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TECHNICAL NOTES AND MANUALS

Government Cash Management: Relationship between the Treasury and the Central Bank

Mario Pessoa and Mike Williams

This technical note and manual (TNM) addresses the following main issues:

- Interaction between treasury cash management and monetary policy operations within the wider context of the respective economic responsibilities of the ministry of finance and the central bank.
- Institutional arrangements for an effective relationship between the treasury and the central bank.
- Contractual arrangements between the treasury and the central bank for the provision of banking and other services.

This document will be particularly relevant to developing countries that are reforming cash management operations or contemplating more active cash management; or where there are operational policy differences between the treasury and the central bank.

I. The Importance of Formalizing the Relationship between the Treasury and the Central Bank for better Government Cash Management[1]

The relationship between the treasury[2] and the central bank is at the heart of financial policies. This relationship operates at different levels. The coherence of monetary policy with government financing policies (along with fiscal policy) underpins successful macroeconomic procedures. But the management of the government's debt and cash interacts directly with monetary policy operations. As the sophistication of the government's own operations develops—particularly in relation to cash management—some of these interactions intensify. Both institutions also interact with the banking system, variously as users of the banks' transaction

[1]This note was prepared at the request of the Latin American Treasury Forum (FOTEGAL) and has benefited from the helpful contributions of J. Mueller, R. Allen, J. Gardner, C. de Albuquerque, M. Anthony, K. Eckhold, G. Pedras, and R. Jiménez.

[2]References to the "treasury" throughout this TNM are to the function, not to any particular organizational model, of which there is a variety.

services, or as financial counterparty (and potentially also as owner or regulator). At the same time, the central bank is the treasury's banker and provides a range of services at the operational level, such as managing the treasury single account (TSA), and acting as fiscal agent (running auctions), settlement agent, or bond registrar.

This relationship must therefore be handled with some thought. There will be differences of policy. The treasury and the central bank separately manage different parts of the overall government sector's balance sheet, and they will have different priorities and perceptions of risk. Without adequate governance and planning mechanisms, and indeed, goodwill on both sides, there will be risks of conflicting policy actions and wider economic damage. A framework is vital to policy understanding, operational coordination, and service provision on issues ranging from the high-level coordination of fiscal, financing, and monetary policies, to the management of Treasury bill (T-bill) auctions and the government's banking arrangements.

This note addresses these issues, and how best to manage the relationship in order to further the objectives of cash (and debt) management on the one hand, and monetary policy (and reserves management) on the other. There is a particular focus on the interaction between cash management and monetary policy operations, as recent reforms have changed both respective responsibilities and the policy approach. After a summary of the modern cash management framework, within the wider context of the greater operational separation of monetary policy, fiscal policy, and debt and cash management policy (Section II), the paper outlines the reform process and its implications for the treasury, central bank, and commercial banks (Section III). After a fuller discussion of some specific policy challenges (Section IV), the manual considers how the interaction should be institutionally and administratively structured (Section V). Section VI discusses service level agreements (SLAs) and Section VII concludes. The note is particularly relevant for developing countries.

II. The Modern Framework

The wider context is the high-level policy relationship between the ministry of finance and the central bank. One of the lessons from the financial crises of the 1980s and 1990s has been that debt management, and fiscal and monetary policy should be treated as separate arms of macroeconomic policy with specific objectives. There has to be coherence in the overall policy mix, as outlined in Box 1, but the use of different instruments to meet different objectives facilitates greater transparency and predictability, enhancing the credibility and effectiveness of policy. In turn, credible policies produce superior overall outcomes compared to less credible ones. The weak links between debt management choices (that is, the choice of instrument) and monetary conditions or liquidity, and between monetary conditions and inflation, allow for a greater separation between monetary policy operations and the management of debt and cash. For most practical purposes, control over short-term

Box 1: The Importance of High-Level Policy Coherence

The effectiveness of policy decentralization and the credibility of the respective authorities hinges on the coherence of the overall policy mix. Many countries emphasize the separation of operational roles between the treasury and the central bank. However, completely separate policies only work if there are separate policy instruments that are independent of each other, which may not be the case in emerging market countries. Thus, financing plans may put an undue strain on domestic monetary policy operations, or the introduction of a new inflation-linked bond may have implications for monetary policy. A more specific example, discussed further below, is a central bank's issuance of securities in order to absorb liquidity in the money market. The mode in which central banks accomplish this has implications for the securities market and for the governments' own sales of short-term securities. Unless executed in a manner sensitive to respective objectives, there is a danger of weakening the credibility of the government's ability to achieve its policy goals.

Debt/cash management and monetary policy should therefore be integrated into a broader macroeconomic framework of analysis that ensures a consistent policy mix. Different countries coordinate their policies in different ways. Some countries have fiscal responsibility laws that include target or ceiling deficits and debt levels. Many countries have internal public debt committees (PDCs), or similar arrangements, which facilitate coordination. These bodies bring together representatives of the main macroeconomic policy functions to ensure that debt management decisions, and, more generally, asset-liability decisions, are properly embedded in wider macroeconomic policies. The role of a PDC or other institutional mechanism is discussed further below. It should be stressed, however, that the focus of the interaction discussed here is high-level and strategic. It should not extend to short-term policy decisions, such as treasury involvement in changes in the central bank's policy rate, or in the central bank's involvement in individual debt issuance decisions. In these cases, operational independence is important.

rates is sufficient for meeting the central bank's objectives, although some central banks also influence the monetary aggregates more directly.[3]

A key feature of the modern framework is therefore the independence of the central bank with respect to monetary policy. However, the precise nature of this independence varies and is determined by national constitutional structures and practices. In most countries, governments retain some responsibilities, such as for the appointment of board or monetary policy committee members, and possibly a theoretical override.

[3]For a summary of the background history and past assessments, see Nunes (1999) and Turner (2011). Blommestein and Turner (2011) note that the financial and economic crisis has also led to some blurring of the line between public debt management and monetary policy in developed countries. Debt management offices (DMOs) have operated more extensively at the short end of the yield curve, and central banks have been increasingly active in the same long government bond markets as DMOs. Even in developed markets therefore there cannot be an unqualified separation of debt management and monetary policy operations. On the importance of policy coherence, and the role of an asset-liability management framework in securing it, see Togo (2007).

