PEMNA
Public Expenditure Management Network in Asia

## 2021 PEMNA Treasury CoP In-Depth Research

# Cash Management and Optimization

Survey Findings on Treasury Roles and Functions in PEMNA and Country Cases (Republic of Korea and South Africa)


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## DISCLAIMER and ATTRIBUTION

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| BOK | Bank of Korea |
| COVID-19 | coronavirus disease 2019 |
| dBrain | Digital Brain (Korea's IFMIS) |
| EPB | Economic Planning Board |
| ESD | emergency subsidy for disaster |
| FTSE | Financial Times Stock Exchange |
| GDP | Gross Domestic Product |
| IFMIS | integrated financial management information system |
| KHR | Cambodian Riel |
| KRW | Korean Won |
| Lao PDR | Lao People's Democratic Republic |
| MOEF | Ministry of Economy and Finance |
| MOF | Ministry of Finance |
| MOFE | Ministry of Finance and Economy |
| MSCI | Morgan Stanley Capital International |
| PEMNA | Public Expenditure Management Network in Asia |
| repo | repurchase agreement |
| SMEs | small and medium-sized enterprises |
| T-CoP | Treasury Community of Practice |
| TESOFE | Tesorería de la Feder ación (Mexico's Treasury Department) |
| TSA | treasury single account |
| US | United States |

# EXECUTIVE SUMMARY

Sound practices demonstrate that an efficient and well-organized cash management framework enables governments to pay their obligations most cost-effectively. The framework minimizes the idle balance of treasury single accounts (TSAs) and reduces operational risks, mismanagement, and fraud. Such a system has (1) centralized government bank accounts and a well-functioning TSA, (2) the ability to accurately forecast cash flow, (3) the use of short-term financing instruments, and (4) the capacity to invest excess cash reserves.

The coronavirus disease (COVID-19) pandemic demonstrated that effective government cash management is even more important now than before because governments have to deal with unanticipated decreased revenue and significantly increased public expenditures resulting from business lockdowns, fiscal stimulus packages, and pandemic-related health expenditures.

Public Expenditure Management Network in Asia[1] (PEMNA) countries employed tax relief measures (Malaysia and Thailand), cash transfers (Cambodia and the Republic of Korea), and subsidies (Brunei Darussalam and Myanmar) and introduced guarantee schemes to support small and medium-sized enterprises (China and Mongolia). Some measures required cash immediately while others, such as guarantees, did not have any immediate impact on government cash balances but required close monitoring and evaluation as they were contingent liabilities.

The Treasury Community of Practice, one of the two PEMNA communities of practice, conducted in-depth research on cash management and optimization based on sound practices and experiences of practitioners in the region and elsewhere. The research aimed to (1) develop a comprehensive paper covering the roles and functions of treasuries and the interaction between debt and cash management in PEMNA countries, and (2) learn the best practices in cash projection and optimization for the post–COVID-19 period.

The research was carried out on multiple levels: (1) a comparative analysis of sound cash management practices and treasury management in PEMNA countries, and (2) a comparison of policy responses of cash and treasury managers to COVID-19 in PEMNA and other countries. The research analyzed the legal status; the organizational structure; the main functions of

1 The PEMNA network is composed of 14 countries: Brunei, Cambodia, China, Indonesia, Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.

cash management; internal issues, including staffing; business continuity and operational risk; and policy coordination. The research explored how treasuries responded to COVID-19 and whether their policies and actions were efficient.

A comprehensive survey of PEMNA countries found the following:

1. While all countries operate a TSA, only Cambodia sets a maximum and minimum target balance. Korea sets a minimum daily target balance, while Indonesia, Malaysia, and the Philippines set a target balance.
2. Most of the countries operate a government integrated financial management information system (IFMIS), which is in accordance with international best practice. In some countries, the IFMIS is used to forecast cash flow although most countries rely on MS Excel to consolidate cash-flow forecasting.
3. All countries have a cash management unit, usually in the treasury but sometimes in the accountant general's department, comptroller general's department, or asset management service.
4. More than half the countries have a treasury or cash management committee to oversee and coordinate cash management operations. The other countries coordinate bilaterally across agencies responsible for the operations.
5. None of the countries are fine-tuning to smooth short-term changes in the TSA balance, although Korea is shifting from rough- to fine-tuning.
6. In most countries, the central bank pays no remuneration for surplus balances held in the TSA. When the central bank does so, the return is extremely low.
7. Staff numbers responsible for cash management operations are low (normally less than 10).
8. Only three countries have an operational risk management framework. While most have a business continuity and disaster recovery plan, it is primarily focused on systems and information technology, omitting critical cash management business operations, processes, and people.

The analysis of the survey findings indicates that some cash management practices could be improved across PEMNA countries by doing the following:

1. Ensure that the cash management unit can forecast cash flow accurately and on time; set target minimum and maximum balances for the TSA; and effectively manage cash balances, including the return on surplus funds.
2. Strengthen coordination between debt and cash management to ensure the use of short-term instruments to cover cash shortages and manage cash balances in

accordance with target minimum and maximum balances.

3. Look to transition from rough- to fine-tuning, i.e., adopt more active cash management.

4. Put in place an operational risk management framework covering cash and debt management operations.

5. Develop and put in place a business continuity and disaster recovery plan to ensure that critical functions and activities, systems, and personnel in cash and debt management are maintained in the event of a business disruption. Draw on the experiences of working from home during the COVID-19 pandemic.

The research examined the policy response of cash and treasury managers to COVID-19 in Korea (a PEMNA member country) and in South Africa based on their constraints and enabling environments, which include the legal, organizational, and operational framework of cash management.

Korea's experience suggests two major lessons:

1. **A country must be flexible and adapt to the unexpected.** When the forecast error rate ballooned in 2021, the Ministry of Economy and Finance (MOEF) decided to forecast annual revenue twice a year. The MOEF introduced a two-year Korea treasury bond issuance in 2020 to balance the forecast error and keep borrowing costs at an acceptable level. To cope with volatile interest rates during the pandemic, the MOEF carried out emergency buybacks for the first time in 2020 and 2021.

2. **A country must be agile.** The National Assembly implemented the emergency subsidy for disaster, and the Treasury made payments in a remarkably short period: 80 percent of KRW62 trillion was paid to more than 3 million people in only three days. The Bank of Korea quickly stepped in to purchase Treasury bills, without a limit. The technological capacity of Korea's advanced IFMIS or Digital Brain (dBrain) expedited extremely large-scale transactions quickly and smoothly.

Like Korea, South Africa confirmed the importance of cash management. Both countries learned that cash-flow forecasting functions must be reviewed and the reliability and accuracy of cash-flow forecasts improved. Since the two economies are of different sizes and development levels and have different cash management governance structures, they are different in other ways. South Africa, for example, has access to concessional financing. The country considered COVID-19 an opportunity to review its cash management operations and learned the following:

1. Forecasting capacity is a determinant of decision-making and execution, especially during extraordinary times. A functional TSA and strong coordination with

stakeholders enable reliable projections. However, past patterns of spending and revenue may no longer be a good predictor of future cash flows during a crisis.

2. Having a safety net, such as a cash buffer and bridging finance facilities, against cash-flow volatility is key to ensure that the government meets its commitments.

3. A deep and liquid domestic bond market is important to secure increased debt issuance. Steeply increasing short-term funding such as Treasury bill issuance during a liquidity crisis could result in refinancing risk and must be reduced as soon as possible.

4. Accessing cheaper concessional financing from international finance institutions and development banks should be considered to complement borrowing in international capital markets.

5. The extensive COVID-19–related lockdowns showed that during an emergency, core business operations can be maintained by staff working from home if supported by effective information technology systems.

Cash Management and Optimization

CHAPTER

# 1

GOVERNMENT CASH MANAGEMENT IN PEMNA:

# SURVEY FINDINGS ON TREASURY ROLES AND FUNCTIONS

CHAPTER 1

# GOVERNMENT CASH MANAGEMENT IN PEMNA: SURVEY FINDINGS ON TREASURY ROLES AND FUNCTIONS

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## 1.1. Introduction

This chapter introduces the main elements of sound international cash management practices, drawing on papers published by international financial institutions and experienced professionals. It sets out the main objective, roles, and functions of a modern treasury across PEMNA countries, covering the legal status, organizational structure, and main functions of cash management; internal issues, including staffing; business continuity and operational risk; and policy coordination. The analysis draws on the results of a comprehensive survey of PEMNA countries.

The second part of the chapter compares how treasuries responded to COVID-19 not only across selected PEMNA countries but also in peer countries, drawing on work undertaken and presented at a PEMNA Treasury Community of Practice webinar in April 2021. The third part sets out the conclusions from the research, lessons learned, and areas to improve.

Many PEMNA countries apply sound international cash management policies and practices recommended in the publications referenced at the end of the chapter. The conclusions and findings can be compared with the Korea and South Africa country case studies in chapters 2 and 3.

## 1.2. Main Elements of Sound Cash Management

Cash management is making the right amount of money available at the right time and the right place to meet the government's obligations most cost-effectively (Storkey 2003). Cash management is a strategy and associated processes for cost-effectively managing the

government's short-term cash flows and cash balances, within the government and between the government and other sectors (Williams 2004). Cash management is a process of revenue collection, payments, and intergovernmental distributions or transfers, and investment of surplus cash. Cash management requires cash-flow projections, a mechanism for payments and revenue collection, short-term instruments to finance the gap between cash flows, capacity to generate a return over cash balances, and coordination across government institutions.

Countries should have the main building blocks for a sound framework for effective cash management. The main features of modern cash management are centralized government bank accounts and a treasury single account (TSA), ability to accurately forecast cash flow, use of short-term financing instruments, and capacity to invest excess cash reserves (Lienert 2009, Williams 2010). The key features of cash management were summarized by Cangöz and Secunho (2020) (Table 1), who explored cash-flow forecasting and cash management practices in countries in different regions, with different income levels, technical capacity, and alignment to good practices. Their work was based on information from 24 countries that participated in World Bank workshops on cash-flow forecasting and cash management held in 2018 and 2019.[2]

2 The participating countries were Albania, Angola, Bolivia, Brazil, Chile, Colombia, Equatorial Guinea, Eswatini, The Gambia, Ghana, Honduras, Kosovo, Lesotho, Nigeria, North Macedonia, Peru, Romania, Rwanda, Serbia, Seychelles, Slovenia, South Africa, Thailand, and Uruguay. The paper draws on experiences and practices from emerging and advanced countries such as France, Hungary, India, Portugal, Sweden, Türkiye, the United Kingdom, and the United States.

