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HOW TO

NOTES

**How to Develop a Framework
for the Investment of Temporary
Government Cash Surpluses**

Fiscal Affairs Department

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Prepared by Israel Fainboim, Sandeep Saxena, and Mike Williams

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HOW TO DEVELOP A FRAMEWORK FOR THE INVESTMENT OF TEMPORARY GOVERNMENT CASH SURPLUSES

Well-developed cash management aims to improve government operational efficiency and facilitates better service delivery by ensuring liquidity to meet payment obligations as they fall due. Liquidity, however, comes at a cost. Governments can reduce the cost of maintaining liquidity by proactively managing their cash balance at an appropriate level and prudently investing any excess liquidity. This note discusses the policy framework and processes that governments should put in place to identify, guide, and govern the investment of their surplus cash resources.

Introduction

The primary objective of cash management is to ensure that government can execute its budget in a smooth and timely manner and meet its obligations as they are due. The function, however, needs to be carried out with a regard for cost-effectiveness, risk containment, and the need to support other financial policies. It is not surprising, therefore, that governments often add a secondary cash management objective: to achieve a return on cash balances within prudent risk limits.¹ Prudence becomes critical at times of heightened uncertainty, such as the present coronavirus disease (COVID-19) pandemic; but even during normal times, it should be reflected both in identifying the cash surplus and in investing it.

The need for cash management arises from the intra-year timing mismatches between revenues and expenditures. Cash managers respond to these by short-term borrowing to meet shortfalls and investing temporary surpluses in short-term assets. In the

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¹For example, Chile defines its cash management objective as: (1) to facilitate the execution of the budget, ensuring that there is always enough liquidity available to meet budget commitments; and (2) subject to that, to ensure that investment decisions are made to maximize returns within [established] market, credit, and operational risk limits (Government of Chile 2012, informal translation).

absence of proper cash planning and management, governments often end up maintaining high cash buffers or resort to cash rationing as a way to manage liquidity. Both are inefficient and expensive. Cost savings flow from efficient cash planning and minimizing unremunerated idle cash balances, whether they are held by the ministry of finance (MoF) or by other agencies.² If cash balance volatility can be reduced, governments can operate with a lower average cash buffer and reduce costs.³

Governments need to put in place the right institutional arrangements for identifying surpluses, making investments, managing associated risks, and monitoring performance. As governments respond to the coronavirus disease (COVID-19) pandemic, they may be faced with greatly increased and unpredictable borrowing requirements, interest rate volatility, and concerns about market liquidity and debt issuance. Macroeconomic uncertainty implies that government cash flows are likely to see greater volatility. Government budgets have seen significant changes—both in overall size and composition—and may be subject to further revisions as the situation evolves. Falling and volatile revenues and sudden expenditure pressures make cashflow forecasting difficult and cash balance management a challenge. Management of cash investments becomes even more critical in this scenario.

²In this note, references to the MoF include treasury functions, even though some countries have a separate treasury department or agency. Similarly, use of the term “treasury” refers to the generic functions, independently of a specific organization. A debt management office (DMO) may be part of the MoF or separately constituted. The DMO may perform cash management functions, although these will often be shared with the national (or federal) MoF or treasury.

³Reduced volatility also benefits monetary policy. The mirror image of flows in and out of the Treasury Single Account (TSA) is flows to and from the banking sector; reduced fluctuation in government cash flows implies less fluctuation in banking sector liquidity—all other things being equal—and less weight on monetary policy operations to control liquidity. This assertion clearly demands competent cash management by the treasury. More generally, cash management operations should be conducted in a way that does not conflict with the monetary policy operational requirements of the central bank (see the discussion in this note on coordination with the central bank).

This note discusses how to identify and invest surplus government cash as an integral part of modern cash management; the options, requirements, and challenges for managing cash assets; and the main institutional, governance, risk management, and coordination issues to be addressed.⁴ The challenging and related task of identifying the minimum cash buffer required to support day-to-day operations is discussed in a companion How-To-Note.⁵

The note is intended to provide guidance to countries desirous of developing their cash investment frameworks and institutional arrangements. It will be particularly useful to emerging market economies, and middle- and lower-income countries that have a well-managed treasury function with a reasonable degree of control over their cash resources and the ability to forecast future cash flows. Frontier states, or those that face a chronic cash flow shortage and need to ration cash, should invest in developing reliable cash forecasting capabilities and moderating their cash flow volatility before they transition to more active cash balance management and investments. As such, their investment options are likely to be limited to term deposits with their central bank or commercial banks. To that extent, they will also benefit from putting processes in place to manage the associated risks.

Identifying Cash Surpluses

Distinguishing Temporary and Structural Surpluses

A cash surplus can be defined as the excess of cash over what is required to meet day-to-day payment obligations (see also discussion on cash buffer in the following section). The surplus can be (1) structural, that is, a surplus to the needs of in-year cash management, or (2) temporary, that is, an intra-year phe-

nomenon with a short time horizon. The distinction between structural and temporary excess cash may be less straightforward in the uncertain circumstances of in-year flows. A useful indicator is the degree of persistence. If cash flows are higher than expected over a sufficiently long period—for example, a few months—and the cash managers are persistently able to maintain the cash buffer and invest cash for more than three to six months, then the situation is more likely to reflect a permanent shock. If the shock is transitory, the cash balance will fall back to lower levels. An analysis of the underlying factors that generate the surplus would help validate this distinction.⁶

Although a temporary cash surplus is invested in short-term instruments, cash that is structurally surplus needs to be identified and managed separately. The usual upward sloping yield curve means that it is rarely cost-effective to hold cash or near-cash as a longer-term investment. It will be possible to make better use of any surplus, whether to reduce debt or to invest it in other assets.

There are several options for managing a structural cash surplus. It may be invested as a long-term savings fund or designed as some form of stabilization fund expected to be run down as the cycle turns. Alternatively, the surplus may be invested as a cash or near-cash reserve fund—that is, invested over and above any cash buffer but available in the event of a severe shock, such as substantial unanticipated outflows or a prolonged market disruption or closure. The objectives, governance arrangements, and asset allocation of such funds needs to be specified, along with any interactions among them.⁷

⁴In this note, “cash” refers to government assets that are perfectly liquid and can be used immediately as a medium of exchange—in this context, to support investment. This note does not discuss in detail the other pillars or objectives of modern cash management policy (see, for example, Williams (2010) for a fuller statement). As pointed out by Fainboim and Pattanayak (2010), a first requirement is the development of the TSA, that is, the aggregation of all government cash balances in a single account, or set of linked accounts, usually at the central bank. Modern cash managers, supported by cash flow forecasts, then seek to smooth the weekly or daily cash flow by more active borrowing in the money market, as well as by lending temporary surplus cash back to the market, which allows them to secure a return.

⁵See Balibek, Hürcan, and Koç (2020).

⁶Statistically, a “permanent shock” is one whose effects on the current values of a variable never die out in absolute terms. In this case, over the budgetary period. In principle, subsequent budgets can be adjusted for the new reality. A “transitory shock” is one whose effects gradually die out. For example, a permanent excess of cash might be generated by the adoption of a new agricultural production technology that reduces income support to farmers; a transitory excess of cash might reflect a short-lived increase in coffee prices, following a season of heavy rainfall in some other producer countries.

⁷A substantive discussion on the use of structural cash surplus is beyond the scope of this note. Depending on individual country circumstances, stabilization and sovereign wealth funds can have a range of different objectives (for example, covering both liquidity and wealth management), investment mandates, and institutional set ups. See IMF 2012 for a more detailed discussion of some of these issues.