This greater policy separation has been paralleled over the last two decades by a progressive reform of the respective operational roles of the treasury and the central bank. At the risk of some oversimplification, under the traditional model:

- **The treasury's main role was as government payment office**. It either managed all government payments centrally, or it would release cash to spending ministries, departments, and agencies (MDAs), usually to their bank accounts in the central bank or commercial banks. The TSA was incomplete, with government agencies often holding many accounts both in central and commercial banks. Management of cash was essentially passive. The treasury would monitor cash balances, maintaining a cash buffer to handle both volatility and unanticipated outflows. If necessary, it would ration cash by restraining or slowing expenditures or delaying bill payments, often causing arrears to accumulate.
- **The central bank had a number of roles**. It would manage domestic monetary conditions, drawing on a range of tools (the setting of policy interest rates, open market operations [OMOs], reserve ratios, etc.). In so doing, it sought to take account of the government's own cash flows. As fiscal agent for the government, it would not only run bond and bill auctions, but it would also significantly influence issuance and financing policies (a reflection of the treasury's limited capacity) with government debt often issued with a view to both the government's cash requirements, and the bank's liquidity management purposes. In practice, this tended to entail the issuance of bonds for financing budget deficits, and of T-bills for liquidity purposes and the financing of short-term cash needs.[4] The central bank would also provide a range of services to the government as banker (which might extend to being cashier, processor of payments, and lender of last resort), and variously as settlement agent, supplier of registry services, and so on. The central bank would retain wider responsibilities for the financial system, notably as the manager or regulator of the payment (and settlement) systems, overseer of the interbank and money markets, and in many cases prudential regulator of the commercial banks and other financial institutions. In some countries, the central bank, in effect, had some budget execution responsibilities through its control over the MDAs' bank accounts.
- **The commercial banks provided banking services to MDAs.** In the process, they held substantial government cash balances (both demand and term deposits).

This traditional approach has had the following consequences:

- **There could be excess government liquidity.** Idle balances in the banking sector are costly to the government and profitable for the banking sector. Because balances usually have not been remunerated, or have been remunerated at a lower rate than the bor-

[4]In some countries, golden rules were established to allow new debt only in order to finance capital investment. T-bills were to be used only to cover temporary gaps between the receipts of revenues and the outflow of expenditures during the month.

rowing needed to finance them, there typically has been an implicit subsidy from the government. The lack of a market-related interest rate also gives both the government and banks the wrong incentives.

- **Government cash flows have been a major cause of short-term volatility in money markets and bank liquidity.** This has complicated both commercial banks' liquidity management and the central bank's monetary policy operations. The need to mop up excess liquidity in the banking system can be costly to the central bank.
- **The central bank's implementation of government cash and debt management can conflict with its monetary policy goals and operations.** This has been the case particularly in relation to interest rate setting and signaling.[5]
- **Central bank lending to the government increases the monetary base.** This has potential consequences for inflation.

In consequence, the modern institutional framework has a clear separation of roles:

- **The central bank focuses on monetary policy**. One result of the central bank's greater independence is that its objectives have narrowed, with the emphasis being on the control of inflation. It may still provide services to the government, such as managing the TSA, although transaction-banking services increasingly tend to be left to commercial banks.[6] Where it is still a fiscal agent, the central bank's role has been more clearly that of an agent, and not as a driver of policy.
- **The treasury becomes a fully-fledged function**.[7] It pools all government liquidity, takes full responsibility for debt management, and manages cash actively. There is a spectrum of practices, but effective cash management facilitates unrestricted execution of the budget. If executed well, it lowers average cash balances, thereby reducing costs, and moderates money market volatility. MDAs may manage their own expenditures, but the treasury manages the government's overall cash through the TSA.
- **The banking sector provides banking services to the treasury and MDAs, as required, on a transparently-costed basis**. This should be done through competitively tendered minimum standard SLAs. The role of the banks depends on the degree to which government payment processing is centralized in the treasury, or dispersed to MDAs. In more decentralized payment systems, there is more room for commercial banks to provide specific services, such as the placement of short-term excess cash in a fixed-term investment.

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[5]For example, the higher interest rates needed to meet monetary policy objectives may conflict with the objective to hold down the cost of debt servicing. Or, the market may see the coupons set on new debt issues as a signal of interest rate intentions.

[6]Central banks that have a retail-banking role are often reluctant to expand; it is costly and rests beyond their core responsibilities; the commercial banks with wider networks are better placed to realize economies of scale.

[7]Institutional arrangements will vary. As stressed above, the focus here on treasury functions (primarily budget execution and cash management) is independent of whether they lie in a unit denominated "treasury" or an integrated "debt and cash management office."

III. Development of a Modern Treasury System

A. Governmental Requirements

The requirements of a modern treasury management function have been well understood.[8] These should include:

- **A comprehensive TSA.** It consolidates all government cash balances into a single account, usually and preferably at the central bank.[9] All government revenues are transferred immediately upon receipt to the TSA, including so-called own-revenues that are received by MDAs.
- **An efficient government payments system.** It may either be centralized through a treasury-managed TSA, or decentralized to MDAs, as summarized in Box 2. If it is decentralized, all MDA bank accounts should be connected to the TSA and zero-balanced overnight, with any cash balances swept back to the TSA. Commercial banks must have the capacity to perform sweeping operations with the central bank, and provide electronic payments and reconciliation services.
- **A linked treasury-managed integrated financial management information system (IFMIS)**. This allows for the management, monitoring, control, reconciliation, accounting, and reporting of budget execution and bank account balances, in particular the TSA.
- **A cash flow forecasting system with the ability to make accurate projections of short-term cash inflows and outflows.** The separation between the permission to spend and actual cash payments means that flows through the TSA must be the focus of the forecast. Good cash flow forecasts underpin active cash management. Ideally, forecasts of daily cash flows across the TSA should be available for at least three months ahead on a rolling basis, including at the end of the fiscal year. This must be coupled with an ability to monitor actual changes in the aggregate balance of the TSA top account, preferably in as close to real time as possible.
- **Active cash management.** This includes the use of short-term financial instruments, both on the liability and asset sides (T-bills, repos and reverse repos,[10] collateralized term deposits, etc.), to help manage balances and timing mismatches.[11] By both ensuring the availability of cash and avoiding unnecessary idle cash balances, net borrowing costs are minimized. Lower volatility of the government's cash balance also facilitates the

[8]See, for example, Lienert (2009).