Table 1 Key Features of Cash Management

| Key Features of Modern Cash Management (Lienert 2009) | Key Characteristics of Good Practice in Government Cash Management (Williams 2010) |
|---|---|
| Centralized government cash balances and establishment of a TSA structure structure | Centralized government cash balances and establishment of a TSA |
| Clear understanding of the coverage of the cash-planning framework | |
| Ability to accurately project short-term cash inflows and outflows | Ability to accurately project short-term cash inflows and outflows |
| An adequate transaction-processing and accounting framework | |
| Timely information sharing between the central treasury, revenue-collecting agencies, spending ministries, and/or treasury branch offices | Information sharing between cash managers, revenue-collecting agencies, and spending ministries (and any relevant branch offices) |
| Appropriate institutional arrangements and responsibilities | A formal agreement between the ministry of finance and the central bank on information flows and their responsibilities |
| Use of modern banking, payment, and settlement systems | Modern systems and adequate transaction-processing and accounting frameworks (processing of government transactions with few handling steps, reliance on electronic transactions); modern banking, payment, and settlement systems |
| Use of short-term financial market instruments for cash management | Use of short-term instruments (treasury bills, repurchase agreement [repo] and reverse repo, term deposits) to help manage balances and timing mismatches |
| Integration of debt and cash management | Strong coordination of debt and cash management |

Source: Cangöz and Secunho (2020).

Establishing a sound cash management framework with the features in Table 1 is beneficial not only to the government and public entities but also to other stakeholders, including the recipients of government payments, banks, and lenders. Countries need (1) capacity to forecast cash flow, relying on good data and realistic assumptions; (2) consolidation of cash flows through a centralized system of bank accounts; (3) structured and liquid bond and money markets; and (4) a well-defined institutional and legal framework for a predictable and transparent payment program and avoidance of arrears.

All countries face challenges, but low-income developing countries face more. Their governments often lack credible budgets, have smaller and less diversified revenue bases, have limited access to financial markets, and rely largely on donors to fund a large portion

of their budgets. Available public funds often remain dispersed outside the control of the ministry of finance (MOF). In the absence of a good cash-forecasting function, countries typically resort to cash rationing to meet their priority spending needs, often in an ad hoc manner, which can hinder budget execution and achievement of fiscal policy targets.

## 1.3. Main Objectives, Roles, and Functions of a Modern Treasury in PEMNA Countries

### 1.3.1. Legal Status

Public financial management laws and regulations cover aspects of cash management, usually only the forecast and control of budget expenditures and revenues, the requirement to consolidate the government's banking transactions in the TSA, and the authorization to place investments. Central bank legislation normally includes the government's banking arrangements and limits on borrowing from the central bank. Some countries have introduced public debt management laws and regulations but few have cash management legislation.

The lack of an adequate legal framework has impeded cash management. Leinert (2009) suggested that in the first phase of cash management reform, the legal framework may need to be modified to strengthen the MOF's authority to rationalize government banking arrangements, including any unutilized non-TSA (extra-budgetary) bank account balances, and to establish a TSA. Effective cash management depends on reliable data and realistic assumptions in cash-flow forecasting, consolidation of cash flows through a centralized system of bank accounts, structured and liquid bond and money markets, and well-defined institutional and legal frameworks (Cangöz and Secunho 2020). The legal framework should limit monetary financing from the central bank, provide remuneration for balances in the TSA, and strengthen the legal framework within the context of an underdeveloped money market. Doing so involves more active policies, drawing on a wider range of instruments or institutional options, to smooth short-term changes in the MOF's balance at the central bank (Williams 2004).

Of the PEMNA countries, only Vietnam has a comprehensive legislative framework for cash management (Box 1). Nearly all the other members have legislation on budget execution, including payments; requirements for a TSA; and management of excess cash and investments.

**Box 1 Vietnam**

The operation of government bank accounts is governed by the State Budget Law (Article 62); the Law on the State Bank (Article 4); Government Decree No. 24/2016/ND-CP, April 5, 2016, promulgating regulations on State cash management; Minister of Finance (MOF) Circular No. 58/2019/TT-BTC, August 30, 2019, on the use of the Vietnam State Treasury accounts opened in the State Bank of Vietnam and commercial banks; and MOF Circular No. 109/2021/TT-BTC, December 9, 2021, on the revision and supplementation of certain articles to Circular No. 58/2019/TT-BTC.

The management of cash balances is governed by Decree No. 24/2016/ND-CP and MOF Circular No. 314/2016/TT-BTC, November 28, 2016, promulgating guidelines to certain articles in Decree No. 24/2016/ND-CP; and MOF Circular No. 64/2019/TT-BTC, September 16, 2019, on the revision and supplementation to MOF Circular No. 314/2016/TT-BTC.

Decree No. 24 and MOF Circular No. 314 set out the requirements for line ministries and the revenue authority to provide forecasts to support effective cash-flow forecasting.

The State Treasury issued Decision No. 1689/QD-KBNN April 15, 2022, amending and supplementing some regulations on the State Treasury's risk management activities, together with Decision No. 5328 QD-KBNN, September 24, 2020.

Public sector cash management planning includes determining the minimum cash buffer, the limit on investments of temporarily idle cash by different methods, plans to temporarily cover cash shortfalls, and alternative plans on investments of temporarily idle cash; and taking a risk-based approach to cash management.

Source: 2021 PEMNA T-Cop In-Depth Research: Survey Questionnaire Responses.

### 1.3.2. Treasury Functions

Across PEMNA countries, treasury functions related to cash management cover the following:

1. **Cash-flow forecasting** requires a collective effort across government agencies to ensure that the government's payment obligations are fully met and arrears are not accumulated. The main output of cash-flow forecasting is accurate daily forecasts for at least one month, preferably for the next three months, enabling cash managers to manage the aggregate daily cash balances to minimize the cost of carry.[3] Countries with a higher level of public debt will normally maintain a high level of cash balances. All PEMNA countries produce at least monthly forecasts of expenditures and revenues obtained from government agencies, with seven respondents developing weekly forecasts. Cambodia uses historical trends to produce seasonally adjusted cash-flow forecasts. Updating the forecasts varies from weekly to semiannually. Vietnam updates the forecasts monthly if the public sector cash balance changes significantly (more than 10 percent).

3 Cost of carry is the cost of keeping excess cash in government accounts, given that borrowing cost tends to be higher than the return on the cash invested.

2. **Consolidated bank accounts** require the consolidation of cash flows (and balances) through a centralized system of bank accounts commonly referred to as the TSA. It should ideally include extra-budgetary accounts and bank accounts required by multilateral and bilateral lenders for disbursing project funds. Consolidated balances provide cash managers with the scope to maximize the return on surplus funds while minimizing unnecessary short-term borrowing and/or undertaking repurchase agreement (repo) transactions. All but Lao People's Democratic Republic (Lao PDR) operate a TSA, which, except in Malaysia and the Philippines, is a legal requirement. All have multiple accounts or sub-accounts under the TSA, with Cambodia, Indonesia, and Vietnam including foreign currency accounts. In all cases, the TSA is in the central bank, and in Vietnam the TSA also includes a state-owned bank. In some countries, the TSA includes extra-budgetary or special funds that are held not only in the central bank but also in state-owned and private commercial banks. Not all countries responded to the question because the information is sensitive. All countries operate bank accounts outside the central bank, with four of the nine respondents sweeping the balances to the TSA at the end of each business day.

3. **Payment systems** require the use of banking, payment, and settlement systems to ensure delivery versus payment on a real-time gross settlement basis. The arrangement ensures that payments can be made on the due date rather than days in advance because of a settlement process hindered by intermediate handling steps. The arrangement eliminates residual funds that need to be held in bank accounts to cover obligations such that the funds cannot be used and do not generate a return. All PEMNA countries have access to an electronic banking system interfaced to the government integrated financial management information system (IFMIS) to enable straight-through-processing from payment advice to payment order sent to the central bank. However, four PEMNA countries still make some payments in cash and four still use checks. Only three use credit cards.

4. **Short-term financing** is required to cover temporary cash shortages arising from cash imbalances and associated costs. The funding instruments used by governments for cash and debt management include (1) overdraft facility or short-term credit line with the central bank, (2) issuance or buyback of treasury bills with maturities up to 364 days, (3) repo and reverse repo transactions, (4) commercial bank credit lines, and (5) United States (US) or euro commercial paper issued in the US domestic market or Euromarkets.[4] Of the PEMNA countries, four use treasury bills, two repos, four reverse repos, and four term deposits. Vietnam lends or advances public sector cash to the State budget fund. Cambodia and Timor-Leste do not have a domestic government securities market. Only Republic of Korea and Vietnam[5] have

4 Buyback of treasury bills, reverse repos, and term deposits are used to invest idle cash.

5 Article 58 of Vietnam's Law on State Budget stipulates that if the central government budget faces a temporary deficit, advance funding can be provided by the central financial reserve fund and other legitimate financial sources but must be returned within the budget year. In case these sources do not meet demand, the State Bank of Vietnam can make advances to the central budget as decided by the Prime Minister. But the advanced funding must be returned within the budget year, except when decided otherwise by the Standing Committee of the National Assembly.

access to a ways and means facility[6] from the central bank but both limit funding to the fiscal year or tenors of less than 3 months. None have an overdraft facility.

5. **Cash buffers** (liquidity buffers) require accumulating cash to provide a buffer for unanticipated cash outflows and to avoid accessing the market for unplanned short-term financing. The size of a cash buffer is linked to the magnitude of cash-flow forecasting errors and cash-flow volatility. Of the PEMNA members, five said they set a target balance for the TSA, but only Cambodia sets a minimum and maximum target balance. Several did not respond, possibly because the information is sensitive. Box 2 covers the methodology for setting a target cash balance in the TSA, drawing on Cambodia's experience.

**Box 2 Setting a Target Cash Balance in the Treasury Single Account**

The survey showed that only Cambodia sets a lower and upper limit for the balance in the Treasury single account (TSA). The monthly floor target is set at KHR1,600 billion and the ceiling target at KHR3,200 billion. The values are calculated from two standard deviations of the weekly and monthly variation in the TSA balance around a monthly target of KHR2,400 billion.

What is the best methodology for calculating a target cash balance? An approach based on safety stock modelling is documented by Hürcan, Koç, and Balibek (2020). A simple formula for the target cash balance is [Z-score * the lead time (to replenish the cash) * standard deviation of demand]. For example, to satisfy cash demand with a 95 percent confidence level, extra cash must be carried that is equal to 1.65 standard deviations of cash variability, assuming a normal distribution, equivalent to a Z-score of 1.65.

