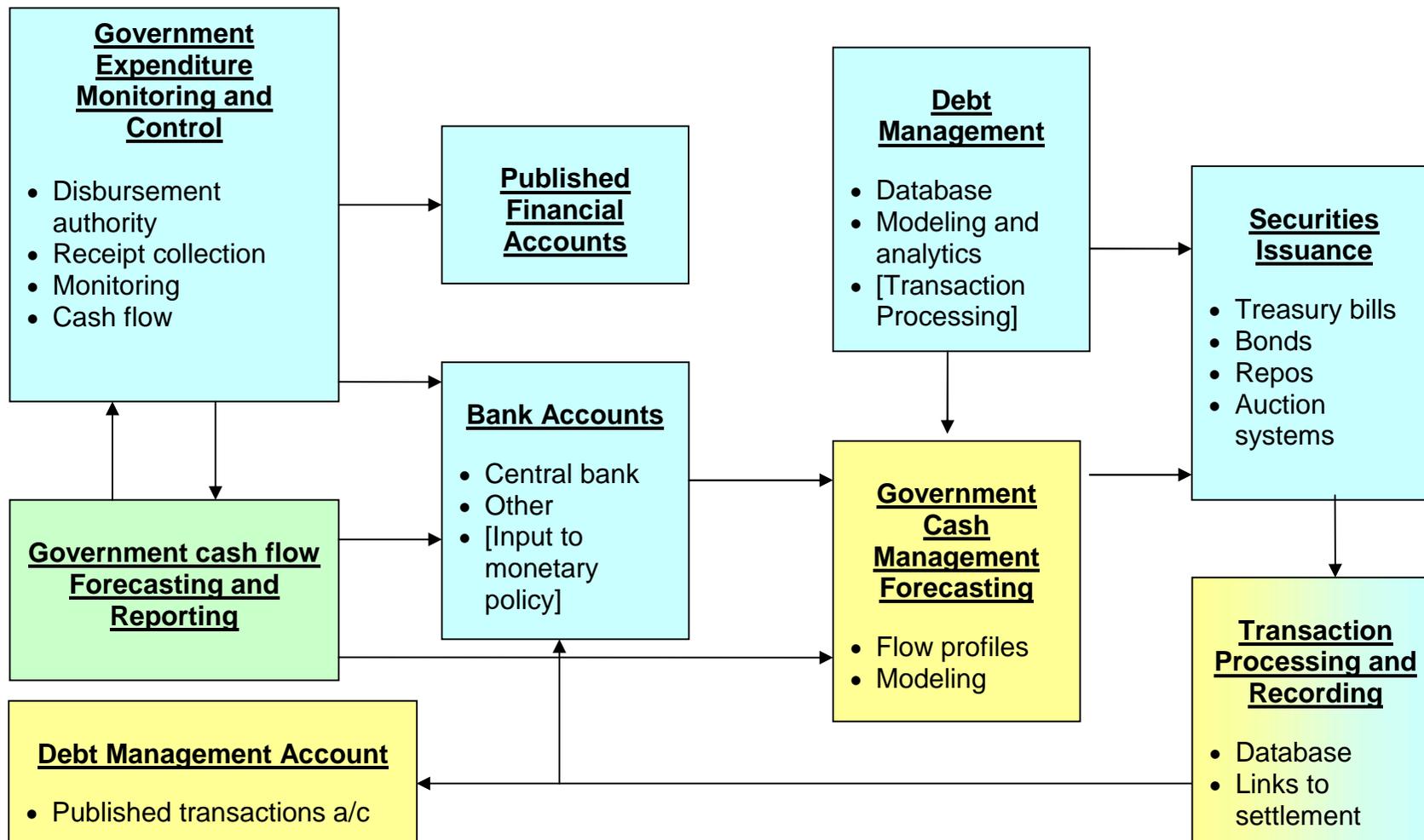
- a. The government cash manager will need to integrate forecasts of receipts and payments with other information on cash flows, notably those generated by financing decisions – bond issuance and servicing – and by the cash manager’s own transactions. Also needed is the capability to generate flow profiles, and to impose different scenarios on them, as a basis for deciding future Treasury bill issuance or other short-term lending and borrowing strategies.
- b. The number of transactions associated with an active cash management policy is potentially very much greater than the number needed for debt management, reflecting the short-term nature of the securities involved. That will in turn put new requirements on systems for transaction processing and control, transferring secure information and the back office functions of settlement reconciliation and validation.

- c. Some countries publish separate financial accounts for all these financing transactions, which may require additional systems.