[9]For a more detailed description of requirements and options, see Pattanayak and Fainboim (2011).

[10]A repo (short for sale and repurchase agreement) is the sale of securities tied to an agreement to buy them back later. A reverse repo is the purchase of securities tied to an agreement to sell them back later. A repo is best thought of as a collateralized loan. Thus, a government cash manager may decide to borrow by way of repo, raising cash against a temporary transfer of assets. Conversely, a reverse repo may best be thought of as a collateralized investment. For repo transactions, government debt and cash managers almost invariably use or require T-bills or T-bonds as collateral assets. Repos are often also a central bank's chosen instrument by for monetary policy operations.

[11]Active cash management and its interaction with other policies are described more fully in Williams (2010).

Box 2: The TSA and Payment Systems

The TSA can work with a variety of payment systems that are centralized, decentralized, or hybrid, whether in relation to approval, transaction processing, or accounting control. There is, in effect, a two-by-two matrix, as shown below.

Processing Payments: the Options		
	Central Bank responsible for banking operations	Commercial banks responsible for banking operations
Treasury responsible for payment processing		
Spending units responsible for payment processing		

The devolution of payment responsibility tends to be associated with the use of commercial banks to manage transactions. Most countries fall either into the top left cell of the matrix (such as France, Russia) or the bottom right (UK, Australia), although there are other examples (South Africa is mostly in the bottom left cell). Several nations have mixed arrangements (China, India, USA). Centralization of payments is relatively more common in smaller or less developed countries, often as part of reform processes.

Centralized transaction processing implies a concentration of authority in the treasury to process transactions, and to access and operate the TSA. The treasury (in some countries with a network of regional treasuries, or with treasury officials embedded in ministries) may approve, as well as process, payments. In other cases (for example, Belarus, Argentina, and Georgia), the MDAs may be responsible and accountable for payments, although the treasury will process the payments.

In the case of decentralized payment and accounting systems, each MDA processes its own transactions and directly operates each respective claim on cash. The key requirement under arrangements that use commercial banks is that any cash balances left with the banking system at the end of the day should be swept back into the TSA; any transactional accounts should be opened as zero-balance accounts. There is a separation of cash from the permission to spend, and cash does not leave the TSA until the payment is finally discharged. The requirements apply to accounts that are used for disbursements or for the collection of government revenues. Ultimately, all revenues are deposited in the TSA.

central bank's monetary policy task.[12] As capabilities develop, it is possible to target a low and stable TSA balance, which should be remunerated (discussed below).

There are a number of institutional and market underpinnings to these characteristics of modern cash management:

[12]Changes in the government's cash balance at the central bank (changes in the main operational TSA account) are usually the largest autonomous influence on a domestic banking system's liquidity (credit institutions' net holdings of deposits at the central bank). If the government is able to moderate the fluctuations in balances at the central bank, then the central bank's domestic liquidity management task is reduced accordingly.

- Treasury capacities (systems, staffing) and organizational structures often need to be substantially enhanced, not least to support financial transactions.
- **New coordination structures are needed to cover**:
  —Information sharing between the cash managers, revenue-collecting agencies, and spending MDAs (and any relevant ministry branch offices), in relation to payment and revenue flows, and cash flow forecasting.
  —The close coordination (or integration) of debt and cash management operations.
  —Agreements between the treasury and the central bank on information flows, respective responsibilities, and any operational interactions, including the development of the financial markets.
- **Financial markets require a certain level of development and liquidity if cash is to be managed actively.** A reasonably liquid money market is especially important.

These sound practice elements apply equally to developed and to developing countries. However, the development of active cash management in low-income countries is inevitably constrained by thin financial markets and, in particular, poor liquidity in the money market. In those cases, reform efforts tend to focus on the TSA and developing cash flow forecasts. Many emerging market and middle-income countries, however, are increasingly using T-bills or bank deposits to smooth cash flows, building on improved forecasts.

B. Implications for the Central Bank

The development of modern treasury functions and, in particular, improvements in the government's cash management have implications for the central bank. In the first place, the modern framework will be underpinned by the central bank having the operational responsibility for the conduct of monetary policy. This is a reform that, in most cases, will have predated the development of cash management. The precise nature of this responsibility varies and is determined by specific legal frameworks and practices.

As a government begins improving its cash management, there will be a number of implications for the central bank's operations. Initially, as the TSA develops and cash is repatriated from MDAs' balances in commercial banks to the TSA, liquidity will move away from the banking system. This is often helpful to the central bank, since the drain of liquidity will improve its ability to control domestic monetary conditions over this period. Moreover, if the government has not been receiving a full market rate on its cash balances, the implicit subsidy, in essence, will be removed from the commercial banks. The withdrawal of deposits from banks will, of course, also have implications for the banks, as discussed in the next Section.

As more active cash management develops, there may be implications for monetary policy management. As the government starts to manage any surplus cash by transferring it out of the central bank—whether by spending, by retiring domestic debt, or through short-term investment in the banking system—there will be a monetary easing, other things being equal.

A better cash plan will allow the treasury to hold smaller cash buffers to insure against an unexpected shortage of cash.[13] Additionally, if the balances are unremunerated, the central bank will lose the benefit of cheap deposits. There will be a further negative impact on the central bank's profits if it is required to drain cash to offset the monetary easing, either by issuing its own bills or borrowing through repo.

In the medium term, however, there will be a clear benefit to the central bank as the treasury improves the quality of the cash plan projections and becomes better able to hold its cash balances at a low and stable level. This reflects the fact that the government no longer exerts a significant influence on domestic monetary conditions. The moderation of fluctuations in the government deposits in the central bank will provide a more stable environment for the central bank's monetary policy operations. There will remain other autonomous influences on domestic liquidity—such as the change in the public's demand for bank notes and net foreign currency inflows—but these are, respectively, more predictable or more directly controlled by the central bank. Even when the treasury is not able to smooth cash balances completely, the central bank should benefit from an improved flow of forecast information from the treasury on future changes in the TSA.