Data from several country examples suggests that daily changes in TSA balances (not the balances themselves) show a symmetrical distribution (typically about close to zero, assuming that flows are fully financed, that is, the total magnitude of cash inflows matches outflows within the year). Based on the assumption that the changes in TSA balances follow a normal distribution, the following formula can be used to determine the target cash buffer:

$$Target\ CB Cash\ Balance = z.\sqrt{m.}\,\sigma_d - OD$$

where:

- $m$ is the desired period of coverage (in days)
- $z$ is the z-score (also known as the standard score)
  [Z-score for a 95 percent confidence level is 1.65]
- $\sigma$ is the standard deviation of daily changes in the TSA
- $OD$ is the level of cash available through existing mechanisms (such as overdraft)

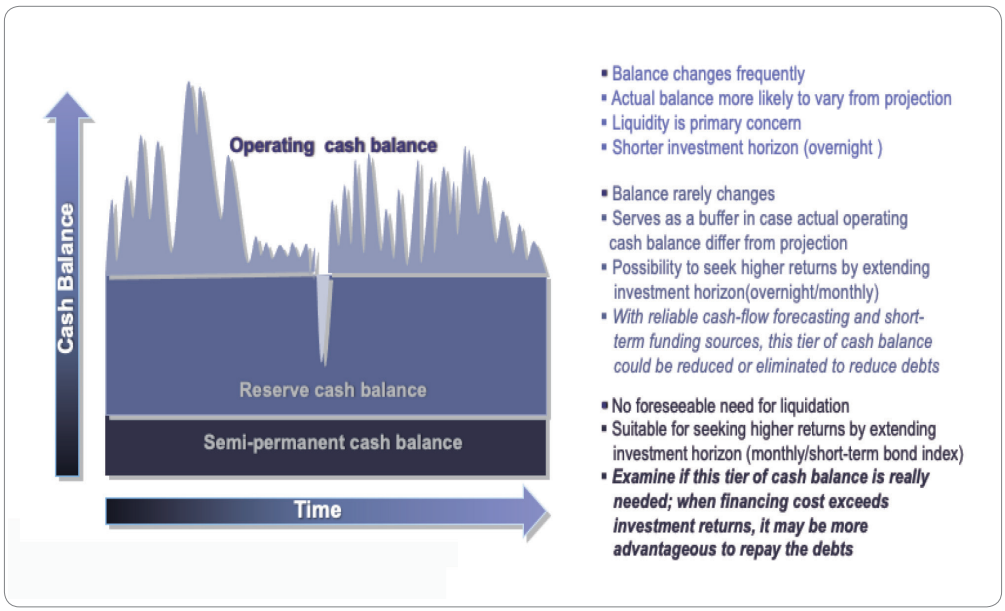
In general, for data on government cash balance changes, tails are likely to be fatter than those of a standard normal distribution because of some infrequent but high-volume transactions, such as capital expenditure and salary payments. In the presence of fat tails, depending on the government's risk tolerance, using higher z-scores to capture tail risks might be prudent. The formula can be modified if data can be explained with another distribution. Other methodologies to determine the target cash balance are set out in the paper.

Source: International Monetary Fund (2020): 14.

6 Ways and means advances are temporary and given by the central bank to the government to tide over any mismatch in receipts and payments. An advance differs from an overdraft, where the government can draw funds from the central bank.

6 **Managing cash balances** requires integrating cash and debt management to coordinate the debt issuance (and buyback) program with the required level of cash buffer. A passive (rough-tuning) or active (fine-tuning) approach can be used to manage cash balances (Williams 2004). Rough-tuning involves the issuance of treasury bills (or other short-term borrowing instruments) in a pattern designed to offset the impact on the banking sector of net cash flows in and out of government accounts. Fine-tuning involves active policies, drawing on a wider range of instruments (such as repos) or institutional options, to fully smooth short-term changes in the MOF's balance at the central bank. Korea is the only PEMNA country that is shifting to fine-tuning (section 2.2.1 D). International practices have identified three categories of cash balances (Figure 1). The cash balance for each category is set by the net cash requirements and level of liquidity and returns of investment under each category. Governments have adopted cash buffer policies to support cash and debt management and budget execution functions (Hürcan, Koç, and Balibek 2020). While cash buffers are intended to be held for extended periods, target cash balances can be reviewed occasionally to reflect cash-flow forecasting capacity, the debt repayment profile, the cost of carry, and external factors such as market conditions. These will change over time, and setting the three categories of cash buffers can provide greater flexibility to ensure maximum return on cash buffers while minimizing the cost of carry.

Figure 1 Cash Balances




Source: Hiro Tsubota.2009. Presentation at the Cash Management Workshop in Sanya, China, December 10.

### 1.3.3. Institutional and Organizational Structures

Fragmented institutional structures make cash management challenging. Country practices show significant room to strengthen coordination between debt and cash management and the use of short-term instruments to cover cash shortages (Cangöz and Secunho 2020). Coordination between cash and debt management is greatly related (but is not limited) to government instruments to raise money to meet government obligations. Formal mechanisms created by coordination committees can be a good first step to strengthen communication between cash and debt management, especially where functions are scattered across different departments. Several developing countries have recently adopted these arrangements, mainly focusing on improving cash-flow forecasting and strengthening connections between the estimates and the short-term debt strategy and domestic debt auctions. While coordination committees create a formal platform for information sharing and improved coordination, it does not avoid bad practices such as cash rationing and accumulation of arrears if the connection between cash, debt, and budget management is weak. Many other countries, however, adopt an integrated institutional arrangement where cash and debt management are performed by the same department, requiring internal coordination rather than formal committees.

As documented in Indonesia (World Bank Group 2014), a common practice is to set up a cash management unit within the MOF to review and consolidate periodic cash-flow plans provided by spending units. The unit's location varies from country to country. In some, the unit is a part of the budget department. In others, it is in the treasury or the accountant general's office and is part of the bank reconciliation section. The unit could be in the debt management office. The team of officials assigned to the unit is usually small (three to five full-time members).

Governments often set up high-powered liquidity committees (or debt management committees) within the MOF to decide on optimizing government short-term liquidity. The cash management unit functions as the secretariat of the liquidity committee, whose functions include (1) monitoring the macro-fiscal, macroeconomic, and monetary situation and quickly taking corrective actions; (2) ensuring coordination and sharing of information among the key stakeholders; (3) facilitating policy decisions on government debt and short-term investments; and (4) overseeing the timely and orderly financing of the budget. The liquidity committee is crucial in coordinating cash management with budget, debt management, and monetary policy. Decisions taken by the liquidity committee on debt and short-term investments are implemented through the debt management office or treasury.

Of the PEMNA members, five said they have a formal committee to integrate cash management and debt issuance, two (Korea and Vietnam) coordinate bilaterally, and two (Lao PDR and Timor-Leste, which does not issue domestic debt) have no integration at all. Details of the five countries with formal committees are in Table 2.

Table 2 Treasury or Cash Management Committee

| Country | Committee | Chair | Number of Members | Meeting Frequency |
|---|---|---|---|---|
| Cambodia | Cash management committee | General director of GDNT | 5+ | Monthly, quarterly |
| Indonesia | Asset liability management committee | Minister of finance | 12 | Monthly |
| Malaysia | Treasury committee | Secretary general of Treasury | 11 | Monthly |
| Philippines | Treasury committee | Treasurer of the Philippines | 5+ | Weekly |
| Thailand | Committee under CGD | Adviser for fiscal and financial system development, CGD | 7 | Quarterly |

CGD = comptroller general's department, GDNT = general department of national treasury.
Source: 2021 PEMNA T-Cop In-Depth Research: Survey Questionnaire Responses.

Four PEMNA countries said they have a debt management unit or entity responsible for financial transactions (Cambodia, Indonesia, The Philippines, Vietnam); four a cash management unit (Cambodia, within the General Department of National Treasury; Korea; Lao PDR; and Thailand, within the Comptroller General's Department); three a treasury (Lao PDR, the Philippines, and Vietnam; and two the central bank. Details of the instruments used are in section 1.3.2 on short-term financing.

### 1.3.4. Staffing, Information Systems, and Return on Cash Balances

#### 1.3.4.1. Staffing

In most countries, cash management has few staff since it has been a low government priority. But governments are starting to see the benefits of more effective cash management and its integration with debt management. In PEMNA countries, except Vietnam, fewer than 10 staff are responsible for cash management. Respondents from Vietnam included staff with responsibilities beyond forecasting and planning cash flow and managing cash balances.

Table 3 Staff Numbers

| Country | Number of Cash Mgmt. Staff | Location |
|---|---|---|
| Cambodia | 8 | General Department of National Treasury |
| Indonesia | 7 | Cash Management Unit, Directorate General of Treasury, Ministry of Finance |
| Rep. of Korea | 3 | Treasury Division of the Treasury Bureau, Ministry of Economy and Finance |
| Lao PDR | 6 | A division under the Central Treasury, Ministry of Finance |
| Malaysia | 6 | Cash Management Unit, Accountant General's Department |
| Philippines | 6 | Receipts, Investments, and Disbursements Division, Asset Management Service |
| Thailand | Not applicable | Comptroller General's Department |
| Timor-Leste | 2 | Cash Management Unit, Directorate General of Treasury |
| Vietnam | 20 | Cash Management Department, Vietnam State Treasury |

Source: 2021 PEMNA T-Cop In-Depth Research: Survey Questionnaire Responses.

### 1.3.4.2. Information Systems

Few governments have specialized integrated cash-flow forecasting and cash management systems. Cash and debt managers require a database to consolidate all debt and cash management instruments covering all public debt, financial assets (if appropriate), lending and on-lending, and government loan guarantees from multiple sources. The database includes the ability to incorporate cash management instruments such as repos, reverse repos, and collateralized deposits for fine-tuning cash management. The IFMIS that many governments use for budget and financial management and for accounting and financial reporting has cash-flow forecasting and cash management functionality. A government IFMIS, however, cannot easily capture projected future debt transactions for new issuance and for recording transactions arising from active cash management.

Cash managers often rely on Microsoft (MS) Excel to consolidate cash-flow forecasts from multiple sources (Table 4). Multiple systems are used across most PEMNA countries although most are highly dependent on their own government IFMIS as the core system for cash management. While MS Excel is an important tool, the extent to which integrated and web-based electronic systems are used is encouraging to see. Nearly all PEMNA countries have well-developed banking, payment, and settlement systems.