29. Expenditure control, forecasting, debt and cash management, and securities issuance and settlement can in principle be linked and synchronised allowing the “straight through processing” of data from the different systems. At the same time, straight through processing facilitates the integration of debt and cash management functions and brings them closer to other treasury functions of the ministry of finance. That in turn has implications for the organisation for these responsibilities. It has the effect of creating an integrated state treasury function, and can better encourage the development of a professional team of staff with the specialist knowledge required for these functions. Cash management systems strategy therefore needs to be a central part of the wider information systems strategy for the relevant ministry or office.¹⁰

¹⁰ There is some discussion of this point in OECD (2002), Chapter 6.

Cash Management Functions and Systems



Monetary policy objectives

30. Government cash flows potentially have a significant impact on banking sector liquidity. On any one day, the net flows between government and the commercial banking sector (i.e. from expenditure, revenue and debt transactions), plus the net flows of the banking sector with the central bank (including from changes in the public's demand for notes and coin, the central bank's foreign currency transactions and any changes in reserve requirements) must equal zero. In their open market operations, whether the emphasis is on monetary base growth or interest rates, central banks take account of these changes in banking sector liquidity.

31. As implied above, there are essentially two models for the treatment of the government's position. Either the ministry of finance itself, through short-term borrowing and lending transactions in the money markets, manages its position to keep its balances at the central bank at a stable constant level; or, although the ministry of finance may manage its balances to avoid substantial daily fluctuations, the residual daily movement is taken into account by the central bank in its money market operations. In all cases, however, there needs to be co-operation between the ministry of finance and the central bank. This covers, as a minimum:

- a. A flow of information from the ministry of finance to the central bank on the government's prospective position, both for a period ahead and in the immediate future – this is particularly important when it is the central bank's responsibility to offset the impact of government transactions on banking sector liquidity. Central banks will have their own information sources – e.g. from the commercial banks on their prospective liquidity – but this will not be sufficient to build up a detailed picture of the different influences on liquidity.
- b. As the government's banker, the central bank should supply up-to-date information on movements across the ministry of finance's account.
- c. Remuneration of the ministry of finance's account at the central bank.
- d. Arrangements, which may be semi-automatic, to ensure that all accounts are squared off at the end of the day even when forecasts prove to be wrong.

32. If the ministry of finance or debt office is intervening in the money markets, there also needs to be an understanding with the central bank about the instruments, timing and maturity of interventions, in order not to cut across the bank's monetary policy operations. The government cash managers must also avoid any risk that they are thought to be speculating on future interest rate changes; the market uncertainty created would undermine the very

purpose of separation between the institutions responsible for monetary policy and those responsible for fiscal and financing policy.¹¹

33. The mechanisms for establishing this co-operation vary. They may be integrated with the co-ordination mechanisms between debt management and monetary policy – even in those countries where there is formal separation of these responsibilities, there needs to be some machinery to handle potential operational conflicts. Where forecast data are shared, they may generate a joint bank/ministry forecast, or each institution may remain responsible for its own forecast.

Government Balance Sheet Objectives and Risk Management

34. Governments are increasingly seeking to bring all financial assets and liabilities within the scope of portfolio decision-making (and associated analytics and portfolio testing). There are two aspects to this: taking account of financial assets when testing the portfolio ahead of debt issuance decisions; and a much more explicit emphasis on asset-liability matching techniques.¹²

35. The implications of balance sheet management may not be of great importance in considering cash management, but their relevance should be addressed. In the cash management context, most asset and liabilities will be very short-term, since liquidity is essential to cope with fluctuating government revenues and expenditures. However, large idle balances, and more so structural surpluses, may be highly relevant in considering the market and credit risk faced by the government, and should play a part in the portfolio decision-making processes. This is particularly the case where, at the margin, the excess cash is invested short-term securities or deposits and financed by the issue of much longer-term bonds.

Debt Management Policy

36. If government cash management interacts with monetary policy – and the need for suitable co-ordination mechanisms is identified – it interacts even more closely with debt management. Notwithstanding the case for a separation of debt and monetary policy responsibilities, the need to manage government liquidity requires debt and cash management functions to be integrated in the same institution or to work in close co-operation.

37. The benefits of integration of the two functions are set out in Box 4. In particular, integration ensures that:

¹¹ For a further discussion of respective institutional responsibilities and the need for co-ordination between central banks and debt and cash managers, see Graeme Wheeler (2004), especially Chapter 2.

¹² See also the IMF & World Bank's "Guidelines for Public Debt Management" (2003).

- a. Issuance strategies are co-coordinated across the full range of ministry of finance instruments, and that debt issuance decisions are taken in the context of the government's overall cash flows.
- b. In time, through active management of the short-term cash position, the combined function will be better placed to weaken the link between the timing of bond sales and the timing mismatch between receipts and payments. This benefit may be of particular value in handling economic shocks or unanticipated changes in the government's cash position.