The central bank may continue to act as fiscal agent for the conduct of auctions. However, as the number of money market transactions increases, there is a risk of confusion between the central bank's and the treasury's operations, particularly where the same group of market counterparties is involved. In practice, most active cash managers develop their own front office capabilities, such as directly managing the issuance of T-bills and T-bonds, conducting auctions, and promoting an active relationship with market operators. In any event, it is important that there is no misunderstanding in the market as to which institution is responsible for which activity, and their respective aims.

There needs to be clarity concerning respective policy responsibilities. This entails that the government cash managers usually have no contact with the central bank regarding interest rate decisions or prospective interest rate changes. Nor should they receive from within the government any advance notice of policy statements or data releases that might affect the market's short-term interest rate expectations.

As to policy cooperation, the development of the domestic financial market, particularly the money market, is an especially important area of cooperation between the treasury and the central bank. A well-functioning money market both supports the conduct of monetary control through market-based instruments (including repos), and facilitates a more active management of the government's short-term cash flows (see Box 3).

[13]The buffer will still need to take account of market volatility and rollover risk, as well as potential errors in cash flow forecasts. It can also be a useful signal to the market of the treasury's preparedness.

Box 3: The Importance of the Money Market

A functioning money market, usually defined as transactions across all instruments of less than one year, is the cornerstone of a competitive and efficient system of market-based financial intermediation. A country's money market must be operating well before a government bond market (including an efficient primary market and a liquid secondary market) can be fully developed. A well-functioning money market plays several important roles: (i) it facilitates the conduct of monetary policy through market-based instruments, anchoring the short end of the yield curve and supporting the development of the foreign exchange market; (ii) it provides the authorities with better signals of market expectations; (iii) it allows banks and their customers to better manage their liquidity; and (iv) it strengthens competition in financial intermediation.

The development of a well-performing money market, however, requires three key conditions:[1]

- Market-based methods of implementing monetary policy.
- Adequate management systems that provide reliable estimates of future government cash flows and forecasts of aggregate bank liquidity.
- The presence of banks and other financial institutions with incentives to develop efficient liquidity and risk management services.

An efficient money market stimulates the development of more active debt securities markets, by lowering liquidity risk premiums and enabling investors to hold larger portfolios of longer-term instruments. It should evolve parallel to the government securities market. Access to liquidity and securities, with a well-functioning repo market and securities lending arrangement, is important for proper secondary trading activities. A well-developed money market also helps promote private issuance of negotiable certificates of deposit, promissory notes, and commercial papers. As in the case of government debt, active markets in short-term instruments support the development of longer-term corporate bond markets.

[1]World Bank (2007). The authors also note that the development of an active money market might be held back by the failure to adopt a master repo agreement, netting and close-out mechanisms, and from the lack of transparency concerning money market indices and activity volumes.

In order to provide clarity and avoid market disruptions relating to operations, tenders associated with the central bank's OMOs should be held at a different time of the day than those of the treasury. There should also be an understanding that the treasury will not do anything that might appear to undermine OMOs, such as the treasury putting cash into the banking sector at exactly the same time that the central bank is trying to drain cash as part of its control of interest rates.[14] The two institutions may also need to cooperate in the handling of exceptional payment and receipt flows; for example, an unusually large tax payment could

[14]For example, the UK Debt Management Office (DMO) agreed with the Bank of England—and explained to the market—that it would not hold weekly bill tenders or ad hoc tenders at times when the Bank of England was conducting its money market operations. Similarly, the DMO would not enter into loan transactions of a maturity that could be perceived as competing with the Bank's structured repo operations.

potentially distort the interbank market, which suggests that the transfer to the TSA be made in tranches throughout the day to allow banks to restore their balance sheets.

In relation to information exchange, there should be three main regular requirements:

- The treasury should provide cash flow forecasts to the central bank so that it can take these into account in its own forecasts of banking sector liquidity.
- The central bank should keep the treasury informed of flows and balances across the TSA, ideally in real time, and facilitate the reconciliation with the accounting system managed by the treasury.
- Arrangements for information exchange should also cover developments in the money market.[15]

The treasury will often also have responsibility for ownership of the central bank. It needs to manage the corporate relationship with the central bank, which will be either directly owned by the government, or set up as some form of statutory corporation under law, but clearly part of the public sector. Regular discussions about the central bank's financial performance may be needed, especially concerning the dividend to be paid. To this end, clear and transparent rules should be implemented so that the mechanics are known by the parties involved. Discussions will also be needed on such issues as how the central bank's pay and personnel policies should relate to the government's policies, if at all. Other major policy issues with budgetary implications might be the possible need to recapitalize the central bank or to compensate it for the costs of running monetary policy. Normally, it would be preferable to maintain some separation between this ownership role and the interactions related to debt and cash management policy or to the treasury's role as a customer of the central bank, possibly transferring the ownership function elsewhere in the ministry of finance.

C. Implications for Commercial Banks

The reform of cash management somewhat changes the treasury's relationship with the banking system. It also imposes requirements on the banks. It is difficult to modernize government payment arrangements without the banks being internally fully electronically integrated, with collective access to a modern automated system for the clearing and settlement of payments.[16] This system should either be, or be linked to, a real time gross settlement system (RTGS), to allow low risk real-time settlement of high-value payments across accounts at the central bank. Such arrangements would, in turn:

- Allow revenues to be passed from a peripheral rural branch to the bank's head office and the TSA on the same day.

[15]In general, cash managers should not be given market-sensitive information (for example, on a bank in financial trouble), lest that affect its own actions and the market's perception of those actions.

[16]Sometimes referred to as "core banking"; this entails allowing a transaction in any branch to be reflected in real time in the bank's central data and accounts systems.