Table 4 Information Systems

| Country | System | Comment |
|---|---|---|
| Cambodia | Cash management system | Web-based in-house developed application |
| | FMIS | Financial and accounting system |
| | DMFAS | Debt system |
| Indonesia | OMSPAN | Semi-manual IFMIS functionality |
| | BIG-eB | Web-based electronic banking system developed by BI |
| Rep. of Korea | dBrain | IFMIS financial and accounting functionality |
| Lao PDR | Manual | Manual consolidation on daily basis using MS Excel |
| | GFIS and RTGS | Financial and accounting system |
| Malaysia | iGFMAS and Manual | Manual system drawing on cash-flow data from financial and accounting system |
| Philippines | Manual | Manual consolidation of cash flows using MS Excel |
| | Bloomberg | Track cash balances and placement of investments |
| | PhilPaSS | Philippine Payment and Settlement System |
| | nRoSS | National Registry of Scripless Securities |
| Thailand | Government IFMIS | IFMIS functionality |
| | BAHTNET | BOT payment system |
| Timor-Leste | MS Excel | Spreadsheet-based system |
| | R-Timor System | Banking system operated by the central bank |
| Vietnam | Multiple applications or systems | 1. Cash management application<br>2. G-bond management system<br>3. Data warehouse and business intelligence system<br>4. TABMIS: financial and accounting system<br>5. DMFAS: debt system<br>6. Settlement and interbank clearance systems |

BAHTNET = Bank of Thailand Automated High-Value Transfer Network, BI = Bank Indonesia, BIG-eB = Bank Indonesia Government Electronic Banking, BOT = Bank of Thailand, dBrain = Digital Budget and Accounting System, DMFAS = Debt Management And Financial Analysis System, FMIS = financial management information system, G-bond = government bond, GFIS = government financial information system, iGFMAS = integrated government financial management accounting system, nRoSS = National Registry of Scripless Securities, OMSPAN = Online Monitoring Sistem Perbendaharaan Dan Anggaran Negara, PhilPaSS = Philippine Payment And Settlement System, RTGS = real-time gross settlement, TABMIS = Treasury and Budget Management Information System.
Source: 2021 PEMNA T-Cop In-Depth Research: Survey Questionnaire Responses.

### 1.3.4.3. Return on Cash Balances

Effective cash management should ensure that the treasury or cash management unit maximizes the return on idle cash, including cash and deposits held with the central bank. Holding cash in unremunerated bank accounts can be particularly costly. In many countries, the central bank does not pay interest on the TSA and other bank account balances or on government deposits held at the central bank. Paying a market-related interest rate on such balances is good practice as it improves transparency and avoids the implicit cross-subsidy

associated with administered rates (Pessoa Williams 2012). The argument is that while such transactions are just intergovernmental transfers, the MOF will need to obtain a budget appropriation for the interest cost and the scrutiny that arises. As the central bank would be expected to make a profit from such government activities, it should be returned to the government as dividend. However, the amount returned is normally heavily discounted because adequate central bank reserves must be maintained and because the dividend is often paid well into the following fiscal year.

Another important factor is that in some developing countries, the financial costs of maintaining idle balances in multiple government bank accounts are unknown (Lienert 2009). The government may be reluctant to reveal how much cash is hidden in domestic or foreign currency bank accounts outside MOF or treasury control. Identifying and publicizing the costs of ineffective cash management raise awareness of good cash management practices. The opportunity cost (interest foregone) of maintaining idle government balances in cash or in multiple government bank accounts—including float in revenue and expenditure accounts—should be calculated. Unfortunately, doing so is still not a common practice.

Of the PEMNA countries that responded to the survey, only three are remunerated on the cash balances in the TSA held at the central bank (Table 5). The pattern is similar for cash balance held in commercial banks. All but two countries have an investment strategy with approved credit risk limits and counterparties.

Table 5 Remuneration of Government Bank Accounts

| Country | Remuneration on TSA | Average Return Over Past 12 Months | Remuneration by Commercial Banks | Average Return Over Past 12 months | Investment Strategy |
|---|---|---|---|---|---|
| Cambodia | No | - | No | - | No |
| Indonesia | Yes | 2.84% | Yes | 2.84% | Yes |
| Rep. of Korea | No | - | Yes | - | Yes |
| Lao PDR | No | - | No | - | No |
| Malaysia | Yes | RM120 million–RM140 million | Yes | RM600 million–RM700 million | Yes |
| Philippines | Yes | USD: 0.0375% | Yes | USD: 0.22%<br>PHP: 1.94% | Yes |
| Thailand | No response | | | | |
| Timor-Leste | No | - | No | - | Yes |
| Vietnam | No response | - | No response | - | Yes |

Lao PDR = Lao People's Democratic Republic, PHP = Philippine peso, RM = Malaysian ringgit, TSA = treasury single account, USD = United States dollar.

Source: 2021 PEMNA T-CoP In-Depth Research: Survey Questionnaire Responses.

### 1.3.5. Business Continuity and Operational Risks

Managing business continuity and operational risks is important (Balibek, Storkey, and Yavuz 2021). Government treasuries execute cash and debt management functions that are critical for the delivery of government services and the functioning of the financial system. The treasury's role includes planning and executing cash payments to government institutions and raising debt to meet funding needs so the government can execute its budget. The treasury operates closely with the financial sector. Disruptions in payment processes, including debt service and cash transfers, can significantly unsettle governments' service delivery and financial markets and have a negative fiscal and/or reputational impact. Cash and debt management operations must be resilient to external disruptions, including information and communication technology system outages and natural disasters. Many modern treasuries have business continuity and disaster recovery plans to maintain their core business operations and limit their losses.

International experiences documented in the World Bank Debt Management Performance Assessment tool show that few ministries of finance in low-income countries (including debt and cash management operations) have a business continuity and disaster recovery plan. Central banks, however, do have an operational risk management framework that includes a business continuity and disaster recovery plan, which is normally a regulatory requirement.

A good example of business continuity and disaster recovery planning for treasury cash management is the experience of the Mexico Treasury (TESOFE), which maintains an alternate operations site in Mexico City (Balibek, Storkey, and Yavuz 2021). TESOFE was praised for its response to the earthquake in September 2017; it activated its business continuity plan and its operations did not stop at any time.

Indonesia, Malaysia, the Philippines, and Vietnam said they have an operational risk management framework. All PEMNA countries but Lao PDR and Vietnam said they had business continuity and disaster recovery plans, although most seem to be information technology focused, including an IFMIS, and concentrate on recovery of debt and cash management systems. In Korea, the contingency plan covers a massive lack of revenue and focuses on maximizing revenue and restructuring expenditure. Only the Philippines said it had set up a backup site and adopted remote connectivity. Preparation for business continuity and disaster recovery falls well short of international sound practice.

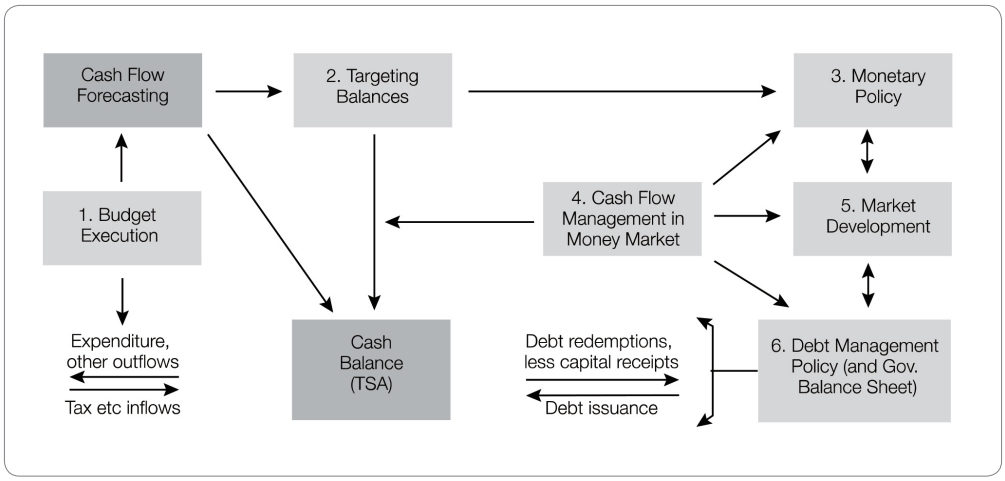
### 1.3.6. Policy Coordination

Effective cash management can help smoothly achieve the operational objectives and targets of fiscal policy, debt management (as set out in the medium-term debt management strategy), and monetary policy. Good management can ensure that adequate cash is available to pay for expenditures when they are due and to borrow only when needed (Lienert 2009). Good coordination across government entities (timely information sharing between the MOF,

treasury or cash management unit, revenue-collecting agencies, spending ministries, and the debt management office) can ensure accurate projections of short-term cash inflows and outflows. The flows to be forecast include government receipts and payments (those that contribute to the fiscal balance—deficit or surplus) and financing transactions (changes in net financial assets and liabilities, which finance the fiscal balance). A key objective is to anticipate the government's cash needs and to ensure that payments are made on time. Budget projections must be realistic and cash balance projections must reflect actual, not desired, cash flows based on budget allocations. Many governments still resort to cash rationing when funds are insufficient to meet payments due. This practice can be avoided with effective cash management.

Daily cash management requires frequent coordination between the cash manager, the government debt manager, and the monetary authorities. Policy is often coordinated through a high-level committee (section 1.3.3). Coordination is especially important when government cash managers are active in financial markets, since the MOF's actions affect commercial bank liquidity, which the central bank controls through monetary policy instruments. In employing more sophisticated cash management systems, the distinct responsibilities of cash managers, public debt managers, and monetary authorities may have to be delineated more clearly in memoranda of understanding (Lienert 2009).

Figure 2 Cash Management and its Interaction with Other Policy Areas




gov. = government, TSA = treasury single account.
Source: Williams (2010).

Government cash flows can be a major cause of short-term volatility in money markets and bank liquidity, affecting 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. A less volatile government cash balance can ease the central bank's tasks. Cash management and its interaction with other policy areas is best depicted in Figure 2. PEMNA countries' coordination with fiscal and monetary policies is set out in Table 6.