Box 4: Integration of Debt and Cash Management

Integration of the two functions ensures that

- Issuance strategies are co-ordinated across the full range of ministry of finance instruments. The relevant strategies include:
 - i. Funding (ensuring that the debt and cash manager has a perspective of the full yield curve and that the relevant risk analysis covers a full range of options).
 - ii. Development of the financial market, and the ministry's stance towards market participants.
 - iii. Market signalling, and in particular avoiding the risk that different parts of the same institution might give conflicting signals about the authorities' intentions. In general integration improves transparency.
- Debt issuance decisions are taken in the context of the government's overall cash flows. The timing of debt issuance may need to take account of the profile of cash flows over the year. There is also a monthly pattern to net government cash flows that can to an extent be accommodated by issuance strategy, without jeopardising the principles of stability and predictability.
- There is more scope, through active management of the short-term cash position, to weaken the link between the timing of bond sales and of cash requirements. In particular it allows the pattern of bond sales to be announced much further in advance with benefits in terms of transparency and certainty. This benefit may be of particular value in handling economic shocks or unanticipated changes in the government's cash position.

There are a number of potential operational benefits. Some of these are in terms of administrative savings and the reduction of operational risk, e.g. integrated transactions processing, and back office systems and staff; and a consistent approach to legal documentation and market practice. Other operational benefits are more market related:

- An integrated credit policy applying across the full range of counterparties, with benefits in terms of transparency and predictability.
- Policy (timing and pricing) towards the buying-in of close to maturity bonds can be geared to cash needs.
- Some countries (UK, France) also repo government bonds (a cash market transaction) to deal with distortions in the debt market caused by squeezes. An overview of both markets for these and similar secondary market transactions is helpful.

38. Some of these benefits could in principle be secured by close co-operation between the debt and cash management functions – and do not necessarily require integration. Some countries, e.g. the US, have developed co-operative arrangements that have been tried and tested over time. However, structures established for co-operation can too easily be put under strain in less established environments: either because of the different short-term goals of different functions, or because they are unnecessarily dependent on the goodwill and commitment of staff in different directorates who are themselves subject to rotation.

39. There are a number of institutional options for integrating the functions. The choice will depend on local institutional and governance arrangements, and also the interaction between cash management and monetary policy. A number of OECD countries have established debt management offices (DMOs) with a degree of operational independence from both ministries of finance and central banks¹³. These DMOs usually have responsibility for both debt management and cash management,¹⁴ typically also including the investment of short-term financial surpluses, and in some cases longer term financial assets (as in Ireland where the debt office manages funds to meet government pension liabilities). Some also have a role in the management of contingent liabilities (notably Sweden). A number of offices still use the central bank as a fiscal agent (Australia, New Zealand, Italy); all of them draw on the central bank for some services (e.g. as banker, or settlement agent).

¹³ This includes a large number of countries in the Eurozone (e.g. France, Germany, Ireland, Portugal) and both long standing members of the EU (UK, Sweden) and newer members (Poland, Hungary). It also includes countries such as Australia and New Zealand. However, the precise institutional structures vary greatly.

¹⁴ Their cash management responsibilities may not include management of the single treasury account (STA) or its forecasting, at least forecasting of 'above the line' revenue and expenditure flows. Their focus is more in the smoothing of the profile of the STA through transactions in the financial markets. But they will liaise very closely with those responsible for the STA and forecasting.

40. There are several potential benefits from establishing separate offices.¹⁵ However, the issues that arise go much wider than the question of efficient cash management. In particular, the formation of an office should be associated with the development of a greater transparency and accountability; and also with the strengthening of resources devoted to debt management. Accountability must be supported by a governance framework that sets out relevant delegations and authorities, as necessary with legal validation, and by developed operational, reporting and auditing capabilities.

Financial Market Development

41. The development of a government securities market is both the effect of financial reform and contributes to it. The yields on government securities serve as a benchmark in pricing other financial assets, thereby serving as a catalyst for the development of deep and liquid money and bond markets generally. The resulting liquidity premium not only brings down the cost of funds to all borrowers, it helps to buffer the effects of domestic and international shocks on the economy by providing borrowers with readily accessible domestic financing. Governments reduce their exposure to interest rate, currency and other financial risks.