- Make it possible, under dispersed payment systems, to use zero balance accounts, with any balances being swept into the TSA at the end of the day (and, if necessary, returned the next day).
- Enable same-day crediting of the bank accounts of suppliers or employees. For centralized systems, this can be done without the need for intermediary transactions accounts, but where they are still used, they will often be able to clear with the TSA on the same day.
- Remove the requirement for expenditures to be prefinanced, or any government float or "seed financing", except perhaps to handle residual inefficiencies at the periphery.[17]

The development of core banking and the RTGS is also usually a priority of the central bank. In many countries, the modernization of the banking system has preceded the modernization of cash management. However, where the banking system is lagging, it is important that the treasury takes the initiative with the central bank to map out a program for development, using regulation or incentives, as necessary, to cajole the banks.

This model has implications for the commercial banks' finances. The ability to hold onto tax revenues for a time without paying interest before remitting them to the government has been a traditional source of income in many countries, with lags of up to two weeks being common. Also, as the government becomes more conscious of the need to repatriate balances held by MDAs under dispersed payment systems, a further source of profits disappears. In return for this largesse, the banks may be willing to waive fees for services, but the two costs rarely offset, and this cross-subsidy may not support efficient pricing.

For these reasons, banks' transactions services should be remunerated. The payment of charges for collecting revenues and operationalizing retail payments—preferably a unit fee for each transaction based on a formal contract or SLA—means that there is no need to compensate the banks, for example through tax collection or expenditure payment holding periods. If they exist at all, they should reflect only technological constraints.

The fees paid should not simply be cost-plus calculation, or read off the publicly available tariff. A competitive process is necessary, to be repeated at three- to five-year intervals. The government should request bids against specified minimum standards. The government always will be a major customer, and this gives it competitive strength. But it also may be up against a banking system with a tendency to behave collusively. Another problem may be that there is only one large bank with branches across the whole of the country. Competition therefore has to be organized imaginatively, and it may be that the business must be split between more than one bank. In practice, governments often have been pleasantly surprised by the results of competition. Banks want this business; for example, handling the payment of

[17]This may not be strictly the case even in a developed fully integrated system. There may be a need for an intraday float to ensure that the banks have the liquidity needed to lubricate the payment systems, to enable them to meet all obligations in real time. But any float occurring at the start of the day should be swept back at the end.

civil service salaries potentially gives them access to a large number of middle-class customers to whom they can sell other banking services. There have been examples in Asia where, following a competition, the government pays close to nothing for the services offered, and even receives a profit. This is also the case in Brazil, as demonstrated by the auctions that manage civil servants' payroll accounts in some states.

Under dispersed payment arrangements, the negotiation with the banks may be left to individual MDAs. Australia provides an example in this regard. However, the treasury will want to insist on some core requirements, not the least of which will be end-of-day sweeping. Even where there is a central contract, there will usually be some arrangements to allow MDAs to negotiate specific requirements.

Payment for services makes the cost of banking more transparent. One corollary is that the fees paid should be included explicitly in the budget. The implied cost will no longer be lost in the net debt interest line (although the interest saved will typically offset the fees paid).

The same principles apply to the services supplied by the central bank, as discussed more fully below. There may also need to be discussions with the central bank on issues such as the service standards required by the bank's government. This will ensure that they are consistent with wider banking sector reforms.

As active cash management develops, the relationship between cash managers in the treasury and the banks will develop a new dimension. The banks may already be the major purchasers of T-bills. Nevertheless, the more flexible use of T-bills will put more weight behind the consultative machinery. As cash managers start using repos or other money market instruments, there will need to be direct contractual relationships with the banks (and other counterparties), usually based on respective market standards.[18] The market should set the price of transactions, whether sales and purchases are done through auctions, tenders, or deals over the counter, or across trading exchanges.

IV. Some Policy Challenges in the Relationship Between the Treasury and the Central Bank

D. Treasury Bills and Central Bank Bills

Although the needs of cash management and monetary policy normally coincide, there can be strains between them. These arise particularly when the central bank does not have sufficient means (collateral) to mop up excess domestic liquidity through repo operations. The liquidity might be generated by foreign currency inflows, although there are other mechanisms that

[18]Thus, the Securities Industry and Financial Markets Association, and the International Capital Markets Association, have jointly developed a Global Master Repurchase Agreement. This agreement is used widely internationally, although there may be an annex to cover the specific circumstances of the market concerned.

also have this effect. The need to absorb liquidity in the banking system may lead the central bank to issue its own bills (CB-bills).

The use of different, but comparable, instruments for monetary policy and cash management potentially risks market fragmentation. It could also lead to a loss of the benefits derived from a larger and more liquid T-bill market. Essentially, the same demand is spread over two types of instruments, implying that the volume of each issue is likely to be smaller than might otherwise be the case, which would tend to reduce liquidity.

There are different ways to mitigate the problem of market fragmentation.[19] The central bank and the treasury may agree to issue paper of different maturities; for example, the central bank might issue CB-bills of two weeks or less, while the treasury would issue T-bills of three months or more. They may be marketed differently, with T-bills also aimed at nonbanks. Although such measures reduce the problem, they may not eliminate it. Another approach is for the treasury to overfund the borrowing requirement, by issuing extra T-bills or T-bonds, depositing the surplus cash in a sterilized account at the central bank, and allowing the central bank to conduct monetary policy through repo or outright government securities transactions in the secondary market. Mexico and Singapore offer past examples in this regard.

Under a more tailored approach, the treasury can sell additional T-bills at the central bank's request. This would be done as an add-on to the normal auction, but the proceeds would be sterilized by holding them in a separate account at the central bank, remunerated at the discount rate set in the bill auction. The treasury cannot draw on this account, but the bills will be redeemed from it. This arrangement, and the amounts involved in each auction, must be explained to the market.

These targeted arrangements require trust between the treasury and the central bank. In particular, they would rely on the treasury's constant willingness to accept requests from the central bank to issue additional T-bills for monetary policy reasons. There may also be difficulties when the central bank's borrowing requirements are much greater than the treasury's. In such cases, the central bank may want more control over the choice of maturities or the conduct of auctions, rather than accepting a simple add-on to the treasury's issuance plans. In some countries (as was the case in New Zealand in the past), the central bank can issue T-bills at its own discretion, with the proceeds passed directly to the government's account. This must be done within a framework agreed with the treasury, and should be transparently explained to the market.