Building A Cash Buffer

The first step in identifying a cash surplus is deciding on the required cash buffer—the minimum level of cash balances that should be maintained, usually in the TSA, to be sure of meeting day-to-day cash requirements at all times and under all circumstances.⁸ The buffer will usually be held in cash in the central bank, which is the most secure and liquid counterparty. In any event, it is important that the buffer is mostly available for immediate use.⁹ Whether to disclose the buffer to the market or not is a policy choice. A sufficient buffer is likely to be seen by the market—investors and rating agencies—as a signal of prudence and credible policymaking. A counter argument is that publication of the precise composition may undermine the treasury's market operations (Cruz and Koç 2018). There may be concerns that a failure to hit a published target could damage credibility. Treasuries should note, however, that even if the buffer is not formally published, the market should be able to estimate the actual cash balance from the published central bank balance sheet.

Cash Reserve Fund

There are different options for the use of cash that is generated over and above the chosen cash buffer but is not associated with the daily fluctuation or risk of short-term market disruption. This cash can be used to buy back debt if that can be done cost-effectively, if doing so improves the characteristics of the debt portfolio, or in situations where the debt level is giving rise to questions of sustainability.¹⁰ More substantial

⁸Balibek, Hürçan, and Koç (2020) provide more elaborate guidance on the determination of cash buffers. They also cite country practice examples.

⁹It might be possible to invest some tranche of the buffer in slightly longer-term assets (for example, term deposits or repos), insofar as the investment includes an allowance for a lengthy period of financial stress. However, such a situation might be grounds for a separately identified cash reserve fund. In any event, the buffer investment policy must be cautious and prudent.

¹⁰Some countries also chose, or are required by legislation, to make use of sinking funds, that is, cash surpluses that are held against future redemptions. These funds may give assurance to investors that the issuing country will have the resources that will be needed to redeem the bonds; the funds may also simplify cash flow management and reduce refinancing risk, because the government will no longer face a large cash outflow on a single day. Sinking funds, however, often carry a cost. Since the return on the assets will be less than the cost of the extra debt to finance them, they will be of little help to cash managers if there are constraints on their use, other than to redeem the specified bonds.

or continuing surpluses would normally flow to the structural cash reserve or the stabilization fund. The cash managers should have responsibility only for short-term investments that are used as part of the cash flow smoothing process. These will rarely have an investment horizon longer than three to six months. The management of the structural surplus would be subject to different criteria, involve different people, and be exposed to a different governance framework.¹¹

Cash reserve funds are an intermediate option between the buffer and longer-term funds. They might be particularly sensible in circumstances in which the structural surplus is likely to be run down in the medium term, in the context of a developing money market of uncertain depth, or as a cushion against a particularly concerning future scenario. Examples include a banking collapse or, as might have proved very prescient, the impact of a pandemic. The funds should be invested in relatively short-term assets. Unless there are liquidity management or credit risk reasons for investing them in the central bank (for example as term deposits, see also the discussion on page 6 on investment options), a range of money market assets is potentially available (see Box 1 for the UK's example). They would then constitute a reserve source of liquidity if cash management becomes problematic for any reason, notwithstanding the cash buffer.

Investment Options

For day-to-day cash management, the investment options are more limited. It is important to emphasize, however, that the investment of surplus cash is not simply an add-on; it is an intrinsic part of modern cash management. Cash managers in emerging market and developing economies should embed this investment function as part of their normal responsibilities.

Currency of Investment

Investments intrinsic to cash management will usually be in domestic currency.¹² Credit quality and liquidity are paramount. There should be no risk to

¹¹It is relatively unusual for treasury or debt managers to be given the task of managing structural surpluses or wealth funds. Ireland is an exception, although the governance framework is separate from that applying to debt.

¹²There are a few exceptions: Hungary and the Russian Federation, for example, switch between domestic and foreign currency

Box 1. The Cash Reserve Fund in the UK

The UK DMO maintains a small target cash balance at the central bank, but that serves solely as a buffer against unexpected payments that occur after the wholesale money markets have closed. In view of well-developed money markets and regular updating of the cash flow forecast, it is possible for the DMO to manage without a significant buffer.

In the past, however, the DMO has also managed a cash reserve fund. In 2000, the proceeds from the sale of third generation (3G) radio spectrum licenses were nearly £20 billion (\$25 billion) more than the amount provided for in the government's budget. At the time of a strong fiscal position, and with a view to maintain a flow of gross issuance in the government

bond market, the government decided that most of the additional proceeds should be held in financial assets to be run down over the following three years. The DMO managed these assets in the money market in a range of securities, mostly repurchase agreements, but including certificates of deposit and commercial paper. A three-month money market rate was set as a performance benchmark. The fund's performance was monitored and internally accounted for separately from normal cash management operations, however, internal safety net arrangements were put in place whereby cash managers could have arm's length access to the fund, if required.

Source: Authors' compilation.

principal. Buffers should be held in highly liquid form—including, for example, in term deposits that can be broken on penalty. The maturity of investments will be geared to the cash flow profile. Meeting a daily target balance usually requires both overnight operations, as well as longer-term investments, for example, to build a cash cushion against the year-end surge or a future bond redemption. A moving average target, as formerly practiced, for example, in Australia (see Annex A), or a target range for countries that are able only to “rough tune” their balances with less frequent interventions, may be implemented with slightly longer maturities.¹³

Investment Risks

Governments must assess and manage the risks involved when considering investment options (Box 2). In practice, credit and liquidity risks are of importance to cash managers. Market risk, particularly interest rate

balances, or they use currency swaps, as part of their cash management armory.

¹³ “Rough tuning” refers to the issuing of T-bills or other short-term borrowing instruments according to a pattern deliberately designed to offset, at least somewhat, the impact of changes in the treasury's balance at the central bank—and thereby on the banking sector—of net cash flows in and out of government. “Fine tuning” is the deployment of more active policies, drawing on a wider range of instruments, to more fully smooth any fluctuations in the government's cash flow.

risk, is also important but less so if most maturities are shorter than one month. Nevertheless, interest rate volatility should encourage shorter maturities.¹⁴ Treasury investments also involve legal and operational risks. The government's risk tolerance, as well as the risk-return trade-off, are key elements in defining the instruments that best contribute to these objectives. In general, when investing cash, the treasury should strive first for safety, then liquidity, then return. From this perspective, the ideal money market investment is an instrument that does not change much in value, carries a low risk of default, and may be converted to cash at any time without significant loss of principal.

The cash buffer is a protection against **liquidity risk**, provided it is adequately calculated and maintained in highly liquid form. In principle, all surplus cash above the buffer should then be available for short-term investment, although the maturities should reflect any residual uncertainty in the forecast cash flows or availability of finance. An additional safeguard would be to arrange for callable investments, such as term deposits that can be broken on request, albeit with some interest penalty.

Managing liquidity risk well is especially important in times of great uncertainty, as demonstrated by the impacts of the global financial crisis and COVID-19

¹⁴If the buffer is substantial, it will need to be included within the asset-liability management analysis underlying the debt management strategy; see Balibek, Hürçan, and Koç (2020).

Box 2. Risks to Be Analyzed When Investing Surplus Cash

Liquidity risk refers to the lack of ability to convert an investment instrument into cash prior to maturity without suffering an unacceptable loss of principal. Another aspect of liquidity risk that applies to securities is the breadth and depth of the market, which enables an investor to buy or sell significant volumes without a material impact on the price of the security. The most liquid money market instruments are those that are highly marketable and have the shortest maturity.