Table 6 Coordination with Fiscal and Monetary Policy

| Country | Coordination with Fiscal Policy | Govt Entities | Coordination with Monetary Policy | Govt Entities |
|---|---|---|---|---|
| Cambodia | Cash planning is based on fiscal planning and different sources of information to make it more accurate (target +/- 5%). | GDNT, GD of budget and GD of policy | Cash planning is sent to central bank monthly. | GDNT and central bank |
| Indonesia | Coordination is operational and strategic through exchange of data and analysis, sharing of knowledge and experiences in meetings, and collaborative policy design. | MOF ALCo | Institutional policies guide coordination between cash management and monetary policy. | BI Director of cash mgmt |
| Rep. of Korea | Cash management plan always reflects fiscal planning and budget execution. | MOEF | Independent of each other. | MOEF |
| Lao PDR | Annual, quarterly, and monthly budget plans are manually consolidated. | Treasury | 2021–2025 MOF strategy and vision tighten administration expenditure and investment and increase revenue. | Fiscal Policy Dept |
| Malaysia | Coordination with fiscal planning and budget execution through monthly CMC meeting. | CMC | Coordination with monetary policy through monthly CMC meeting. | CMC |
| Philippines | Long-term data and projections are discussed and updated with the DBCC.<br>Short- to medium-term projections are discussed with the cash planning committee and revenue and major disbursing line agencies. | DBCC<br>DBM<br>DBF<br>Office of the President<br>BSP | Daily to medium-term (one quarter ahead) TSA forecasts are sent regularly to the central bank. | BSP |
| Thailand | No response | | | |
| Timor-Leste | Close coordination between CMU under the DGT and the DGBP. | DGT<br>DGBP | Cash projections are provided by the DGT to the central bank at the beginning of each year and updated at any time during the year upon request by the central bank and PMU. | DGT<br>PMU |

| Country | Coordination with Fiscal Policy | Govt Entities | Coordination with Monetary Policy | Govt Entities |
|---|---|---|---|---|
| Vietnam | VST collaborates with other MOF departments to prepare quarterly and annual public sector cash management plans and quarterly and annual central government budget balance financing plans. | MOF SBD | VST provides information on public sector cash management and execution (including public sector cash balance and investments of temporarily idle public sector cash) to the Banking and Financial Institutions Department of the MOF and provide information on investments of temporarily idle public sector cash to the Monetary Policy Department of SBV. | VST SBV |

ALCo = Asset Liabilities Committee, BSP = Bangko Sentral ng Pilipinas (central bank), CMC = Cash Management Committee, CMU = cash Management Unit, DBCC = Development Budget Coordination Committee, DBM = Department of Budget and Management, DBF= Development Bank of the Philippines, DGBP = Directorate General of Budget and Planning, DGT = Directorate General of Treasury, GDNT = general department of national treasury, MOF = Ministry of Finance, PMU = Petroleum Management Unit, SBD = State Budget Department, SBV = State Bank of Vietnam, VST = Vietnam State Treasury.
Source: 2021 PEMNA T-Cop In-Depth Research: Survey Questionnaire Responses.

## 1.4. Treasury Responses to COVID-19 in Selected PEMNA and Peer Countries

### 1.4.1. PEMNA Countries' Responses to the COVID-19 Pandemic

The selected COVID-19–related measures undertaken by PEMNA countries were presented at a PEMNA webinar (Table 7).

Table 7 PEMNA Countries' Response to COVID-19 in Cash Management

| Brunei | Cambodia | China | Indonesia | Rep. of Korea | Lao PDR | Malaysia |
|---|---|---|---|---|---|---|
| Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase |
| Deferment of tax and pension payments | Monthly cash transfer program for poor and vulnerable households | Accelerated disbursement of unemployment insurance | Increased benefits and coverage of social assistance schemes | Cash transfers to households | Income tax exemption | Cash transfers to affected sector |
| COVID-19 Relief Fund for public financial contributions | Tax-relief measures | Tax relief and waived social security | Expand unemployment benefits | Expansion of employment and social safety expenditures | Eletricticy discounted rate | Temporary tax and social security relief |
| Subsidies for SMEs | Business Recovery Guarantee Scheme | Guarantee for SMEs | Capital injections to SOEs | Guarantee for SMEs | Low interest loans for SMEs | Eletricticy discounted rate |
| Online services | Financing facilities for SMEs | Policy banks bons issuance for COVID expenditures | Permanent reduction of corporate income tax | Expand public and private banks lendings to SMEs | Deferment of loan payments - policy to incentivize banks doing it | Guarantee for SMEs |
| Drive-thru for service pension payments | Deferment of loan payments | Issuance of Special Treasury Bonds | Guarantee for SMEs | Central Bank purchasing Korean Treasury Bonds | Reduction of reserve requirements | Increase of debt ceiling by 5% |
| Deferment of loan payments | Cutting interest rate on collateralized operations | Issuance of special government bonds | Central Bank purchase of government market to finance priority expenditures | Reduction of base policy rate | | Financing facilities for SMEs |
| | Reduction of reserve requirements | Liquidity injection in the banking system through reverse-repos | Central Bank acting as buyer of last resource for long-term local currency bonds to finance other expenditures | Expanding open market operation volumes, participants and accepted collaterals | | Multiple policy interest rate reduction |
| | | Reduction of reverse-repos interest rates | Deferment of loan payments | | | Reduction of reserve requirements |
| | | Deferment of loan payments | Multiple poclicy interest rate reduction | | | Ease of regulatory requirements to reduce the burden of loan payments and deferments |
| | | Ease regulation for uncollateralized borrowing for SMEs | Reduction of reserve requirements | | | |

| Mongolia | Myanmar | Philippines | Singapore | Thailand | Timor-Leste | Vietnam |
|---|---|---|---|---|---|---|
| Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase | Enlarged health-related expenditures increase |
| Increased expenditures initially financed by reserve fund withdrawal | Household support. In-kind and cash transfers | Cash aid program for low-income households | Cash transfers to all households (higher for more vulnerable) | Cash transfers for workers, farmers and entrepreneurs | Cash transfers for households | Cash transfers for households and workers |
| Tax exemptions for specific goods | Deferment of income and commercial tax payments | Capital injection in state-owned banks | Wage subsidies | Tax reliefs | Waiver of utility bills for poor households | Tax deferrement |
| Guarantee for SMEs | Exemptions and subsidies of household electricity | Guarantee for SMEs | Increase contingency fund for unforeseen expenditures | Reduction of social security contributions | Guarantee for SMEs | Pension contribution deferrement |
| Waiver of utility payments | Guarantee for SMEs | Central bank purchased government securities through a repurchase agreement | Deferment of loan payments | Reduction of utility rates | Debt relief for SMEs (financed by the government) | Free Guarantees to aviation business |
| Central Bank buying SOEs issued bonds | Promote use of mobile payment platforms | Central bank dividend payment (not legally required) | Reduction of policy rate | Loans and guarantees for banks on-lend to SMEs | | Loans for SMEs |
| Deferment of loan payments | Deferment/ restructuring of loan payments | Multiple policy interest rate reduction | Expanding open market operations: volumes and accepted collaterals | Central bank purchased government securities in the secondary market | | Deferment of loan payments and cost reduction |
| Multiple policy interest rate reduction | Multiple policy interest rate reduction | | | Revised bond issuance program | | Multiple policy interest rate reduction |
| Reduction of reserve requirements | Reduction of reserve requirements | | | Ease of regulatory requirements to reduce the burden of loan payments and deferments | | |
| | | | | Reduction of policy rates | | |

| | | |
|---|---|---|
| Increase expenditures | Increase government funds | Public services adjustments |
| Reduce or postpone revenues | Support to SMEs (subsidies/financing) | Cash/debt management strategy change |
| Guarantees/contingent liabilities | Monetary financing | Affect banking system liquidity |

SMEs = small and medium-sized enterprises, SOE = state-owned enterprise.
Source: Secunho (2021).

Governments had to deal with an unprecedented liquidity crisis caused by decreased revenue and increased public expenditures. Health expenditures increased in all PEMNA countries and cash transfers to households were common. Many countries introduced tax relief measures and subsidies, which reduced or postponed budget revenues. These unanticipated changes in cash flows increased the financing needs of most countries and some have employed monetary financing. Some countries introduced guarantee schemes to support small and medium-sized enterprises (SMEs), which do not have any immediate impact on government finances but require close monitoring and evaluation as contingent liabilities.

Measures used by PEMNA countries (Table 7) can be classified as follows:

1. **Increased expenditures:** Covering significantly increased health-related expenditures; fiscal support to businesses and households, including cash transfers; increased unemployment and other benefit programs; and wage subsidies (all countries).
2. **Reduced or postponed revenues:** Covering tax relief measures, including tax deferment, temporary tax and social security relief, and reduction or waiver of utility rates (most countries).
3. **Guarantees schemes and capital injections:** Covering guarantees for SMEs (e.g., China, Korea, Malaysia, Mongolia, Myanmar, the Philippines, Thailand, Timor-Leste) and capital injections in state-owned enterprises (e.g., Indonesia, the Philippines).
4. **Increased government funds:** Covering special funds and/or bonds (e.g., Brunei Darussalam, China, Indonesia), earmarked funds, loans or financing facilities for SMEs (e.g., Cambodia, Vietnam), and increased government debt ceiling (e.g., Malaysia).
5. **Monetary financing:** Involving direct financing in the primary market (e.g., Indonesia, Korea) and the secondary market (e.g., Thailand) or through repo agreements (e.g., the Philippines).
6. **Cash and debt management strategy changes:** Involving changes to the size of the cash buffer (e.g., Mongolia [–], Singapore [+]) or a revision to the government bond issuance program (e.g., Thailand).
7. **Banking system liquidity and borrowing costs:** Involving interest rate cuts (e.g., Cambodia, Indonesia, Korea, Malaysia, Mongolia, Myanmar, the Philippines, Singapore, Thailand, Vietnam), reduction of reserve requirements (e.g., Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar), loan payment deferments (e.g., Brunei Darussalam, China, Indonesia, Mongolia, Thailand, Vietnam), and easing of regulations for borrowing for SMEs (e.g., China, Malaysia, Thailand).

These measures led in most cases to a significant increase in government borrowing and resulting debt levels, negatively impacting countries' debt sustainability. To the extent that some of the increased borrowing may have been applied to increase cash buffers, the budget

impact will be determined by the cost of carry. Many of the measures led to a significant increase in contingent liabilities and fiscal risks.