Another difficult issue that arises is how the cost should be shared. In the first instance, this cost of open market operations falls to the central bank and is part of the cost of discharging its monetary policy operations. By paying interest on the treasury's sterilized account at

[19]For a more detailed discussion, see Williams (2010). The benefits of using T-bills to money market development, and potentially to the central bank, are also discussed in Nyawata (2012).

the same rate of interest as materialized in the auction, the treasury is left unaffected, and the central bank has to pay broadly the same rate as would have been the case if it had issued CB-bills instead. The need to drain cash puts pressure on the central bank; it is expensive compared to lending into the market to relieve a cash shortage which earns income. Some countries have developed arrangements to reimburse the central bank for the cost of monetary policy, whether directly or by foregoing a dividend. Certainly, where liquidity surpluses are driven by credit to the government, the ministry of finance should be prepared to pay for the costs of sterilizing that liquidity. But not paying interest on a sterilized account is a rather crude approach, as the transfer depends on other money market developments and may also undermine the treasury's willingness to use the mechanism. In the long run, if the central bank is chronically in deficit, it should be recapitalized from the budget or from long-term government securities issued to it.

E. The TSA outside the Central Bank

In some countries, notably, but not only, in Latin America, government balances are partially or totally held outside the central bank, in a government-owned commercial bank. Such a bank can provide the pooling function of the TSA and help to protect the central bank from fluctuations in the government's cash position (although in practice the effect of the daily fluctuation may be passed onto the market or to the central bank via the intermediary bank's transactions[20]).

However, implementation of this model requires some safeguards:

- A clear agency agreement giving the treasury unambiguous control over all government balances, backed by timely and detailed information on those balances.
- Good coordination and information sharing.
- A market-based risk assessment of the bank, reducing any potential exposure of the government to credit risk and moral hazard.
- Financial and cost transparency, covering the costs and activities performed on behalf of the government.

Government-imposed requirements on the intermediary bank's business model may also leave the bank ill equipped to compete with more conventional banks. The bank may have become heavily dependent on government deposits or collection lags to finance its business. It may already be stretched financially, possibly as a result of having to meet social obligations imposed by government. In other respects, competition may be affected by the bank having inside information about government business.

This model cannot be unwound overnight. If the withdrawal of excess balances is too rapid, the bank's balance sheet may have to shrink significantly, notwithstanding the payment

[20]In Peru, the central bank does not allow the Banco de la Nación to use the interbank market, in order to prevent a government's excess or shortage having an impact on the overnight interbank rate.

of transactions fees. This may require a phased withdrawal of balances to give the government-owned commercial bank some room to adjust.[21] The government may, of course, wish to continue using the bank for transaction purposes, particularly where it is the only one with a presence in smaller towns and rural areas. In turn, this might constrain its ability to hold unrestricted competition, but over time it is important to remove internal cross-subsidies, and if there are social obligations, they should be subsidized more transparently.

F. Remuneration of Treasury Deposits by the Central Bank

Agreement is also needed on the rates of interest paid on the TSA balance and any other government deposits at the central bank.

It is good practice to pay a market-related interest rate:

- This improves transparency and avoids the implicit cross-subsidy associated with administered rates.
- It removes the incentive for the treasury to make economically inappropriate decisions in relation to its balances, such as placing funds in commercial banks with low credit ratings.

As emphasized above, a corollary is that, in the interests of transparency and proper financial incentives, the treasury should pay transaction-related fees. The main benefit of such reciprocal arrangements between the treasury and the central bank is the avoidance of potential distortion to treasury choices about how best to invest surplus cash. For example, if the central bank does not remunerate the deposits in the TSA, the treasury and MDAs may tend to invest cash surpluses in commercial banks even without adequately evaluating the risk.

It is not always easy to move completely in this direction. There may be legislative constraints or pressures on the central bank's balance sheet. In the short term, it may be expedient for the treasury to forego interest on a portion of the balances (although if it foregoes the part lying below a certain threshold, the correct incentives will still apply to balances above the threshold).

International practice varies. Interest is paid by central banks in proportionately more developed countries than in emerging market or low-income countries.[22] Some examples are

[21]Some counties, however, have adjusted their arrangements in recent years to mitigate some of the problems that can arise. In Peru, only a modest balance is left at the end of the day in the government's account in the Banco de la Nación, with cash surpluses or deficits being settled with the government's main account in the central bank. In Chile, the government now deploys surplus short-term cash across a wider range of investments in the domestic market, which may include putting term deposits in the central bank, rather than leaving it all with Banco del Estado. In addition, the Chilean central bank is to be given notice of any one-off movement of substantial balances from a commercial bank to the central bank to allow it to take into account the impact on liquidity; the central bank may also prefer a staged process.

[22]There are some notable exceptions, including the USA, although there market interest is paid on revenue receipts held in Treasury Tax and Loan accounts.

Box 4: Interest Paid on the TSA: Some International Experience

The payment of interest by the central bank is relatively rare among sub-Saharan African countries, where there are often legislative constraints (South Africa and Ethiopia are exceptions). This has also been the case in the past in Latin America, although interest is now paid on balances in Peru and Mexico, and Chile currently earns a market rate on most of its cash balances.

The benchmark rates that are used vary. They include the rates available for nonbank deposits at commercial banks (Peru, Belarus, China) or for interbank deposits (Mexico); the rates received on recent T-bill or related tenders (Italy, South Africa, Canada); and the rates on counterpart assets held by the central banks (Brazil, Trinidad and Tobago, countries in the Eastern Caribbean Currency Union). Benchmark rates also include those linked to the central banks' policies or corridor rates (the case for several Eurozone countries, although different rates may be paid according to whether or not the balances exceed target levels. Some other countries operate a similar size-related schedule, such as in Mauritius). There are other examples where the interest paid is at rates below the market's rates (Philippines, Macedonia, and Vietnam), although currently low international interest rates often make the differential negligible. The use of the rate on counterpart assets when the balances are large helps to protect the central bank's balance sheet, although, arguably, it is then acting as agent, and the treasury should have a role in identifying the assets. The same general point applies to those wealth or stabilization funds held on central banks' balance sheets (for example, Botswana and Peru). In Brazil, the counterpart assets mirror the outstanding stock of debt in the market. This gives the monetary authority a range of instruments to use as collateral, and also remunerates the treasury at a rate that reflects the overall cost of debt.