Credit risk (or default risk) refers to the possibility that the issuer of a debt instrument (or any counterparty) will fail to repay the principal and/or interest in full on a timely basis and in accordance with the terms of the transaction. Cash managers should analyze and measure credit risk prior to investing. Alternatively, they can rely on information from credit rating agencies. In general, credit risk can be mitigated by diversifying assets and counterparties, establishing permissible investments of high credit quality, and/or demanding high-quality collateral.

Market risk is the risk of devaluation of an asset as a result of changes in market conditions, particularly interest rates. The longer the term of the assets until maturity, the greater the variation in market valuation for any interest rate change and the greater the market risk will be. Market risk can be mitigated by investing in short maturities. Interest rate futures or options can be used as hedges, but that requires more specialized expertise, including a closer monitoring of markets.

Source: IMF staff.

Legal risk is primarily the risk that contracts will not be legally enforceable. It may also arise from a lack of awareness or misunderstanding of the way that law and regulation apply to the transactions. Legal risks can be mitigated by having a clearly documented, legally enforceable process in place for investments, such as the Global Master Repo Agreement (GMRA) that many countries use for repurchase transactions.

Operational risks emanate from inadequate or failed *internal* processes, people, and systems or *external* events, such as power cuts, earthquakes, and terrorist attacks. Operational risks are mitigated by, for instance, implementing procedures and controls that segregate duties (not least by separating the front [trading], middle [strategy], and back office [recording] functions) with clear authorization procedures. They may also be mitigated by entering trades into a fully integrated system that is itself—along with other information technology systems—secure—including protection from cyber risks—and provides a detailed audit trail of all trades; and by implementing business continuity and disaster recovery plans, including back-up systems.

Settlement risk is the risk that the counterparty does not fulfill its part of the contract. For example, an investor may want to realize an investment by selling a bond in the secondary market. The counterparty may take delivery of the bond but not transfer the funds to the investor. Settlement risk can be managed by adopting effective custody arrangements and maintaining accurate and timely records. The dematerialization of many investment instruments has also reduced the associated settlement risk.

pandemic. Market liquidity can decline sharply. Cash managers should maintain their sources of market intelligence, whether from the central bank or market practitioners. In periods when the central bank is intervening heavily in the debt or money markets (as in its responses to the global financial crisis and the COVID-19 pandemic), cash managers must both understand the nature of those interventions and ensure that their actions do not cut across those of the central bank.

The assessment and management of **credit risk** may present more of a challenge, particularly if it is an unfamiliar skill. As long as high-quality collateral

is held and maintained, the credit risk will be small. It is good practice to establish a credit risk management function, even if limited in scope. There are three main choices for credit risk assessment¹⁵:

- **Relying on external assessment.** If local banks have been rated by an external rating agency—which will not always be the case—it is, in principle, possible to set exposure limits such that the product of the risk of default, which is specified for the rating, and

¹⁵There is a potential fourth choice. Some treasuries outsource some operational processes or even investment decision-making. These firms can be required to assess and manage all risks, including credit risk.

the risk of loss in the event of default is the same for all banks. The aggregate limit would be designed to be sufficient to meet the likely business requirement. This is not a straightforward calculation, however, and it is difficult to put too much weight on identified default probabilities, which will be small for high-quality banks but variable from year to year and which will reflect events in different environments. The three main credit rating agencies have also developed market-implied ratings. These ratings are based on models that use market inputs, such as share prices and bond yields, to try to create more dynamic credit ratings. Unlike core ratings, data are not freely available and may be too expensive for all but the largest treasuries to access.¹⁶

- **Building an internal assessment process, similar to the rating agencies, but with weights reflecting local conditions.** Doing so would require measuring financial strength with a variety of indicators and assessing support from affiliates (or government) and qualitative factors, such as diversification, complexity, and corporate culture. The process, however, would be time consuming and resource intensive, and, with a cautious approach to investment, unlikely to be cost effective.
- **Drawing on the assessment methodology used by the central bank or other prudential regulator in the local economy.** This is likely to be more productive, even without full data disclosure. A suitably cautious approach would be to confine investment to higher-quality banks in the local market—identifying enough of them to provide sufficient competition and adequate aggregate demand for the deposits or other investments likely to be on offer.¹⁷ If needed and available, international credit ratings could be used to benchmark rankings from this process.

The treasury should avoid concentrating investment with one counterparty. Instead, it should set a

¹⁶Credit risk analysis can be extended beyond credit ratings in other ways. Once a short list has been established, using conveniently available credit ratings, the treasurer can draw on other measurements. These might include the movement of relevant credit default swap (CDS) spreads, if available, or the counterparty's share price. Although not solely driven by credit risk, both provide a quicker reflection of market and other events than credit ratings.

¹⁷It is important to maintain a level playing field between private and publicly owned banks. The government is equally exposed to a failure to honor the contract and narrowing the field risks reducing competition.

maximum exposure limit to any one bank. There is no single way to set the individual risk limits as there will be a need to trade off their size against the need to minimize idle cash. Simplicity and flexibility are important. Accordingly, the initial limits might be set somewhat arbitrarily—although the aggregate must exceed the likely investment—since individual banks will not always be interested in borrowing. The treasury should then be prepared to adjust the limits if it becomes apparent that it is missing low-risk investment opportunities.

At a time of excess liquidity and very low or negative interest rates in some countries' money markets, and depending on central bank remuneration policies, the interest rate benefit from investment in the banking sector may be very low after taking account of risks, even if they are managed very cautiously. That will be the case for some advanced economies, as well as for countries such as Kosovo and some central and West African states that are, in effect, part of the euro money market for these purposes. As with more conventional environments, a treasurer's objective should be to preserve principal and to retain liquidity. Importantly, the policy should not be altered to avoid or reduce the cost of negative yields by accepting greater risk or loss of liquidity. Countries managing their own monetary policies will still secure the cash flow smoothing benefits, albeit with modest interest benefit.

Investment Instruments

Treasuries should aim to invest their surplus cash in safe and liquid short-term money market instruments. These options are very different from those available to resource or longer-term funds. The investment horizon will depend on the market and cash flow profile, but, as noted, typically it will not exceed 30 days. Money market instruments (usually defined as those with maturities of less than one year) include T-bills, repurchase agreements (repos) and reverse repos, bank deposits (these are not considered securities, but some certificates of deposit are traded like securities), interbank loans, and money market mutual funds. In practice, repos and deposits with the central bank or commercial banks are particularly relevant for most emerging market and developing economies. For low-income countries with undeveloped money markets, the options may be limited to central bank or commercial bank deposits.

Repos and Reverse Repos

Repo refers to a sale of security by a “borrower” to a “lender” with the agreement to repurchase it at a specified date at a pre-agreed price. The difference between the sale and repurchase price reflects the interest rate inherent in the transaction. Repos are a very important and large segment of money markets in many European countries. They offer competitive interest rates for borrowing and lending on a short-term basis and greater flexibility to structure the term. Repos are generally available up to three months, although in many less developed markets they may be available for no more than one week or only overnight. The interest paid may be on a fixed or variable rate basis. Although legally there is a change of ownership—which is important in the event of insolvency—the transaction is treated as a collateralized loan. The security serves as collateral for the lender. Most repos use government or central bank securities as collateral because they are liquid, have almost no credit risk, and are subject to limited market risks; however, other widely traded instruments may also be used. Repos carry some of the following risks that should be specifically addressed:

- To avoid the risk of insufficient collateral in the event of a default, the collateral should be marked-to-market daily. Additional collateral should be requested or returned, as necessary (a process called “remargining”).¹⁸ However, this practice may be burdensome for less developed markets, where it is often replaced by over-collateralization, whereby repo collateral is requested in an amount that exceeds the value of the original investment plus accrued interest, that is, a “haircut.”¹⁹
- Even if losses are not likely, transactions should be restricted to high-quality counterparties, such as recognized primary dealers in government securities

¹⁸“Marking-to-market” is the process of periodically revaluing a security in line with its value in the market at the time. If the value of the collateral falls (for example, the market value of a T-bond will fall if interest rates have risen), then the lender or holder of the collateral will be able to ask for more collateral to make up the required value in relation to the sum being lent. This process is called “remargining” or margin maintenance. The maturity of the collateral should be longer than that of the investment. Long-term bonds are usually avoided as collateral because they show a greater price variation for any change in interest rates.