42. It is the money market that is central both to cash management and monetary policy implementation. Indeed, as emphasised by the World Bank and IMF, the money market is central to efficient market-based intermediation and stimulates an active secondary bond market by reducing the liquidity risk attached to bonds and other securities.¹⁶ Because of its impact on banking sector liquidity, and hence the volatility of money market interest rates and the risk to effective reserve management by the banks, "...good cash management is the most important contribution that the debt manager can make to developing the money market."¹⁷

43. Treasury bills have a particular role in the development of money markets through their use as collateral in payment systems, and the advantage for banks in having access to a risk-free liquid asset.¹⁸ The rate of discount on treasury bills establishes the benchmark rate for short term debt, completing at the short end the risk-free yield curve. Treasury bills tend to be more easily traded than repo, and carry lower settlement and operational risk, although bills may also be used as collateral in repo operations. In addition, they provide a suitable security for non-bank investors who have a demand for short-term risk-free assets. For all these reasons, Treasury bills will usually trade at a slightly lower interest rate than repo.

¹⁵ For some of the arguments advanced, see OECD (2002), Chapter 6, "The role and structure of debt management offices" by Lars Kalderon and Hans Blommestein

¹⁶ IMF & World Bank (2001), especially Chapter 2

¹⁷ IMF & World Bank (2001), box 2.2, page 73

¹⁸ Government bills will usually have a zero weight in relation to capital adequacy criteria and other prudential controls.

INTERNATIONAL PRACTICE

Similarities and Differences

44. There are always dangers in generalising, but by studying a group of well run countries, it is possible to identify those characteristics that they have in common, and those where there are important differences.¹⁹

45. The key characteristics in common of these countries reflect the discussion above. They are summarised in Box 5.

Box 5: Best international Practice: Common Characteristics

1. Efficient internal payment processing

- Internal arrangements to process government transactions efficiently and with a minimum of intermediate handling steps.
- An increased reliance on electronic transactions and centralising receipts and payments through a limited number of agents.
- Where a larger number of agents is used (as in the US reflecting its size), they are highly controlled and co-ordinated.

2. Account aggregation and minimisation of idle balances

- Internal accounting requirements and controls to minimise the level of idle balances held by government bodies other than the ministry of finance, and to create greater certainty about the timing of receipts and payments.
- These requirements may be backed up by incentives.
- Government account structures, or agreements with the banks, that allow for the netting of the transactions between departments and the aggregation of departmental balances.
- A ministry of finance account at the central bank through which all major government transactions flow, including transactions between the ministry of finance and departments. (Some qualification is needed in the case of the US, in that receipts may be held temporarily in the banking sector; but this is really a consequence of active cash management – to avoid balances at the Fed rising above target.)

¹⁹ This section is primarily based on work on a number of OECD members: the UK, all the Eurozone countries; the USA, Canada and Australia.

3. Internal systems to forecast receipts and payments flows, and hence the ministry of finance's account at the central bank

- Forecasts of future changes in the ministry's account at the central bank, together with the monitoring of actual changes in close to real time, are needed to devise the strategies that would have the effect of smoothing those changes. This in turn requires systems to forecast government cash inflows and outflows on a daily basis.
- The forecasting systems use a variety of techniques, but make use of the knowledge within the relevant spending or revenue departments, who are closer to the transactions than the ministry of finance, and who monitor actual cash flows.

4. Agreements between the ministry of finance and central bank covering

- The flow of information from the ministry of finance to the central bank on the likely future size of the balance (as well as information from the central bank on actual changes in the balance).
- How changes in the balance, anticipated and unanticipated, will be taken account into account in the monetary policy operations of the central bank (which links to whether the ministry of finance is able to manage its cash flows sufficiently to meet a target balance at the central bank).
- Remuneration, if any, of the balance.

5. Integration of (or at least co-ordination between) government debt and cash management functions

- To allow decisions surrounding the issuance of debt, and any ministry of finance transactions in the secondary market, to be taken in the context of the government's overall cash flows.
- To ensure that the management of government cash flows supports debt management operations.

6. The use of short-term borrowing instruments to help manage the timing mismatch between inflows and outflows

- Most countries use Treasury bills; some use repo and reverse repo (in most cases as well as bills). Some use commercial bills