Many central banks that do not pay market interest rates on the main TSA current account are willing to do so on term deposits.

provided in Box 4. A sound practice would be for the interest rate paid to the treasury to be at the same level as the market overnight rate or the central bank's policy rate.

G. Other Issues

In countries with less developed money markets, the constraints on liquidity management may force the TSA held at the central bank into overdraft. Limitations on the use of the overdraft should be defined, and the treasury should give reasonable notice to the central bank of any drawdown. The payment of a market interest rate should act as a disincentive to use it. Any overdraft should be used only for very limited short-term borrowing, and be repaid before the end of the fiscal year.

Countries with a structural surplus of cash, such as from natural resources, may hold it in the central bank, but outside the TSA in some form of sovereign wealth fund. The rules to create and operate these accounts should be clearly defined, particularly in relation to the treasury's ownership of the resources, even if, in practice, the management of the account is

provided by the central bank. Transparent governance mechanisms should be defined, including those for investments and reporting.

V. Coordination Structures

As discussed above, the coordination between the treasury and the central bank should encompass both policy and operational aspects. On policy, it is important to ensure the coherence of fiscal and monetary policies; this is high-level coordination. For operations, the main aspects would be related to the functioning of the TSA, issuance of bonds and bills, and market development.

The relationship should operate at different levels, reflecting the nature of the issues being addressed. It is helpful to distinguish between:

- Meetings at the level of minister/governor, which may be shadowed by meetings between senior ministry and central bank officials.
- Standing committees, for example, a public debt committee and treasury liquidity, or cash coordination committees.
- Technical working groups.
- Day-to-day operational interactions.

The overall relationship between the treasury and the central bank needs to be clarified at a high level. This will, in turn, depend on the respective roles and responsibilities. They may be specified in legislation. At the other end of the spectrum, there may simply be an exchange of letters. Nonetheless, there are two types of issues that need to be addressed at the senior level:

- How to ensure policy coherence, as discussed above. This needs some formal mechanism that does not compromise the central bank's operational independence. It might be done through a monetary policy committee on which the ministry of finance is represented as an observer,[23] or through some other forum, such as a PDC. A PDC, chaired by a minister or senior official, would consider the debt (and cash) management strategy that integrates the asset-liability management analysis of the government's balance sheet into a broader macroeconomic framework. It would then delegate the execution of the strategy and monitor its achievement. Such a committee can ensure that all relevant interests and experts are consulted (macro and fiscal teams in the ministry of finance and

[23]The observer should not have any role in relation to monetary policy decisions, which are the prerogative of the central bank. An arrangement along these lines operates in the UK, where a representative from the Treasury acts as an observer at the Bank of England's Monetary Policy Committee. He or she takes no part in setting interest rates, but this mechanism provides an opportunity for the Treasury to set out its latest fiscal and debt management policies, and for the Bank of England to offer its comments. In addition, the objectives of the UK Debt Management Office include consistency with the aims of monetary policy.

the central bank), and agree on a strategy.[24] At the same time, the PDC will help buttress the operational independence of the debt and cash management functions by reducing the risk that other functions might try to second-guess, or intervene in, operational decisions once the strategy has been set.

- These formal mechanisms need to address policy clashes or other misunderstandings that threaten to damage the effectiveness of either institution. When needed, such issues might conveniently be added to the agendas of the regular meetings—that happen in most countries with varying degrees of formality—between the governor of the central bank and the minister of finance. Such arrangements will do more than fire fight problems. There may be areas of coordination to be explored, such as those related to sharing the investment in new databases, where a high-level stimulus might be needed.
- Such mechanisms can also guide major one-off decisions. One example is central bank recapitalization, which needs to address the form of remuneration. If securities are used, as is typically the case, they should be made marketable, with the maturity profile adjusted to take account of the central bank's collateral requirements, the government's own refinancing profile, and the nature of the market's demand in the event that they are sold.

Some form of protocol, terms of reference, or memoranda of understanding may cover operational interaction. It would set out the relevant issues and the route for consultation, covering, for example:

- The joint program for the development of the money market.
- The manner in which the central bank should report its perspective on the views of the market and investors regarding the debt and cash management program for the coming period (although this might be covered by the PDC).
- The central bank's own views on new cash management operations that could have liquidity implications.
- Policies and operations for bill issuance, given the need for an agreed strategy for the development of the bill market and the respective roles of CB-bills and T-bills.
- The agreement between the central bank and the ministry of finance on a common list of primary dealers or auction counterparties (although more commonly that is left to each institution).[25]

[24]The strategy needs to analyze the risks inherent in the government's aggregate balance sheet, including both assets and liabilities. This involves taking into account the size and composition of the foreign currency reserves. Similarly, investment objectives for the reserves—notably liquidity, safety, and return—should be considered in the context of strategic objectives for other parts of the government balance sheet, including the debt portfolio. The PDC would have an important role in ensuring a full asset-liability management analysis, as well as developing policy in that context.

[25]In Brazil, the treasury and the central bank have agreed on a common set of criteria, although the treasury determines who participates in its auctions.

Box 5: Cash Coordinating Committee

Members

- Head of Treasury (chair).
- Head of Debt Management Office (DMO [if not integrated with treasury]).
- Head of Fiscal and/or Budget Directorate.
- Representative of the Central Bank.
- As required: representatives of the revenue administration, customs, and/or representatives of larger line ministries.
- Secretary from the Treasury or DMO.
- Other units on a need basis.

Responsibilities

- Reviewing cash flow outturns, and the comparison with forecasts.
- Reviewing cash flow forecasts for the period ahead.
- Deciding on the action needed to ensure cash adequacy over the coming time frame, or how to use surpluses to best effect.
- Making recommendations and/or instructing the front office accordingly, setting parameters for delegated authority.

- The payment of interest on government balances at the central bank. This has to be agreed at the policy level, but the basis of interest—maturity, relevant market analogues, etc.—should also be identified.
- The arrangements for the exchange of information about cash flow forecasts (responsibilities and frequency).
- The mechanism of communication and the issues covered (for example, the prospective auction schedule).
- Determinants of such issues as the timing within the day or week of respective auctions or tenders, and the associated market announcements and any prior warnings.
- In countries where the treasury is able to borrow from the central bank, the protocols regarding the limits (sums, maturities, roll-over capabilities, etc.) of such borrowing.