¹⁹The haircut may be small, say, 2 or 3 percent—for instance, margin rates in Australia for all repos are 2 percent—an amount that should increase with the maturity of the collateral. In some nascent markets, much higher haircuts may be customary, up to 25 percent. For central banks’ repo practices, see Chailloux, Gray, and McCaughrin (2008).

and commercial banks with high credit ratings.²⁰ They should all be asked to sign the GMRA or local equivalent.

- There may be other legal risks, for example, how repo contracts might interact with local insolvency law in the event of bankruptcies. More generally, effective repos may require changes in local legislation, including changes in tax rules to recognize the underlying nature of repo and related transactions.
- An independent custodian should hold the collateral securities; delivery versus payment (DvP) procedures should be adopted to strengthen the position of the repo purchaser in the event of default. More advanced settlement systems will be able to manage the repo transaction over its life span, including identifying suitable collateral at the outset and remargining as necessary (a form of “tri-party repo”).
- A competitive process open to those who signed the GMRA would normally be used to establish the best market rate. In more developed and transparent markets, where there is no uncertainty about the current market rate, bilateral transactions may be possible.

If the market is sufficiently liquid, reverse repo should be the preferred investment instrument for cash managers. It is quick, flexible and, if well-managed, secure. Although there are slightly more onerous back office processes, it will often be possible for treasuries that are establishing this capability to use the central bank as agent since the central bank is likely to have direct connectivity to the settlement system and may be managing repo as part of its own open market operations (OMOs). Nevertheless, emerging market economies will often initially tend to deposit surplus cash with banks until their repo capability is established (See Box 3 for the Russian Federation example).

Term Deposits at Commercial Banks

In the absence of a liquid or secure repo market, bank term deposits are the preferred option. A demand deposit is extremely liquid, because it is instantly negotiable at par value. A term deposit will usually earn a

²⁰The repo should be scored against any credit limit of the counterparty. The score should, however, be low, for example, 5–10 percent, compared to 100 percent for an unsecured deposit. The score should not be zero since, in practice, some allowance should be made for the delay in receiving the full value of the collateral, the risk that it might fall in value during this period, and, potentially, the cost for dealing with any legal challenge.

Box 3. Surplus Cash Investment by the Federal Treasury in the Russian Federation

In the Russian Federation, the treasury's role in relation to the investment of surplus cash has steadily expanded since 2005. The original focus was on bank deposits, but it has increasingly been dominated by repo (that is, in the context of this note, reverse repo, lending surplus cash). The treasury also has the authority to lend surplus cash to finance budgets of subjects of the Russian Federation and municipalities in the form of loans of up to 90 days. These loans, however, are driven by the financing needs of the regional governments, rather than by the federal treasury's cash management goals.

Source: IMF staff.

To manage credit risk, deposits are placed only with banks that meet the following criteria: (1) participation in a mandatory deposit insurance scheme with a universal license from the Bank of Russia, (2) an adequate capital base, (3) an investment grade rating of A– or higher on the national rating scale, and (4) no history of delays in the repayment of the treasury's deposits. The required repo collateral is government securities. The treasury also has the authority to directly debit a lending institution's arrears. Large sums have been invested, with corresponding substantial interest earnings for the treasury and thereby the annual budget.

higher rate of interest (assuming an upward sloping yield curve), but it may carry a penalty if it is terminated before the due date.²¹ In addition to assessing creditworthiness, collateral should be taken to reduce credit risk, and managed as with repos. The legal form, however, will be different with the collateral held as a pledge rather than as owned.

Term deposits often lack transparent market prices. Accordingly, a competitive process is useful and can be arranged in several ways. Occasional tenders are possible, but the process can be more flexible and quicker if a group of banks is prequalified and required to sign a master agreement; such an agreement should include understandings about the collateral to be used and its handling, even if the precise details are agreed for each transaction. Care needs to be taken to ensure a level playing field between publicly and privately owned banks, as well as between foreign and domestic banks, depending on their respective regulatory status. For example, Chile and China are among the countries that periodically auction deposits to a prequalified panel of banks. They require collateral, usually in the form of government bonds. Chile also auctions

reverse repo investments. Spain has organized tenders periodically, in which the relevant variable is the spread against a money market comparator rate. When deposits are placed, the spread is paid by the bank against the level of the comparator at that time. Box 4 describes the practices in the US and South Africa.

Deposits at the Central Bank

Surplus cash balances should not normally be invested at the central bank because doing so potentially undermines one of the benefits of cash flow smoothing.²² However, when there is a structural surplus of liquidity in the domestic market—perhaps as a result of foreign currency purchases to prevent the exchange rate rising in the face of inflows from abroad—the central bank may want the MoF to invest surplus government cash with it to avoid further additions to banking sector liquidity.²³ Under these circumstances, the MoF should seek remuneration of its cash at the applicable risk-free interest rate.

In many developing countries, as well as a few developed countries, government deposits are not remunerated, or they are remunerated at a rate much lower

²¹Commercial banks will find term deposits more attractive than demand deposits for liquidity management reasons, particularly for terms longer than 30 days. The liquidity coverage ratio, as developed by the Basel Committee on Banking Supervision in 2013, aims to ensure that banks have an adequate stock of unencumbered high-quality liquid assets that can be easily converted into cash to meet their liquidity needs for a 30-day calendar liquidity stress scenario.

²²Active cash flow smoothing helps in stabilizing liquidity in the financial system. Borrowing during periods of cash shortage and investing during periods of cash surplus has the effect of moderating (or nullifying) net cash movement between the government and the financial system (See also footnote 5).

²³Conversely, there may be periods when the central bank wants to maintain liquidity, as seen in many banks' responses to the COVID-19 crisis.

Box 4. Tax and Loan Programs in the United States and South Africa

United States

To reduce cash fluctuation across the Treasury General Account (TGA) at the Federal Reserve, the US treasury developed the Treasury Tax and Loan (TTL) program, whose main objective was to stabilize the TGA balance, leaving the excess cash from tax receipts in the banking system until needed. The TTL accounts were held at designated financial institutions across the US. All of these deposits paid a market-related interest rate and were collateralized. The institutions retained the funds until the treasury called for them; the call was geared to maintain the TGA balance close to the target.

The treasury also devised the Term Investment Option program to ensure a market-related rate on longer-term deposits. Collateralized deposits were auctioned through a competitive process; participants were invited to submit bids with terms of two days to several weeks. The treasury could also make overnight investments in reverse repo against treasury collateral.

These arrangements changed in 2012 following the financial crisis. The greater volatility of cash flows and the willingness of the Federal Reserve to pay interest on the TGA gave the treasury an incentive to hold

more cash in the TGA, and the TTL program was closed, at least on a temporary basis.

South Africa

In South Africa, nontax revenues flow from departmental commercial bank accounts to individual departmental accounts at the Reserve Bank, from which departments meet their spending commitments. Any daily net flow is zero-balanced with the main Exchequer account. All of these accounts are subaccounts of the TSA, which has a pyramidal structure. The commercial banks collect and pool all tax revenue. The revenue is held in the commercial banks in Tax and Loan Accounts and is transferred, as required, to the Exchequer account on a daily basis to clear any debit balances.