7. Efficient infrastructure for payment and settlement, with securities typically being held in dematerialised form

46. There are, however some important differences between these countries:

- a. Some of these are institutional and may reflect long standing constitutional practice. In particular, the legislative and parliamentary framework within which the cash (and debt) management function operates, and the extent of delegation from parliament or congress, will vary. The mandate to borrow, short- or long-term, is usually restricted, either by a borrowing limit expressed in net or gross terms, or by a clause defining the purpose of the borrowing. The most common structure is that the parliament sets an annual net borrowing limit in connection with the approval of the fiscal budget.
- b. There are differences in the degree of independence of the central bank from the ministry of finance, and the associated separation between the debt and cash management functions and monetary policy. This separation is most marked in the UK and Eurozone countries. The institutional arrangements needed to secure the policy integration in cash and debt management vary. But increasingly the emphasis is on offices with combined debt and cash management responsibilities, and some (not full) operational and managerial separation from the rest of ministry of finance. This helps to improve transparency and concentrate expertise.
- c. Countries differ in how closely they try to hit a target balance. The UK and most Eurozone countries have a low target balance which they mostly manage to meet within agreed tolerances. The US Treasury has a target range, but it is quite wide. Australia has no target, but the debt office (AOFM) tries to moderate the fluctuation in its balance.
- d. The corollary is differences in how central banks take account of government's net cash flow in their monetary policy operations. Where the ministry of finance or debt office is unable, or does not seek, to hit a target balance, the residual must be taken into account by the central bank – acting on its own information flows or those from the ministry of finance. Although Treasury bills have a cash (and debt) management function, they are also relevant to monetary policy operations; and decisions about the volume of issuance will require consultation with the central bank where the central bank is required to take account of fluctuations in the government's position in its monetary policy operations. Where there is little attempt at short-term cash flow smoothing by the ministry of finance, Treasury bill issuance is in effect determined by the central bank (as in Canada).

Cash Management Models

47. The similarities and differences between these countries can be grouped differently, in terms of cash management models. As already indicated, there

are really two main groups: the Eurozone countries, the UK and Sweden where the ministry of finance (or debt office) seeks to maintain a low stable balance at the central bank; and others who comprise a spectrum. Within the first category there are differences: in the definition of the target balance (depending for example whether provinces or municipalities hold their balances at the central bank); in the modes of interaction with the market (secured or unsecured lending and borrowing; the use of auctions or bilateral transactions; emphasis on Treasury bills, commercial paper or bank credit; reliance on the interbank or repo market etc²⁰); and in whether interventions are biased to borrowing or lending cash on the day (if the money market yield curve is upward sloping it may be more cost effective to bias towards being short of cash at the start of the day, but caution would suggest a preference for lending not borrowing on the day). The formulation of any averaging requirement placed by the monetary authority on commercial banks' deposits at the central bank may also make a difference to the government cash managers. An averaging requirement spread over a long period, as in the Eurozone, lessens the incentives on commercial banks to square their position in the market each day – making it more difficult for the cash manager to do the same.

48. The second group is more varied, but there are three sub-groups:
- a. Where the ministry of finance or debt office seeks to maintain a minimum balance at the central bank, and varies the Treasury bill issue to “rough tune”, or modulate the fluctuations in, the balance. The central bank takes account of the residual balance in its monetary policy operations. This is the model in Australia, but is in effect adopted by a number of other countries, e.g. Brazil.
 - b. In the US, tax inflows to government are held in the banking system, until the Federal Reserve requests transfer to the Treasury's account at the Federal Reserve. In this way the Fed is usually able to maintain balances within its target range of \$5-7 billion. These deposits are collateralised, and in economic terms the arrangement is not dissimilar from an active cash manager lending short term surpluses back to the banking sector.
 - c. In some countries the central bank takes direct responsibility for managing the net government cash flow, integrating it with its own monetary policy operations. Canada is perhaps the leading example of this, although the UK operated with this system until the transfer of responsibility for cash management to the UK Debt Management Office in 2000.

²⁰ There is advantage in using a wide range of both counterparties and instruments to diversify risk and add flexibility.

DEVELOPMENTAL ISSUES

The Phases of Development

49. The analysis of international practice above has focussed on the cash management function in developed countries. This section notes some issues that arise in emerging countries who are likely to be more constrained in terms of the availability of systems, resources, and skills; and where the design of government functions need to take account of the local institutional and governance context.

50. From the analysis above, it is possible to identify four separate phases in the development of a ministry of finance's cash management function:

- a. **Phase 1: Single treasury account** – the integration of government accounts, and the sweeping of overnight balances into a single account held by the ministry of finance at the central bank.
- b. **Phase 2: Forecasting capability** – the development of a capability within the ministry of finance to monitor and forecast flows in and out of government – i.e. changes in the balances held by the ministry at the central bank. Related to this, is the institutional location of the cash management function.
- c. **Phase 3: Rough tuning** – the issue of Treasury bills (or other short-term borrowing instruments) to a pattern deliberately designed to offset the impact on the banking sector of net cash flows in and out of government, i.e. to smooth the change in ministry of finance's balance at the central bank. Management of surplus balances that are longer-term (more than a few weeks) or structural also comes under this heading, for which risk parameters need to be defined. In principle all government balances at the central bank should be brought within the targeting process.
- d. **Phase 4: Fine tuning** – more active policies, drawing on a wider range of instruments or institutional options, to smooth more fully short-term changes in the ministry of finance's balance at the central bank.