Many other governments immediately reacted by using a wide range of policy tools—including financial support (e.g., Australia, France, Germany), enhanced unemployment benefits (e.g., Bulgaria, Chile, Spain), and easier access to credit (e.g., Japan, Türkiye, United Kingdom)—to limit the pandemic's devastating impact. Since governments have used a wide range of tools to cover many areas of the economy, policy coordination has become more important than ever. The need to make a high amount of unanticipated money available at the right place in an emergency reconfirmed the importance of cash managers' role. Effective cash management has been a determining factor in ensuring the agile implementation of government policies and their success. Well-structured and reliable cash management that coordinates well with debt, fiscal, and monetary policy is a powerful fiscal policy instrument.

### 1.4.2. Survey of PEMNA Countries

PEMNA prepared and issued a survey to all its 14 countries, except Myanmar; nine responded. Brunei, China, Mongolia, and Singapore did not respond. Thailand partially responded. The key messages drawn from the survey responses can be summarized as follows:

1. While all countries operate a TSA, only Cambodia sets a maximum and minimum target balance. Korea sets a minimum daily target balance, while Malaysia and the Philippines set a target balance.

2. Most of the countries operate a government IFMIS, which is in accordance with international best practice. In some countries, the government IFMIS is used for cash-flow forecasting although most still rely on MS Excel to consolidate cash-flow forecasting.

3. All countries have a cash management unit, which, in most countries, is in the treasury, and in others in the accountant general's department, comptroller general's department, or asset management service.

4. More than half the countries have a treasury or cash-flow committee to oversee and coordinate cash management operations. The others, except for Lao PDR, coordinate bilaterally.

5. Except for Korea, none of the countries are fine-tuning to actively smooth short-term changes in the TSA balance. Korea is shifting from rough-tuning to fine-tuning.

6. In most countries, no remuneration is paid by the central bank for surplus balances held in the TSA, and when there is some remuneration, the return is extremely low.

7. Staff numbers responsible for cash management are exceedingly low, except in Vietnam.

8. Only three countries have an operational risk management framework. Most have a business continuity and disaster recovery plan, but it is primarily focused on systems and information technology, omitting critical cash management business operations, processes, and people.

## 1.5. Conclusions, Lessons Learned, and Areas to Improve

### 1.5.1. Conclusions and Lessons Learned

The survey responses from the nine PEMNA countries show that many are applying sound international practices for at least some cash management activities. It is encouraging to see that PEMNA countries have cash management policies and practices recommended in the publications referenced in this paper. More importantly, PEMNA countries appear to be seeking to strengthen their cash management practices (cash-flow forecasting, cash-flow planning, and management of cash balances) and transition to a fine-tuning approach. This section draws from the survey and international practices.

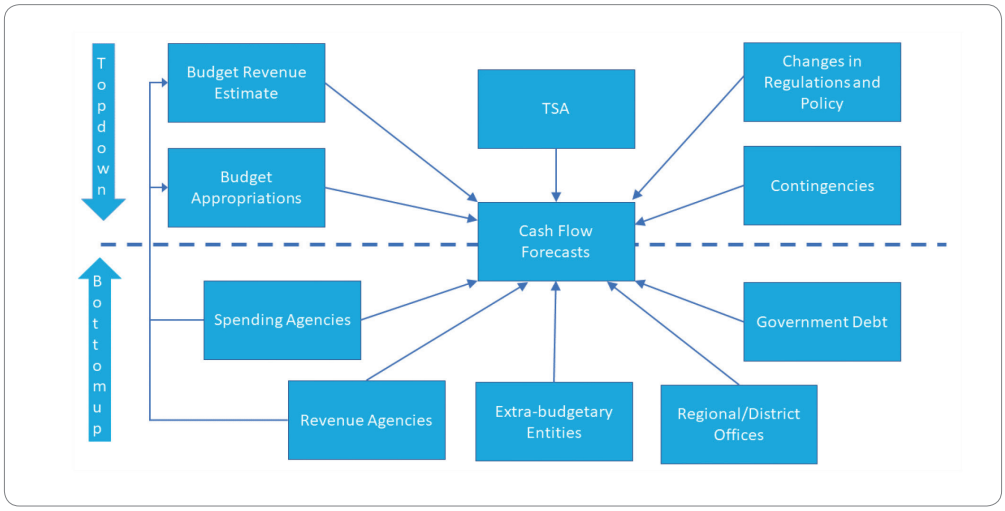
Cash-flow forecasting systems use a variety of techniques (see Lienert [2009]), which draw on bottom–up information (detailed information available to line ministries and tax departments) and top–down analysis (how total spending and revenue vary over time). How spending or revenue departments use their knowledge must be emphasized. They are usually closer to transactions than the MOF and should be monitoring expected and actual cash flows, whether income or expenditure. In most PEMNA countries, spending units and revenue agencies are required to allocate expenditure or revenue by month, report actual versus budget cash-flow provisions, and report projected weekly or monthly cash balances.

The main requirement is to refine short-term cash-flow forecasting capability. Figure 3 illustrates the spectrum of arrangements. A difference often exists between the compilation of "above the line" (revenue and expenditure) forecasts, which may fall to those monitoring budget execution, and projections of "below the line" transactions (debt and other financing operations), where cash and debt managers may be better placed.

The main output of cash-flow forecasting is accurate daily forecasts for at least one month, preferably for the next three months (Cangöz and Secunho 2020). However, the granularity and frequency of budget data do not allow the cash manager to determine the exact time of cash inflows and required time of payments. To find the right balance of the 3Rs—right amount, right place, right time—and produce reliable forecasts, cash managers combine the top–down and bottom–up approaches. Given that revenue and spending agencies may provide firsthand information and are better positioned to set priorities for individual transactions, cash managers can obtain from them day-by-day information through a bottom–up approach. The government budget's coverage may be limited in some countries, especially where the size of extra-budgetary funds and entities is significant. Cash managers

should obtain missing information directly from these entities if they are within a TSA or under the mandate of cash management (Figure 3).

Figure 3 Cash Management and its Interaction with Other Policy Areas




TSA = treasury single account.

Source: Cangöz and Secunho (2020).

The survey identified strong coordination across expenditure and revenue departments or entities, overseen by a cash management or treasury committee meeting at least quarterly but often monthly and sometimes weekly. However, fine-tuning was not used to manage cash balances, and the return on cash balances or deposits was either extremely low or nonexistent. The finding is consistent with the results of the World Bank Debt Management Performance Assessment tool (Cangöz and Secunho 2020), where the results of assessing cash management under debt management performance indicator 11 show that only 28 percent of the 80 developing countries met the minimum requirement.

Consistent with the findings documented by Secunho (2021), fully implementing good cash management continues to be a global challenge after the COVID-19 crisis. PEMNA members adopted similar responses to support households, employment, and financial stability during the COVID-19 crisis. The unexpected size and length of the crisis triggered multiple government reactions affecting cash management practices, including the need to

1. update cash-flow forecasts more frequently,
2. permanently scrutinize government funding needs,
3. ensure sufficient and timely government funding,

4. use temporary central bank financing,
5. review cash buffer policies, and
6. establish government guarantee schemes and monitor resulting contingent liabilities.

Effective cash management practices identified from the survey that are applied by PEMNA members include the following:

1. All countries operate a TSA.
2. Most countries operate a government IFMIS.
3. All countries have a cash management unit.
4. All countries' cash management units coordinate closely with expenditure and revenue departments or entities.
5. More than half the countries have a treasury or cash-flow committee, which meets at least quarterly but often monthly and sometimes weekly, to oversee and coordinate cash management operations.
6. All countries produce at least monthly forecasts of expenditure and revenue obtained from across government agencies, with half the countries forecasting weekly.

### 1.5.2. Areas to Improve

Cash management practices could be improved across PEMNA members by doing the following:

1. Strengthen laws and regulations to incorporate specific cash management policies and operations, such as coverage of government banking arrangements, including the TSA; remuneration of cash balances in the TSA; cash-flow forecasting requirements; integration of cash and debt management; and tools and instruments used for effective cash management.
2. Strengthen cash management practices to ensure that the government has the capacity to prepare accurate and timely cash-flow forecasts; set target minimum and maximum balances for the TSA; and effectively manage cash balances, including the return on surplus funds such as TSA cash balances held at the central bank.
3. Strengthen coordination between management of debt and cash to ensure the use of short-term instruments to cover cash shortages and management of cash balances in accordance with target minimum and maximum balances.

4. Look to transition from rough-tuning to fine-tuning, i.e., shift to more active cash management.

5. Put in place an operational risk management framework covering cash and debt management operations.

6. Develop and put in place a business continuity and disaster recovery plan to ensure that critical functions and activities, systems, and personnel in cash and debt management are maintained in the event of a business disruption, drawing on the experience of working from home during the COVID-19 pandemic.

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CHAPTER

2

COUNTRY CASE STUDY:

# CASH MANAGEMENT IN KOREA AND POLICY RESPONSE TO COVID-19

CHAPTER 2

# COUNTRY CASE STUDY: CASH MANAGEMENT IN KOREA AND POLICY RESPONSE TO COVID-19

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## 2.1. Introduction

This chapter shares the experience of the Republic of Korea in cash management during the coronavirus disease (COVID-19) pandemic with Public Expenditure Management Network in Asia (PEMNA) countries.

The first part explains Korea's cash management system, encompassing the legal and institutional framework, treasury single account (TSA), forecast of cash flows, and coordination with debt management. The second part describes the government's financial measures to cope with the COVID-19 pandemic and highlights the role of Treasury managers.

The chapter suggests lessons learned from Korea for the PEMNA Treasury Community of Practice and its member countries.

## 2.2. Korea's Cash Management System

### 2.2.1 Overall Assessment: Financial Status and Reforms

#### A. Current Financial Status

The government makes budget and off-budget expenditures. The national budget consists of a general account and 20 special accounts.[7] Total budget expenditures were KRW453.8 trillion

7 The total number of special accounts varies over time. It was 18 in 2005 and 20 in 2020.

(about US$411.8 billion) in fiscal year 2020, while total revenues were KRW465.5 trillion. The budget surplus was KRW9.4 trillion (Table 8).

Table 8 Budget and Off-Budget, 2020

(KRW, trillions)

| Category | | Revenues (A) | Expenditures (B) | Surplus (C=A–B) | Carryover (D) | Budget Surplus (E=C–D) |
|---|---|---|---|---|---|---|
| Budget | 1 general account | 392.4 | 385.2 | 7.1 | 1.4 | 5.7 |
| | 20 special accounts | 73.1 | 68.6 | 4.5 | 0.9 | 3.6 |
| | Total | 465.5 | 453.8 | 11.7 | 2.3 | 9.4 |
| Off-budget | 68 public funds | 788.9 | 788.9 | 0 | 0 | 0 |

Source: Korea Public Finance Information Service (2020): 3, 9.