The published agreement between the Ministry of Finance and the Central Bank of Iceland sets out the central bank's functions as fiscal agent and debt manager, and could therefore serve as a useful example for how the official interaction could be defined.[26] It does not cover all the above issues in detail, but ranges widely across issues regarding the management of domestic government securities; the management of foreign debt; government guarantees and relending; information disclosure; risk management and liquidity management; and consulta-

[26]See http://eng.fjarmalaraduneyti.is/media/finances/Agreement_between_MoF_and_CBoI.pdf.

tion arrangements between the ministry and the bank. Although there is no published SLA, the aggregated service payment is specified in the arrangement.

In practice, the issues listed may be captured in more than one protocol. There often will be separate protocols, as specific policy decisions have been codified. The arrangements for handling auctions will often be separately prepared along with published guidance or regulations. In Peru, there is a detailed memorandum (in the form of a ministerial resolution) covering the terms and conditions, and procedures applying to treasury deposits at the central bank (although it does not cover the rate to be paid on domestic currency deposits, which is separately determined by the central bank).

Several countries have found it convenient to establish some form of cash coordinating committee (CCC) or liquidity committee. It might meet weekly or monthly to consider cash management requirements and consequent activity for the period immediately ahead. A typical example is illustrated in Box 5. The CCC might be the mechanism which exchanges cash flow forecasts with the central bank, and reviews the cash management operations for the coming period. Separate technical committees may need to be established to handle specific issues, such as the introduction of a new instrument.

VI. Service Level Agreements

The central bank will supply a number of services to the treasury. The most important of these will be as banker, although the central bank will also provide some services that fall under the general heading of debt and cash management. These may include fulfilling the roles of fiscal agent, settlement agent, and/or registrar/paying agent. At the same time, the treasury will provide services to the central bank; some examples have already been mentioned above, notably the cash flow forecasts.

Although the general nature of the services may be covered by a memorandum of understanding, if there is an identifiable service of a quasi-contractual nature being supplied, this fact should be made explicit. Having a full-fledged contract between two organizations that are guaranteed by the central government may be inappropriate. However, some form of SLA would be expected to give weight to the expectations on both sides.

Issues covered by the SLA might include:

- The notice that both sides would give of any impending changes in the auction pattern or timetable.
- The central bank's turnaround times in handling any relevant transactions as fiscal or settlement agent.
- Details of information flows in both directions, with the intended timing schedule (for example, cash flow forecasts or transactions across the TSA).

- Details to be supplied by the central bank, specifically in its role as banker, on movements through the TSA during the day (or how it is otherwise to give the treasury some visibility). These arrangements will also cover the formal statement at the end of the day on opening and closing balances, as well as transactions.
- The basis of the calculation of fees paid for services. This might include compensation arrangements for any failure to meet the specified level of service.
- Details of the rate of interest to be paid on government accounts, including the use of any reference rate, and the circumstances in which it might be changed.
- The exchange of risk-related information. Increasingly in the financial services sector, a significant supplier of services is required to present external audit evidence of the appropriateness and adequacy of its internal control system to the principal. If that is not possible in the case of the central bank, some analogue should be explored.
- The handling of any business continuity problems.
- The arrangements for handling disputes, reviewing the central bank's performance under the SLA, and for future review or renegotiation of the SLA.

Some SLAs are published. In France, the agency with the responsibility for debt and cash management (Agence France Trésor) has published the details of its agreement with the central bank concerning the TSA.[27] It specifies the instruments used by the bank to ensure that the French Government can keep track of the transactions in its account in real time, and use that visibility to reduce the average unused account balance. In addition to details of information flows and execution deadlines, it also specifies service availability covering technical incidents and the implementation of backup procedures. Finally, it requires compensation for investment opportunities that are missed as a result of the central bank's inability to honor its contractual commitments. In Romania, the Ministry of Public Finance has an extensive SLA with the central bank. It covers the operation of the TSA (both domestic and foreign currency accounts including interest paid); the roles of the bank as fiscal agent, government bond registrar, and settlement and paying agent; and the participation of the ministry in the payments systems. It sets out the rights and obligations of both parties, including those relating to operational risk management, and lists the transaction-based fees in detail.

The arrangements with the transactions banks should normally be covered by a more conventional contract.

[27]See http://www.aft.gouv.fr/article_787.html.

VII. Conclusion

The development of a modern cash management function potentially affects the operations, finances, and balance sheets of the government, central bank, and commercial banks. The implications and management of this function depend on the wider relationship between the treasury and the central bank, the characteristics of monetary policy operations, the governance structures, and any prior monetary conditions:

- The reforms will usually move government cash from the banking sector into the central bank. This reduction in idle cash will benefit the treasury, but at a cost to the commercial banks.
- There may be a cost to the central bank if it pays interest (as it should) on the treasury's balances. At the same time, the drain of cash from the banking system should in most circumstances support the central bank's monetary policy operations.
- As the treasury builds its capability for managing cash more actively, there will be benefits both to the government and to the central bank's monetary policy operations, flowing from the reduced fluctuations in the government's balances in the TSA.
- Structural reforms to remove cross-subsidies and improve transparency, including the introduction of transaction fees, may have further effects, although net additional costs could fall on either the treasury or the central bank. There may be also a presentational challenge for the government as, for the first time, payments are put more transparently into the budget.

There will be transitional issues that need to be addressed. The central bank must accept a change in roles and responsibilities, and any one-off shift in financial flows should be phased over a period if it would otherwise complicate monetary policy operations. Implications for balance sheets will need to be monitored.

The institutional relationship between the treasury and the central bank needs to be structured at different levels. There will be points of contention regarding where market or liquidity risks should fall; on respective operational requirements; and on how best to meet interest or transactions costs. At the same time, there are benefits from operational coordination, and also common policy interests, especially in creating an efficient money market. Memoranda of understanding will need to be put in place. The services supplied by the central bank to the treasury should be covered by an SLA. None of these measures should jeopardize the independence of the central bank in relation to monetary policy.

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