51. These phases are descriptive, not necessarily prescriptive; they are used here to identify some of the issues that arise in those countries that are seeking to upgrade their functions. In particular, moving from phase 3 to phase 4 is especially challenging and the costs and benefits will need to be carefully assessed in the local context.

52. The phases of development need not necessarily follow each other in sequence. Nor are there sharp discontinuities between them. Rough tuning requires a forecasting capability; the stronger the capability, the improved ability to rough tune; and that can develop gradually into a more active approach to the handling of short term surpluses, initially on a monthly or

weekly, rather than daily, basis; and so on. Similarly, it is possible to tackle many of the required capabilities, and the associated systems investment and training in parallel. But there are some dependencies: in particular it is development of a single treasury account that both squeezes excess balances out of the government system and gives the ministry of finance or central bank an aggregate to be managed; any management of that aggregate, even of a limited kind, needs some forecasting capability.

Issues that Arise: Phase 1

53. The creation of a single treasury account is a major undertaking for those countries that have traditionally dispersed cash to departments, and left them responsible for its management, with the centre maintaining control of spending against an approved budget but not of cash. Integration can operate variously through:

- a. Requiring all departments to hold balances at the central bank, which then integrates them into a single account.
- b. Requiring the commercial banks to sweep any departmental balances to the central bank overnight. This might be accompanied by restrictions on the number of commercial banks used or require links between the relevant banks for overnight netting.
- c. Ensuring that the number of separate government accounts is kept to a minimum to maximise netting of transactions balances.
- d. Developing payment systems that avoid any pre-funding of departments (e.g. by giving them expenditure approvals that are in effect a means of payment – that are then cleared between the commercial bank and the central bank).

54. The challenge of account integration is primarily one of project management: identifying the preferred option, re-engineering systems, integrating IT and other investment, training users and so on. It may be far from straightforward particularly if different departments have developed separate accounting systems or if there is a history of strong departments and a relatively weak ministry of finance or treasury. But three particular issues should be addressed.

55. First is the need to identify all the relevant accounts. In a dispersed and fragmented environment with weak governance structures, there may have developed extra-budgetary funds outside the ministry of finance's control and other informal arrangements that, for example, allow short term cash movements between departments and public corporations. Officials who are used both to authorising and making payments may be reluctant to lose some of their influence. Although the monetary impact of such arrangements may be benign, they can expose the government to interest and credit risk, as well as fraud, leaving aside the debilitating effect of the leverage that they give to competing power structures.

56. Potentially more important from an economic perspective are balances at the central bank held by non-central government bodies. These can include parts of general government, such as provinces or municipalities, and non-governmental organisations, such as public corporations.²¹ The relationship between such bodies and the centre will reflect political and constitutional history. There may also be good reasons of control or risk management for requiring such balances to be held at the central bank. But it complicates active cash management, where the objective is to keep the aggregate public sector balance at the central bank to a target level. To be successful the monitoring and forecasting mechanisms should extend to all these balances, although in practice some may be sufficiently small, predictable or stable to be ignored as systems are being developed.

57. The third design issue of importance is to create an incentive structure for government departments that encourages them to economise on the use of cash. For countries with well developed administrative and governance structures, rules and guidance may be sufficient, although in others legislation or administrative decree may be required. In any event, there will be questions about the priority that departments are prepared to attach to functions that are peripheral to their main objectives. Incentive schemes can change behaviour, but they do have to be constructed carefully. In Australia, the reforms of 1999 gave departments and agencies an incentive to make better decisions about the timing of expenditure and improve collection of departmental receipts by paying interest on departmental and agency balances. But concerns grew at the centre of government that the arrangements were too generous and operated to the disadvantage of the government as a whole, giving an incentive to agencies draw down in advance of need and diverting effort from core responsibilities. As a result the scheme was modified and since mid 2003 interest is no longer paid on short-term balances.

58. In the UK, the expenditure planning and control arrangements operate to penalise departments who draw cash in advance of need. Departments' agreed expenditure provision is defined in accrual terms and includes an allowance for capital charges. But any unplanned increase in departments' working or physical capital adds to the charges, scoring against the agreed budget and potentially reducing their expenditure on other goods and services. There is a similar scheme in New Zealand. Such arrangements may be more difficult in less developed administrative environments where there is much to be said of keeping structures simple; and it may be that administrative control through close monitoring by the budget execution function in the ministry of finance is the only way to ensure that cash is not released in advance of need.

²¹ In France it also includes overseas territories.

Issues that Arise: Phase 2

59. Cash managers need detailed forecasts of government cash flows – ideally on a day by day basis for some months ahead – and that in turn will require detailed monitoring information so that forecasts for the period immediately ahead can be updated. Governments will have a forecasting capability for budget monitoring and control purposes, but this may be rather more coarse grained and longer term than that ideally needed by the cash managers. Moreover, cash management will require integration of below-the-line transactions – debt sales and redemptions, purchase and sales of securities and so on – with tax and expenditure information.