The Tax and Loan Accounts have some of the characteristics of those that were used in the United States until 2012. The deposits are not collateralized but are all held in high-quality banks, which pay a market-related interest rate. The effect is to smooth cash flows across the TSA, in which there is a low positive balance, while ensuring that interest is earned on any temporary surplus balances.

Source: Santoro (2012) and IMF staff.

than an equivalent market rate. This arrangement is determined contractually between the MoF and the central bank unless there are legal constraints in the form of a prohibition in central bank law to remunerate government deposits. The usual justification for this prohibition is that remuneration will increase the central bank's costs. Such increased costs will, in turn, be reflected in a lower dividend to the government or will add to a central bank deficit that the government will ultimately have to cover. This argument also often leads to the decision not to charge the government for services supplied by the central bank. However, a market-related rate gives the appropriate economic incentives to both parties. A market-related rate is the rate that the MoF must forego by responding to the central bank's request and it is the rate that the central bank would have to pay if it was forced to drain cash through OMOs.

There are different choices for the market analogue—for call deposits, it might be set at or linked

to the central bank's policy rate or local interbank overnight rates; for term deposits, it might be related to the repo rates paid by the bank for similar terms, or alternatively, the rates earned by the central bank in its OMOs, as in Australia. Box 5 summarizes Colombian practices.²⁴

Other Less Commonly Used Instruments

Certificate of Deposit (CD) is a time deposit with a financial institution, documented by a certificate specifying its amount, maturity date, and interest rate. A few government treasuries, such as Australia, invest in CDs. When issued in negotiable form, CDs can be sold in the secondary market. Investors in CDs face interest rate risk but less liquidity risk than investors in nonnegotiable CDs. However, prior redemption of CDs carries penalties. A negotiable CD cannot be

²⁴See Pessoa and Williams (2012) for other examples and a wider discussion of the related issues.

Box 5. Colombia: Remuneration of Deposits with the Central Bank

In Colombia, the treasury has adopted a conservative investment policy. To avoid any potential inconsistency with monetary policy, the treasury invests all of its domestic currency excess liquidity into interest-bearing deposits at the central bank (*Banco de la República*) and, on occasion, in treasury bonds (TES). The central bank enables the treasury to place resources in interest-bearing deposits with terms of up to 730 days. The rates offered follow a curve: the very short-term rates are linked to the interbank rates, and short- and medium-term deposits are linked to rates in the fixed-income securities market. In relation to TES, the treasury invests by direct purchases on securities

trading systems, acting as any other agent would in the secondary market. Excess liquidity in dollars is invested in interest-bearing accounts and in time deposits in commercial banks. These investments are made through the central bank, which is the custodian of the government's pesos and US dollar accounts.

Source: IMF staff.

collateralized to protect the investor from credit risk because ownership can change. Therefore, the creditworthiness of the financial institution is a prime concern with these instruments.

Money Market Mutual Funds (MMMFs) are securities offered by companies that invest in other money market instruments but have slightly longer maturity (up to 60 days). Yields on these funds reflect short-term interest rates. Mutual funds are usually regulated by the securities regulator and operate under strict guidelines regarding such matters as maximum maturities, diversification requirements, and liquidity tranches. These constraints have been tightened since the financial crisis.²⁵ Although MMMFs can be a relatively safe way to invest short-term cash, many invest a portion of their portfolios in riskier securities. There is a risk that these may turn illiquid during times of financial market stress. MMMFs are not very common outside of Europe and the US and are less suitable for cash managers.

Commercial paper comprises promissory notes (an unsecured debt) issued by highly rated banks and some large nonfinancial corporations. It is primarily used by corporations to finance receivables. Most paper is

sold on a discount basis, although some issuers offer interest-bearing notes. It may be backed by an unused bank credit line to refund the notes in case the issuer is unable to roll over the paper at maturity. Commercial paper is liquid only to the extent of the issuer's willingness to repurchase the paper from investors. The instrument is unsecured, so the issuer's creditworthiness is key. The government cash manager would have to focus on the underlying credit quality of the instrument. Constant monitoring of the market is also required, because underlying credit quality can deteriorate rapidly. For these reasons, it is an unattractive instrument for cash managers.

Table 1 summarizes a risk assessment of the money market instruments described and the ways of managing their risks. Annex B provides examples of the use of these instruments in selected countries.

Surplus cash can also be used to buy back existing debt. Doing this may help cash flow smoothing if a bond close to maturity is targeted. It can help to improve liquidity in the T-bond market if it is linked with a conversion offer. However, buy-backs also have disadvantages: (1) they can be expensive, particularly if longer-term bonds are targeted; (2) they can reduce liquidity if the remaining bond volumes are left insufficiently large; and (3) they mean that the cash is no longer available for the buffer. Buy-backs are usually better considered as a debt management tool—in the context of the annual borrowing plan or debt man-

²⁵These reforms aim to provide greater consistency and transparency over how funds operate, the type and duration of assets they can hold, and their ability to limit withdrawals (that is, the circumstances in which withdrawal fees can be charged or redemptions can be halted).

Table 1. Money Market Instruments: Risks and their Management

Instruments	Interest-rate Risk	Credit Risk	Liquidity Risk	Risk Management
Reverse Repos	Low, increases with maturity	Low	Medium: repos are rarely redeemed before maturity but may be able to borrow against the repo collateral	<ul style="list-style-type: none"> • Marking-to-market collateral • Overcollateralization • Repo counterparties banks with high credit rating • Use of Master Repo Agreement
Negotiable CDs	Low, increases with maturity	Medium to high	Low, increases with maturity and if CDs' secondary market is thin	<ul style="list-style-type: none"> • Investing in CDs of banks with high credit rating (prequalified) • Diversification (spreading investments over several financial institutions): individual and global limits on financial institution exposures
Nonnegotiable CDs	Low, increases with maturity	Medium to high	High	<ul style="list-style-type: none"> • Investing in CDs of banks with high credit rating • Marking-to-market collateral • Overcollateralization
Term-deposits (interest-bearing demand deposits)	Low, increases with maturity unless variable rate	Low with collateral; medium to high without collateral	Medium, depends if deposit can be broken early	<ul style="list-style-type: none"> • Collateralization • Investing in banks with high credit rating (prequalified) • Diversification: individual and global limits on financial institution exposures
Money market mutual funds	Medium, depends on style of fund	Medium to high	High	<ul style="list-style-type: none"> • High-quality funds only
Commercial paper	Low, increases with maturity	High	High	<ul style="list-style-type: none"> • Very high-quality issues only • Diversification
Deposits at the central bank	Low, increases with maturity	None	Low	<ul style="list-style-type: none"> • Low risk, but a market rate of interest should be paid, and services should be remunerated

agement strategy—rather than as a short-term cash management instrument.

Institutional, Governance, and Coordination Requirements for Active Cash Management

This section outlines some of the institutional, governance, and coordination requirements for more active cash management.²⁶ The governance of structural funds raises issues beyond the scope of this note.