The general account's revenues of KRW392.4 trillion consist of tax and nontax revenues. The National Tax Service collected KRW276.3 trillion in 2020. The general account had nontax revenues of KRW116.1 trillion.

Korea has 20 special accounts with revenue of KRW73 trillion. The total national budget for 2020 was KRW465.5 trillion. It expanded rapidly, reaching KRW607.7 trillion in 2022.

Korea has 68 public funds,[8] which operate separately from the budget. All funds spent a total of KRW788.9 trillion in 2020, much more than national budget expenditures. The difference between special accounts and public funds is their financial resources. Special account resources are government revenues such as taxes. Public funds are raised from government revenue and/or self-generated revenues such as private levies, contribution, and interest.

Off-budget funds are established by individual laws, each prescribing how to manage cash and surplus assets. However, the National Assembly appropriates the general account, the 20 special accounts, and the 68 public funds.

### B. Reform in 2005: Introduction of Treasury Single Account

The government introduced the TSA system in 2005 by amending the Management of the National Funds Act and other related laws and regulations, starting a major shift from the

8 Trust funds, revolving funds, or trust revolving funds.

traditional cash management system to active cash management.

The 1997 Asian Financial Crisis stimulated reform of the government cash management system along with many other financial reforms. The previous system, with one general account and many special accounts, could not respond to the changing circumstances. Intricately interrelated accounts through a tangled flow of grants and loans resulted in idle cash.

The TSA lowered liquidity reserve needs, which resulted in lower bank fees and transaction costs. It expedited regular monitoring of government cash balances, enabled cash-flow analysis, and improved forecasting capacity.

### C. Reform in 2010: Reinforcing Active Cash Management

Six of 18 special accounts were excluded from the TSA because predicting the timing of cash inflows and net outflows of these accounts was extremely difficult.[9]

In 2010, the government again initiated active cash management by amending the Management of the National Funds Act. The government introduced the Guiding Principles of Government Cash Management, strengthening coordination between the Treasury and other government entities. The government included three of the six special accounts that had been left out of the TSA in 2005. The Treasury introduced a target balance system, managing the cash balance daily (Table 9). Digital Brain (dBrain), Korea's integrated financial management information system (IFMIS), provided accurate and timely financial information to support the new measures.

Table 9 New Government Cash Management System

| | Before 2010 | After 2010 |
|---|---|---|
| Allocation of cash and expenditure | No specific guidelines | Adoption of Guiding Principles of Government Cash Management |
| | No penalty even when allocated cash was not spent | A penalty is imposed on future cash allocations when the allocated cash is not spent. |
| Coverage of the TSA | General account<br>12 special accounts | General account<br>15 special accounts |
| Government cash operations | No daily target<br>Weekly cash operations | Targeting the TSA balance daily<br>Daily cash operations |
| Government agency cash investment | One financial institution | Multiple financial institutions |

TSA = treasury single account.
Source: Ministry of Economy and Finance (2011): 116.

9 The number of special accounts varies over time. It was 18 in 2005 and 20 as of 2022.

### D. Transition to Fine-Tuning

The 2010 reform expedited fine-tuning, the key to active cash management, which develops in four stages: the introduction of the TSA, improvement of forecasting capacity, rough-tuning, and fine-tuning.[10]

Korea still needs to improve its forecasting capacity but is shifting from rough-tuning to fine-tuning. Since the introduction of the target balance system and daily cash operations, the government has been able to afford fine-tuning in the developed money market, resulting in less volatile government account balances.

## 2.2.2. Legal and Institutional Arrangements

### A. Legislation

The Treasury Bureau is the centralized cash management unit. It abides by the National Finance Law, the Management of the National Funds Act, the Enforcement Ordinance, and the Enforcement Regulations.

Article 31 of the act states that the TSA must be established in the Bank of Korea (BOK). Under Article 32, the finance minister may raise funds by issuing financial securities, temporary borrowing from the BOK, or other methods prescribed by presidential decree.

The finance minister may adjust the monthly financial plan according to the TSA balance and/or demand for cash and shall notify line ministries and agencies and the BOK (paragraphs 3, 4, and 5 of Article 30).[11]

The finance minister can issue securities in the capital market. However, if deemed necessary, government securities may be sold to financial companies, government-invested companies, insurance companies, and others (Article 33).

### B. Responsibility of Line Ministries

Under the Management of National Funds Act, the Ministry of Economy and Finance (MOEF) manages the collection and spending of government revenues. Line ministries and agencies execute operations. Every cash flow resulting from operations of the line ministries is recorded in dBrain, and the electronic system processes data and produces daily, weekly, and monthly

10 Williams (2004) described rough-tuning as "the issue of short-term borrowing instruments to a pattern deliberately designed to offset the impact on the banking sector of net cash flows in and out of government." Fine-tuning is "more active policies, drawing on a wider range of instruments or institutional options."

11 Management of the National Fund Act (Enforcement Date October 5, 2011). Act No. 10526, April 4, 2011, Partial Amendment

reports to line ministries and the Treasury Bureau.

The act provides that heads of line ministries and agencies should submit their monthly financial plans or forecasts to the MOEF. The MOEF combines them and prepares a comprehensive Treasury cash management plan for the entire TSA. The MOEF then determines a monthly withdrawal limit and five-day withdrawal ceiling for each line ministry and agency. The line ministry must notify the MOEF at least one day before an execution worth more than KRW50 billion to minimize possible mismatch.

While making the monthly plan or forecast, the line ministry and the Treasury consult each other.

### C. Responsibility of Revenue Authorities

The government has two main sources of revenues: tax and nontax revenues. The National Tax Service uses Hometax, the government-to-citizen service, to collect tax revenues. Collection officers in line ministries and agencies use the electronic bill presentation and payment system in dBrain to collect nontax revenues.

Taxpayers pay treasury agencies or financial institutions, which deposit payments into the TSA. The BOK notifies dBrain and the revenue collection officer of every transaction. The Korean Post Office acts as a financial institution as 2,841 post offices are Treasury agencies.

The Treasury prepares an annual revenue forecast and revises it monthly, considering line ministries' monthly revenue performance. The Treasury advises line ministries although they have no service agreement between them. The government applies the service agreement system to only a small number of stand-alone government institutions.

### D. Responsibility of Ministry of Economy and Finance of Korea

The constitution states that the right of budget formulation belongs to the administrative branch, and the legislative branch deliberates the presidential budget. During rapid economic growth, from the 1960s to the 1990s, the Economic Planning Board (EPB) formulated budgets and the Treasury Bureau in the Ministry of Finance (MOF) oversaw cash management. The EPB and the MOF were merged into one single organization in 1994 as the Ministry of Finance and Economy (MOFE). Then in 2008 the MOFE and Ministry of Planning and Budget were merged into one as the Ministry of Strategy and Finance, which was renamed the MOEF in 2018.

The MOEF undertakes general management of the budget and cash-flow forecasting. The MOEF's Budget Office sets up the annual, quarterly, and monthly budget allocation plan for line ministries. The Treasury makes its monthly cash management plans and finalizes the monthly and five-day withdrawal ceilings for each line ministry and agency.

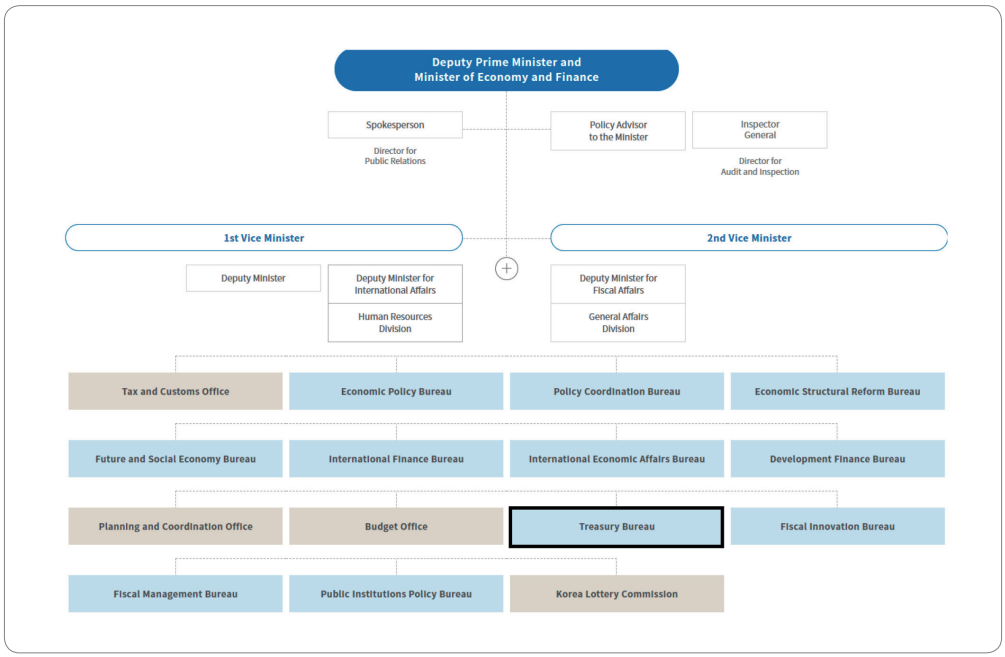
When setting up the annual financial plan and budget formulation, MOEF offices such as the Budget Office, the Tax and Customs Office, and the Treasury Bureau share information to forecast annual revenue.

### E. Location of Cash Management Unit

The Treasury Bureau is the centralized cash management unit. The Management of National Funds Act clarifies the principles of managing national funds as follows:

1. Government funds should be managed efficiently and transparently according to the cash management plan.
2. Government funds should be spent on time.
3. The Treasury shall be operated to the extent that it does not impair safety.
4. Operations related to revenue and expenditure of government funds shall be recorded and managed promptly and accurately.

Figure 4 Ministry of Economy and Finance




Source: Ministry of Economy and Finance.

The Treasury Bureau has seven divisions (Figure 4): treasury, government properties policy, public contract policy, government bond policy, government properties coordination, government-held securities, and procurement policy.

#### F. Central Bank

As the central bank, the BOK is the deposit institution for the TSA and handles Treasury cash flows according to the Management of National Funds Act and the Law of Bank of Korea. The BOK keeps deposits, securities, documents, and other valuable goods that belong to the government. The BOK supports the collection of government revenues and handles the issuance, repayment, and other transactions regarding government securities.