60. There is no single international best practice on the development of cash flow forecasts. Nor are there any quick analytical solutions. Good forecasting relies instead on a mixture of historical patterns, the experience of the forecasters and good information networks. The typical approach is outlined in Box 6.

Box 6: Building Cashflow Forecasts

The objective is to develop daily forecasts of all government flows in and out of the treasury account for the period ahead. This period should extend for at least one month, although should ideally be at least 3 months (some governments – e.g. France – project daily flows for the period of one year ahead). Three months relates to the time period within which offsetting action may usefully be taken – e.g. by adjustment to the bond issuance program or by the issue of bills. In any event the forecasts should be updated frequently as the relevant day approaches.

The design of an effective forecasting and monitoring capability is likely to be built around the following elements:

- A database of actual daily cash flows, as a means of identifying patterns and for monitoring. Actual cash flows should be closely tracked against departments' profiles and major divergences investigated, as part of improving the forecasting processes.
- Information flow to the cash managers from revenue and spending departments. The preparation of short-term cash flow forecasts cannot effectively be done only at the centre, i.e. ignoring the knowledge of those departments who are closer to the interface between government and other sectors. Departments are also best placed to supply information when actual flows are diverging from budget.
- A network of contacts, voice and electronic, with the main spending and revenue departments which would be used both to develop forecasts and current and prospective flows.

In integrating the information into a daily forecast, the cash managers will know precisely the timing of some major cash flows – e.g. bond redemptions – for which data should be available directly. Some payments will have a regular monthly pattern (e.g. payment of salaries or some transfers to individuals or to lower levels of government); and for others there may be an historical pattern. For example, major payments of corporation tax may be distributed around the due date in a ratio that tends to repeat from year to year.

This type of process does not need sophisticated modelling techniques. The patterns in cash flows can be examined, e.g. by plotting individual time series on a year-over-year basis to reveal behaviours that are repeated every year. Many government expenditure and receipt data, and movements of cash balances, may exhibit strong and predictable seasonal variations. Equally important is:

- Identifying the key people at working level in the selected revenue and spending departments who will be able to supply the relevant information.
- Setting up formal requirements to ensure that profiles are supplied and updated.
- Backing these by more informal arrangements whereby the cash managers are given early notice of any major changes. In many countries these changes will need to be communicated not only in advance of the day being studied but on the day itself – to ensure that any offsetting action can be taken, whether by the cash managers or the central bank.

There will be additional problems in geographically large countries, spread across different time zones, where responsibility for e.g. revenue collection may be dispersed and government operates through many different inadequately integrated bank accounts. Where taxes are paid locally, head office needs to know the aggregate impact every bit as rapidly as cheques are cleared through the banking system to the ministry of finance's account at the central bank. There is no easy answer to this kind of problem other than to focus on those sums that are large in size, most variable and most unpredictable. In the UK for example, more detailed information is collected from just 15 departments who together account for over 80% of government spending.

61. In those countries where the government is not yet equipped to hit a daily target balance at the central bank, there is usually a process through which either the central bank and ministry of finance share each other's forecasts or they combine their resources to produce agreed forecasts. That is the best way of bringing to bear the separate information flows – on the fiscal side and on the liquidity side.

62. The institutional location of the budget forecasting process will depend on the local context; but there are risks with any approach. Forecasting must obviously not be seen as an add-on or lower priority by managers whose main objectives lie elsewhere.²² There are a number of approaches:

- a. Within the ministry of finance, with the output being passed to the cash managers, in the debt office or elsewhere. The cash managers may then add the below-the-line information, particularly insofar as that is generated by debt managers. Alternatively the cash managers may themselves set up the network of contacts with major spending and revenue departments to build up the daily cash flow forecast and have immediate access to intelligence of divergences, as in France and Australia.
- b. If located within the ministry of finance, although the daily forecasts may most naturally be driven off budget planning and forecasting, they may instead be linked with the macro-economic or budget execution functions; or be part of an accounting function.

63. A bigger issue is the location of the cash management function itself, and the need not to confuse it with other objectives. The case was made above for the close integration of debt management and cash management. But this has tended not to be historical practice in developing countries where for good reasons the initial administrative structures have been more about operational control, and the management of fraud and propriety, rather than economic cost-effectiveness. Problems can arise in particular if budget execution is confused with cash management. If budget approval is linked to cash flow, expenditure planning is undermined and the cost-effectiveness of spending likely to be damaged. Other problems can arise if public entities are forced to lend cash back to deficit bodies within government; if the cash is in effect taken off the market that can damage the liquidity of a developing market and the usefulness of interest rates as a monetary policy signal or instrument. The experience and skills of staff with a background in budget execution will often be different from those of debt and cash managers which at the least creates a managerial complication when functions are integrated.