Investment Policy Statement

The government's objectives in investing financial assets, short or long term, should be reflected in an investment policy statement that specifies the government's asset allocation choices, risk tolerance, and rate of return objectives. The policy establishes the framework within which investment activities take place. It should be written and approved by the relevant minister, governing board, or committee to guide cash managers in the implementation of investments, inform the public (if only with a summary), and manage risks. At

²⁶“Active” cash management is distinguished from “passive” cash management by the deliberative actions of the treasury to smooth its cash profile to achieve low daily cash balances.

the operational level, the policy must specify, among other things, the following:

- **The authority to invest excess cash, granted, for example, by a governing board or committee.** The policy must identify decision-making responsibilities and must refer to the required segregation of duties and the policy on individual authorization limits.
- **The investment policy scope, that is, the investments to which the policy applies.** For treasuries building their capabilities, the guidelines should normally allow investment only in highly liquid, high-quality securities, deposits with eligible financial institutions (preferably collateralized), and repos.
- **General objectives in terms of safety, liquidity, and yield, and any hierarchy among them and the level of risk that the MoF is willing to tolerate.**
- **Risk policies for market, credit, liquidity, legal, and operational risks.** These should cover the following:
 - Permissible investments: types, magnitudes, and tenors
 - Limits on exposures to credit risk: these are likely to include (1) requirements for diversification of counterparties; and (2) individual and global limits on financial institution exposures, based on the nature of the transaction and, where relevant,

the quality of credit ratings. These risk parameters must also take into account collateral and tenors.

- Requirements for diversification of assets
- Collateral management frameworks, including restrictions on eligible collateral
- Manager selection: some treasuries outsource some operational processes and even investment decision-making, so manager selection and monitoring of the managers' performance should be addressed in the policy. The managers' duty of care and avoidance of conflicts of interest will be important aspects of any outsourcing decision.
- **Reporting on performance and other issues.** Doing this will include reference to any audit process and the need for a regular investment appraisal. Investment performance might be benchmarked against an appropriate market index, and reports should be prepared on a weekly or monthly basis.
- **Process for amending the policy.** It should be reviewed by the governing body on an annual basis, at a minimum. More frequent reviews will be necessary when new investment legislation is enacted, when staff capabilities change, or when other external and internal issues dictate.
- **Evaluation and appraisal of the policy.** The policy, and the treasury's compliance with it, should be formally reviewed at least once a year by the board or investment committee, or following major events that demand key modifications.
- **Exceptions to the policy.** Any minor exceptions or temporary breach of limits might be approved by the treasurer. Any major exceptions or changes in policy, however, would require approval by the board or investment committee.

Once the investment policy is in place, the treasury should establish operating procedures to be followed when making an individual investment decision. These procedures should specify in detail the precise steps to be taken—from identifying the funds available to invest, through the process of selecting the appropriate instrument and counterparty, to dealing and final settlement. The procedures should also outline how to monitor the investment from settlement through maturity.

Coordination with Debt Management

Cash and debt management functions should be closely coordinated, if not integrated—as they increas-

ingly are in Organisation for Economic Co-operation and Development (OECD) countries and others with an integrated DMO. The institutional, governance, and decision-making requirements that apply to the investment of cash surpluses are, in principle, no different from those that apply to other cash or debt management transactions. Difficulties can arise when borrowing and lending functions are not properly integrated. The investment of surpluses in some countries lies with the treasury, reflecting its historical role as the cash manager. Although this historical role was a largely passive one, it has survived the development of a modern debt management office with responsibility for both T-bond and T-bill issuance. Mexico and the Russian Federation provide examples of this practice. In Chile, legacy legislation has left the investment of surpluses with the budget directorate (DIPRES), although in many other respects, Chile follows good practice.

The decisions of debt managers are driven by strategic choices—summarized in the debt management strategy—about the composition of the debt portfolio and how it should develop, consistent with the government's trade-off between cost and risk, and taking account both financial assets and financial liabilities. These choices influence financing decisions between instruments—for example, internal or external, short- or long-term, fixed-rate or floating-rate, retail or wholesale. They also influence decisions on the investment of financial assets. Day-to-day issuance and investment decisions also depend on cash requirements, on the profile of expected cash flows, and on the demands of the market. Debt managers should take these factors into account and juggle the full range of short- and long-term instruments. As active cash management develops, it may become possible to protect a stable T-bond issuance program, using T-bills and other money market instruments to smooth cash flows.

Decision Making

It would be sound practice to establish some form of Cash Coordination Committee (CCC) for decision-making. If there is a separation of functions, the CCC becomes especially important as the agent to bring together the relevant functions (including treasury, budget, debt, and macro-fiscal) and make the necessary borrowing and lending decisions in an integrated manner. The specific role of the CCC

should be the following: (1) review cash flow outturns and compare them with the forecasts; (2) review cash flow forecasts for the period ahead; and (3) decide or make recommendations on the actions needed to ensure cash adequacy and cost-effective use of surpluses for the period ahead. It may be useful to establish a technical-level committee to support a high-level decision-making CCC. The central bank could also be invited to attend CCC meetings as an observer, if necessary. By doing so, the central bank would receive the latest cash flow forecasts and add value to the CCC's discussions of recent outturns and forecasts. Its views on money market activity and liquidity would be especially important during times of market uncertainty. It is often advisable to invite the tax authorities to the CCC meetings for a perspective on the latest forecasts.

After discussing and deciding on the actions over the period ahead in the CCC, the front office should be instructed to execute borrowing and lending transactions within the agreed parameters. It is strongly recommended that all market investment and borrowing functions are concentrated in the hands of single front office unit. Such a concentration ensures better coordination, the concentration of expertise, and a single point of contact with the market across a range of operations. Front office managers need to build a relationship with individual intermediaries, whether they are selling bonds or bills, borrowing or investing in the money markets, or intervening for wider reasons. When two separate government institutions interact with the market, there is the risk of giving conflicting signals, adding to uncertainty and potentially distorting the money market.

Interaction with the Central Bank

Regardless of the division of responsibilities, coordination mechanisms with the central bank should be established. These mechanisms are needed to address issues that often fall beyond the purview of the CCC. Some central banks may be suspicious of a treasury's competence or objectives, or they may be worried about complications to monetary policy operations. The treasury should address such concerns. If cash is well managed, however, the bank will benefit from smoother cash flows. Coordination requires some form of a Memorandum of Understanding covering the following: (1) the joint program for money market development; (2) the respective operations, whether investments, T-bill issues, or OMOs; (3) the

times of day for operations and the timing and forms of announcements; and (4) information exchanges. The central bank must also know the parameters of expected operations in the money market, for example, the target end-of-day balance.²⁷

Internal Organization

For an integrated cash management function in the treasury or debt office with responsibility for borrowing or investing in the financial markets, a vertical separation of the front, middle, and back offices is important for reasons of specialization and of operational risk. In particular, separations are needed (1) between the execution of transactions and their processing (including reconciliation, settlement, and servicing) and (2) between the development of the policy framework and the execution of transactions within that framework. These requirements are no different from those applying to debt management; as noted previously, and more fully discussed elsewhere, the debt and cash management functions can and should be integrated or at least closely coordinated.²⁸

In relation to investment, the role of the **front office** should be to monitor markets, run tenders, and make other investments (such as reverse repos). The **back office** should manage collateral or pledges, including daily valuation and remargining (which may depend on the sophistication of the settlement system), except insofar as those functions are contracted out, for example, to the central bank. The **middle office** functions should include the following: developing policies and strategies in relation to both debt and cash; creating the framework for risk management across the range of functions; and reporting on policies, operations, and performance, both inside and outside of government. The middle office should have the lead in preparing and updating cash flow forecasts and should liaise with front office.

Other Operational Requirements

The legal requirements for active cash management should be straightforward. The MoF (and, as necessary, the treasury or DMO) must have the authority to borrow in the short term to meet the government's cash flow requirements, independent of any medium-term

²⁷For a fuller discussion, see Pessoa and Williams (2012).

²⁸See, for example, Fainboim, Pessoa, and Williams (2015).

fiscal rule, and to invest surplus balances in the financial markets (or as term deposits in the central bank). When necessary, an appropriate delegation framework may be specified. This authority is in addition to that needed to finance the deficit, but it should not preclude borrowing or lending for cash flow smoothing purposes across the end of a financial year. A clear mandate would also state the objectives of active cash management. To retain the flexibility to respond to market conditions or practices, it is not advisable that the available instruments be specified in a legal document, but it would be acceptable to insist that risk parameters are identified and approved. Important too is the ability to make decisions quickly and with flexibility within a delegated structure.

Regardless of the legal framework, it would be sound practice to explain to the market the government's intentions for cash management before any new policy is introduced. Such an explanation would avoid any misunderstanding and facilitate the ability to receive any feedback on the mode of operation.

The skills linked to the new functions will normally be available in a modern treasury, particularly one that also has debt management responsibilities. Some extra staff may be needed to handle the interaction with the market, maintain cash flow forecasts, and process transactions. The continuing staff requirement is likely to be modest, although there may also be some set-up costs for systems, processes, and risk assessment. In any event, training will be important to ensure familiarity with market practices and to embed internal processes and controls.

The system requirements for cash management are also likely to be modest. Excel or a similar program can be used initially, but only when there are a few transactions. The auction of deposits or repo ideally needs an electronic system integrated with a database and back office processing systems. Some countries use platforms offered by Bloomberg or similar entities. When the number of transactions grows, a fully integrated transactions processing system with front, middle, and back office capabilities would be preferred.

Performance Monitoring

An investment policy should include a section on performance evaluation. Governments often manage large volumes of cash, which have an opportunity cost—measuring investment performance is strongly recommended but difficult to implement. The per-

formance of those managing structural funds can be assessed against the chosen benchmark, but it is more difficult to assess the performance of cash managers.

The performance measures selected should reflect the government's cash management objectives. The overriding requirement—that cash is available to meet commitments—can be measured, as can a related objective of not using the central bank overdraft facility or a commercial bank's credit line to meet those commitments. The ability to judge whether smoothing is successful or surplus cash is used to best advantage, however, requires identifying a counterfactual, that is, the alternative course of action against which to measure performance. Some countries measure return against a “do nothing” option, for example, the return available on call deposits in the banking system.²⁹ To assess smoothing, several countries simply track the degree of smoothing achieved by measuring the stability of balances or the deviation with respect to a range. There may be other objectives to take into account, for example, ensuring that operations do not complicate monetary policy or unduly distort markets.

Annex A summarizes the experiences of the treasuries of Australia, UK, and Canada in assessing cash management performance. Most of the indicators used reflect the preceding discussion. However, problems with some performance measures, particularly the fact that they are influenced by external factors not under the control of cash managers, has led some countries to abandon them.

Conclusions

The investment of temporary surplus cash into the banking system is an intrinsic part of modern cash management. If the risks are well managed and the investments are well chosen, there are clear benefits, both in terms of cost savings and wider financial policies. Governments, in building their cash management function, should ensure that this capability is fully embedded and integral to their toolkits.

The global financial and COVID-19 crises underscore the importance of liquidity risk. Cash managers needed a “financing continuity plan” to complement their business continuity plan and to establish how

²⁹The French DMO (Agence France Trésor) had a target of this kind—for example, “to earn interest on cash balances on average of at least EONIA (European overnight interbank average rate) for investments in short-term deposits and overnight reverse repo, and EONIA less 2 basis points for reverse repo longer than 1 day.”

they would respond to severe market disruptions. Such crises also bring into sharp relief the importance of a developed local money market. Deep and liquid markets allow safe investment, as well as open up economically attractive opportunities and provide increased resilience in times of crisis. More active cash management not only benefits from the development of domestic financial markets; it contributes to it. The use of repo or similarly secured market instruments generates activity in the money market and stimulates the government bond market, because domestic government bonds are normally the preferred collateral. This, in turn, makes treasury securities more attractive to banks as a liquidity management instrument and spurs the development of market infrastructure required for an interbank repo market.

Finance ministries and treasuries should address their need for capacity development in a systematic manner by taking a series of actionable steps, focusing on the following:

1. **Identify the target cash buffer:** the cash that is always available to meet residual day-to-day volatility unexpected flows or disrupted financing. Daily cash flows above this amount are potentially available for investment in longer-term assets. When the surpluses are persistent or structural, consider the establishment of a separate fund—whether a cash reserve, stabilization, or wealth fund.
2. **Research the investment options:** as necessary consult with the central bank, primary dealers, and others. Where possible, focus on reverse repo or otherwise collateralized term deposits.
3. **Agree on internal responsibilities:** for forecasting and hence recommendations as to amount and maturity of investments for risk management; for decision-making; for running the investment process; and for monitoring, maintaining, and, in due course, repaying the asset. Establish processes, procedures, and internal controls. Probable new functions that will need to be specified and staffed or contracted will be credit risk assessment and collateral management.
4. **Define the investment process and timeline:** for example, by auction with a preapproved panel of banks. Identify any internal systems needs. Prepare any legislation or other regulations, as necessary.
5. **Discuss with the central bank (and, as necessary, the securities regulator):** agree on the mode of operation, flows of information, operational interactions, and any services supplied by the bank. Reflect these items in the memorandum of understanding or service level agreement.
6. **Prepare a consultation document explaining the intentions to the market, the policy objective, the benefits that flow from it, and the intended mechanisms:** follow up with bilateral discussions, workshops, and other vehicles, as necessary.
7. **Prepare contractual documentation:** for example, the GMRA for repo and come to agreement with preferred counterparties.
8. Test software and other systems with dummy transactions.

Annex A. Measuring Cash Management Performance: Selected Country Experiences

Australia

In 2004–05, the Australian Office of Financial Management (AOFM) introduced the concept of a 91-day rolling average for the closing balance of the Official Public Account (OPA), that is, the TSA at the central bank (the Reserve Bank of Australia, RBA). The AOFM was required to maintain this moving average below the approved upper limit of \$1.5 billion. Performance was assessed against these targets and limits.

As a result of significant increases in government cash flows, the minister for finance and the treasurer agreed to remove the limit in February 2017. The limit was replaced by a set of cash management principles to ensure that the government was able to meet its financial obligations as and when they fall due. Other objectives are to minimize the cost of funding and the carrying cost of holding cash balances, which centers on holding only balances assessed as prudent to cover forecast needs and contingencies while investing excess balances at low or minimal risk. In minimizing cost, the AOFM seeks to avoid use of the overdraft facility provided by the RBA.¹ The AOFM has developed an operational framework to adhere to the principles.

The AOFM also tracks the contribution of each major component of its portfolio to the overall change in total debt service costs. Term deposits are one major component that contributes to reduced debt service costs. The actual changes are compared with estimates of changes that would have occurred on a set benchmark portfolio.

United Kingdom

The UK DMO's high level cash management objective has been subdivided into a series of objectives, each with performance indicators.²

Objective 1: The DMO must supply sufficient cash each day to enable the government to meet its payment obligations. This is fundamental and unconditional.

Objective 2: Cash management operations should be conducted in a way that does not conflict with the operational requirements of the Bank of England

(BoE) for monetary policy implementation. The DMO is required to notify the BoE, in advance of its weekly round of OMOs, of the target cumulative weekly balance for the week ahead. The DMO conducts its market operations with a view to achieving this weekly cumulative balance within a very small range. No cash management operations are undertaken that by their nature or timing could be perceived as clashing with the BoE's OMOs.