Issues that Arise: Phase 3

64. Treasury bills have a threefold role: as an instrument of debt management, of cash management and of monetary policy. There is no reason why these roles should be incompatible; but it does involve co-ordination between respective institutions.

²² Partly to cope with just this problem, the UK has introduced a system of incentives and penalties to encourage good forecasting. Departments with a poor forecasting record have penalties deducted from their expenditure provision, which are in effect recycled to those with a better record. The penalties are geared to the extra market cost that the cash managers face in having to borrow or lend at short notice as a result of forecasting errors.

65. Cash management is focussed on a much shorter period than debt management. Increases in the bill stock over the course of a financial year can be consistent with very sharp movements in the stock within the year, providing the bill market is fairly liquid and there is good underlying demand from financial institutions. More pertinent is the potential strain between cash management and monetary policy. Insofar as the government is one of the main contributors to the liquidity that may need to be mopped up by the issuance of bills, there will be a tendency for the needs of cash management and monetary policy to go hand in hand. But this may not always be the case; the central bank may be keen to issue bills to mop up e.g. currency inflows at a time when the government has no need of the cash.

66. In some countries this problem has been avoided by the issuance of bills by the central bank on their own balance sheet. But the use of different but similar instruments for monetary policy and cash management purposes risks market fragmentation. The full liquidity and cost benefits of a larger bill market would be lost. An alternative approach is for the ministry of finance to issue additional Treasury bills, as an add-on to the normal auction, but sterilise the proceeds by holding them in a separate account at the central bank, remunerated at the discount rate set in the bill auction. This arrangement, and amounts involved in each auction, must be transparent to the market; and the Treasury bills issued at the request of the central bank must be identical in all respects with the rest of the stock of Treasury bills. But, subject to that it should preserve the monetary policy operational options of the central bank and avoid the risk of market fragmentation.²³

67. As the cash managers' capabilities develop and they become more active, moving from phase 3 to phase 4, the central bank may still have concerns that their operations cut across the bank's monetary policy operations in other respects. In particular, the central bank will not want to see the market trying to second guess the authorities' intentions from cash management decisions; or confused by apparently different market signals. The concern may be purely operational, e.g. that the cash managers have the necessary competence to avoid bidding up the price of collateral at exactly the same time as the central bank is lending to the market. Such issues are resolvable by policy transparency, a clear statement of responsibilities, agreements about the daily or weekly operational timetable and so on. But they do have to be resolved; tension between the central bank and ministry of finance is dangerous to policy effectiveness.

68. Arguments about respective roles and competence may also surface in the management of longer term or structural surpluses. But this should be more straightforward than cash management. The surplus cash has to be identified; and a policy defined in relation to the objectives for the

²³ In the UK, the DMO and the Bank of England have agreed to such an arrangement. A broadly similar scheme operated within Mexico during the 1990s. Such arrangements are not always plain sailing; see for example, IMF & World Bank (2001), page 81. See also Thomas Glaessner and Jeppe Ladekarl (2001).

government's balance sheet as a whole. Whether the cash managers or the central bank are the government's agents should then be a question of competence, and how far the management of the balances can realistically be ring fenced.

Issues that Arise: Phase 4

69. More active cash management, aimed at smoothing more fully short-term changes in the ministry of finance's balance at the central bank, is much more challenging. It self-evidently requires:

- a. A flexible and developed money market.
- b. Staff who are capable of trading in the financial markets, within a strong management framework
- c. The necessary transactions processing and other IT systems.
- d. Much more highly developed credit risk and operational risk management systems than are needed for debt management – both because of the extra number of transactions, and because of the greater exposure to counterparties and (depending on the collateral taken) to issuers.
- e. An efficient local settlement system and related infrastructure.

70. This is a tall order in a developed country, let alone one with scarce administrative and financial resources and a still developing money market. These scarcities may be exacerbated if the ministry of finance in effect replicates systems already in the central bank and competes for some of the same skilled staff. All this argues for caution in moving to a complete separation between monetary policy and cash management where the government cash managers target – and can be expected to meet – a stable balance at the central bank. Instead, there is a case for developing expertise over time; for example, the ministry of finance could increasingly take a role:

- a. In providing forecasts of the government's position to the central bank as its forecasting capability develops.
- b. In reducing the fluctuations in its position; initially by the issuance of Treasury bills, and managing directly its excess current balances, and only subsequently by more active management.

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