Objective 3: Cash management operations and arrangements should be conducted to avoid undermining the efficient functioning of the sterling money markets. The DMO interprets this as a responsibility to minimize the impact of individual daily flows on the money markets while ensuring that it deals at competitive prices.

Objective 4: The DMO should maintain a system in which the costs and risks are transparent, measured, and monitored, and performance is assessed. The DMO maintains an ethos of cost minimization rather than profit maximization. The active cash management framework encompasses a series of quantitative liquidity, interest rate, foreign exchange, and credit risk limits that together reflect the government's risk preferences. Active cash performance is measured and evaluated directly by comparing actual net interest paid and received with the cost of funds.

Objective 5: The DMO should maintain a credible reputation in the market that leads to lower costs in the long term and a system that is sustainable. The DMO seeks to maintain and enhance its reputation in the market by being open, transparent, and consistent with respect to the aims and intentions of its operations and transactions; it maintains an active dialogue with market participants.

The UK government discussed in 2004–05 the possibility of using a measure of value added compared to an assumed passive management default benchmark. Deviations from the benchmark would have been permitted—subject to credit, interest rate, and liquidity risk limits—to smooth the profile of expected daily net cash needs on the basis of the forecast provided. After some further detailed work, it was decided that the construction of this benchmark did not add enough value, and the idea was dropped.

Canada

The primary objective of cash management is to hold the lowest level of domestic cash balances, while

¹AOFM (2019).

²UK DMO (2019).

ensuring that funds are available to meet daily requirements, with an appropriate margin for uncertainty, and investing the cash balances in the market to help mitigate the cost of carry.

To support this overall liquidity objective, the government holds liquid financial assets in the form of domestic cash deposits and foreign exchange reserves at a level sufficient to cover at least one month of net projected cash flows (including debt servicing or refinancing needs). This additional liquidity objective is to promote investor confidence and safeguard the government's ability to meet payment obligations in situations where normal access to funding markets may be disrupted or delayed.

The Bank of Canada, as fiscal agent for the government, manages the Receiver General (RG) Consolidated Revenue Fund (that is, the TSA); RG balances are maintained at a prudential level adequate to meet the operational objective of five business days of non-debt cash requirements.

To generate a return on excess government cash, RG balances are invested with private-sector counterparties through a competitive auction process typically held twice each business day. A large portion of these deposits are fully secured (repos).

The department of finance uses several indicators to monitor and evaluate performance:

- the trend and level of cash balances over the course of the year, measured against previous months, quarters, and years
- the cost to the government of maintaining cash balances, measured as the net return on the balances, which is calculated as the difference between the return on the auctioned balances (typically close to the overnight rate) and the weighted average yield paid on T-bills
- the proportion of cash balances invested with private-sector counterparties on a fully secured basis.

Annex B. Investment of Excess Cash in Selected Countries

Countries	Instruments	Comments
Argentina	Deposits at the central bank	Fixed-term placements at <i>Banco de la Nación Argentina</i> (BNA), a public bank that also works as a payment intermediary and collector of revenues.
Australia	Deposits at the central bank; CDs in the past	Cash investments are made in term deposits in the RBA and in negotiable certificates of deposits (NCDs) issued by highly rated authorized institutions. Since 2012, investments with very low remuneration and in NCDs have ceased.
Canada	Mostly deposits but not all collateralized	Cash balances deposited with approved financial institutions. Auctions twice a day through a process administered by the Bank of Canada.
Chile	A variety of instruments available to invest surplus cash domestically and in external markets	In the domestic market, available instruments include bonds and notes, term deposits (peso-UF-US\$), fixed-income operations (repurchase agreements via auctions with the state bank and commercial banks), and mutual funds and investment funds. In the international market, these include sovereign bonds, T-Notes, CDs, time deposits, repurchase agreements, term deposits, and mutual funds and investment funds. Chile periodically auctions term deposits to a prequalified panel of banks; collateral is required, usually government bonds. Chile also auctions reverse repo investments.
China	Collateralized deposits	Periodically auctions term deposits of up to 90 days to a prequalified panel of banks (mainly banks owned by the government). Requires collateral, usually in the form of government bonds.
Colombia	Deposits at the central bank, treasury bonds	All of its domestic currency excess liquidity is invested in interest-bearing deposits at the central bank and occasionally on treasury bonds (TES). In dollars, it is invested in interest-bearing accounts and in time deposits in commercial banks in the US.
Costa Rica	CDs, investment funds, checking accounts	CDs and investment funds made up of public portfolios and at checking accounts of public banks.
Countries of the Eurozone	Reverse repos, unsecured deposits	Most countries invest in repos, particularly larger countries. Most also invest in short-term unsecured deposits.
France	Deposits at the central bank, unsecured loans, and reverse repos	Cash surpluses are invested: (1) on the TSA at the Banque de France, bearing interest at contractual rates that vary according to the amount deposited; (2) on the overnight market, mainly through unsecured loans (usually three times a day) and reverse repos.
Hungary	Reverse repos	Eligible collateral government securities and treasury accounts; eligible counterpart primary dealers and local banks; tenors one day to one week; repo by multiple price auction.
Mexico	A variety of instruments available to invest surplus cash domestically and in external markets	The treasury may invest in: (1) government securities and credit securities issued by the federal government; (2) demand or term deposits in Banxico, development banks, or multiple banks; (3) securities issued by Banxico; (4) debt instruments issued by development banks and multiple banks; (5) debt instruments issued by foreign governments, multiple banks, or foreign financial institutions; and (6) reverse repos denominated in DX, investment units (UDI), or in FX, through Banxico, development banks, commercial banks, and international financial institutions.
Perú	Deposits at the central bank and commercial banks	Demand deposits and term deposits in the Central Bank of Reserve of Peru (BCRP), and auctions of term deposits in the financial system.
Dominican Republic	Short-term financial certificates at a public bank	Investments in short-term financial certificates with the agent bank (Banco de Reservas, the public commercial bank that collects government revenues and pays government obligations), although it is also authorized to make them in entities of the national financial market.
Russian Federation	Deposits, currently mostly reverse repos	Originally focused on bank deposits by auction, but currently dominated by reverse repos (also short-term loans to constituents of the Russian Federation and municipalities).
South Africa	Interest bearing deposits	Interest-bearing cash balances with Reserve Bank and commercial banks.
Spain	Term deposits	Has in the past organized tenders of term deposits periodically, where the relevant variable is the spread against a money market comparator rate.
Sweden	Primarily in central bank certificates and deposits; also in several other instruments	The National Debt Office manages cash (DX and FX) actively. It may invest in covered mortgage bonds with short maturities, repos in covered mortgage bonds, and tri-party repos (in the past, it has invested in commercial paper)—all within a strong risk management framework.
The Netherlands	Reverse repos and deposits at the central bank	Reverse repos. Also, the Dutch State Treasury Agency (DSTA) may, under certain conditions, place surplus funds at the Dutch Central Bank (DNB) with at least 5 working days' notice. On the largest part of the balance, DNB currently reimburses the DSTA at a rate equal to the deposit interest rate.
Turkey	Deposits	Has the capability and powers to invest in reverse repos up to 30 days by auction (in practice, surplus cash has been held in the central bank).
United Kingdom	Reverse repos	Very liquid market, particularly for less than 30 days, proactive fine tuning of cashflow profile.
United States	Collateralized deposits	This practice was used under the old TTL scheme—that is, the cash surplus was invested in collateralized deposits until the treasury required them. As of 2011, the excess cash was left with the Federal Reserve in overnight deposits.
Vietnam	Term deposits in commercial banks	Term deposits usually in the one- to three-month range in selected banks. Capability to invest in reverse repo is being developed.

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