The BOK and the MOEF have a permanent cooperation channel through which they exchange daily reports on the TSA's cash management. Figures 6 and 7 illustrate the relationships among line ministries, the Treasury, and the BOK in the receipt and payment of national resources.

The BOK may lend overdrafts or other loans to the government and may directly take over government bonds. The total amount of loans and government bonds directly acquired shall not exceed the limit of bonds determined by the appropriation of the National Assembly.

### 2.2.3. Cash-Flow Projections

#### A. Expenditure and Revenue Projections

The MOEF's Tax Bureau builds the annual revenue plan every August when the MOEF's Budget Office formulates the annual budget. The Tax Bureau monitors its performance daily, weekly, and monthly and informs the Treasury Bureau of tax revenue collection performance every month.

Once the National Assembly finalizes the budget, the line ministries and agencies submit a request for budget allocation to the MOEF. Subsequently, the MOEF's Fiscal Management Bureau prepares a quarterly budget appropriation plan.

Considering the quarterly budget allocations, line ministries and agencies prepare a monthly plan for their cash needs and submit it to the MOEF. Then the Treasury Bureau establishes the monthly cash management program for each ministry and agency and meets bilaterally with the Fiscal Management Bureau and the Tax Bureau. The plan includes monthly and five-business-day withdrawal ceilings. It intends to minimize the mismatch between revenue receipt and disbursement and minimize idle funds.

## B. Debt Management

Korea has developed new measures of the national debt, classifying it into three. The money supply is measured by M1, M2, and M3. National debt and liability can be measured in different ways (Open Fiscal Data):

1. Korea has defined national debt (D1) as general government cash-based debt, which includes national bonds, borrowings, and payment of national debt. National debt does not include liabilities and debt of government-owned institutions.

2. Korea employs a new definition of national debt. It includes "accrual basis items such as deposits, account payable, and advance payments in addition to D1" (Open Fiscal Data). National debt includes all entities of the central government, local government, and nonprofit public institutions (D2) and is used in parallel with D1. D2 is the most widely used definition among Organisation for Economic Co-operation and Development countries.

3. The third type of national debt measurement (D3) is the most inclusive, adding debts of nonfinancial public institutions to D2.

In 2020, D1 was 43.8 percent of gross domestic product (GDP), D2 was 48.9 percent, and D3 was 66.2 percent.

Korea did not have a consolidated debt management system until the unprecedented 1997 Asian Financial Crisis, which spurred the reorganization of the government debt management framework into a single issuance system. Since then, the National Debt Management Law has governed the issuance of government bonds and bills. The MOEF implements the government debt management policy as follows:

1. The MOEF convenes the Strategic Council for Issuing Government Bonds and formulates policy.

2. The MOEF makes a comprehensive plan for annual debt issuance in consultation with line ministries. The MOEF submits the plan to the National Assembly.

3. The National Assembly authorizes the appropriation with the ceiling of the total amount of annual debt issuance.

4. The MOEF establishes the annual debt issuance plan, considering the domestic and international interest rate outlook for the coming year. The MOEF considers the demand conditions for major government bond investment institutions such as foreign companies, banks, securities, insurance, and pension funds.

5. In implementing the annual plan, the Treasury Bureau adjusts the monthly debt issuance, reflecting the actual cash flow.

6. Treasury agencies issue the bonds, and their proceeds are deposited into the TSA.

The Debt Management Division in the Treasury Bureau performs bond-related tasks. The typical short-term debt instrument is a repo. Every transaction—debt repayment and issuance, investment, foreign exchange transaction—is recorded in dBrain. The Treasury Bureau monitors each transaction daily, weekly, and monthly.

### C. Forecasting Frequency

Every activity related to financial management—including receipts, payments, cash flows, debt-related affairs—is carried out using dBrain. The system processes the information in real time. Financial plans inclusive of cash-flow forecasting are made monthly, quarterly, semiannually, and yearly.

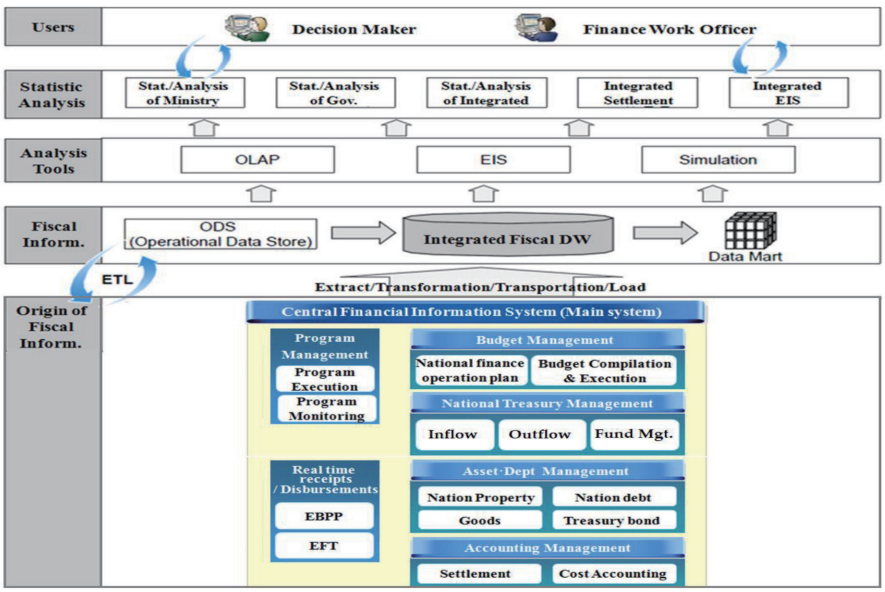
### D. Forecasting Information and Data Systems

Winner of the 2013 top United Nations Public Service Awards, dBrain is the IFMIS covering all financial activities, including budget formulation, budget execution, cash and asset management, and settlement.

dBrain provides the information needed to make forecasts and financial plans for the coming months. dBrain's central financial management system consists of budget, treasury, asset and debt, and accounting management.

Treasury management supports the cash management unit by consolidating every receipt and payment and all related information, such as line ministries' cash plans, daily cash balances, and spending limits. Data captured by the central financial management system is extracted and transformed into information for forecast or simulation, helping higher-level MOEF officers make decisions. Figure 5 illustrates the information flows for deciding on cash balance management and placement of investments.

Figure 5 Information Flows for Forecast



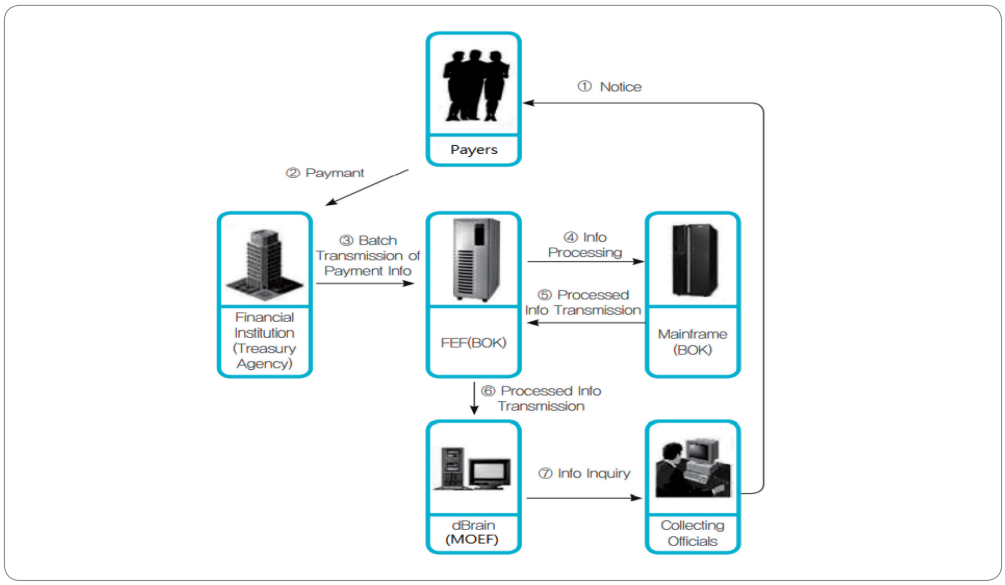

Source: Ministry of Economy and Finance (2011): 116.

### E. Interface with Central Bank Information System

dBrain, IFMIS of Korea, is the only gateway to access government accounts or the TSA. The IFMIS has subsystems: the electronic bill presentation and payment system, and the electronic fund transfer system to a beneficiary's bank account. They shorten payment delays and lower idle balances, reducing operational risks.

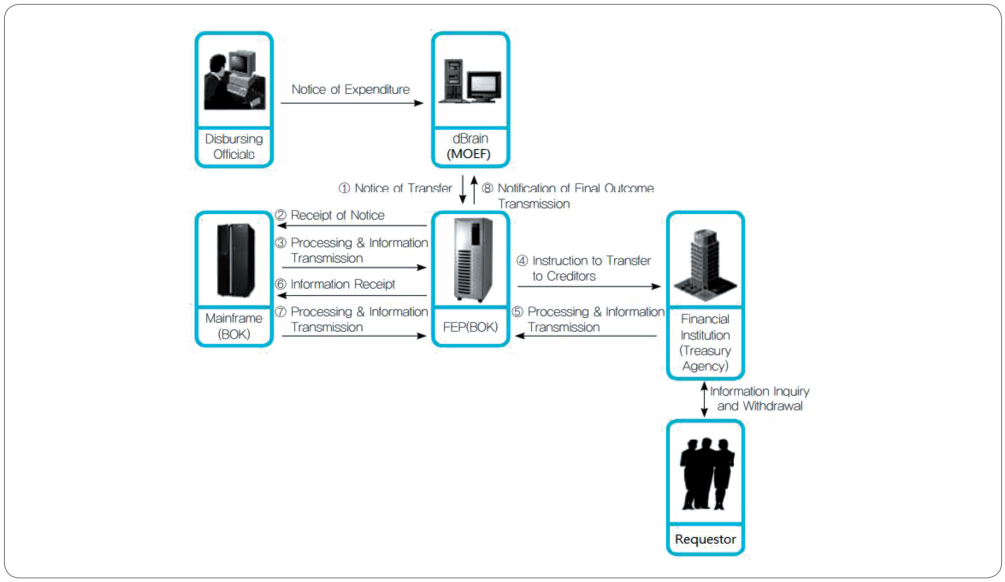
The subsystems work with the BOK mainframe via file-exchange format (Figures 6 and 7).

Figure 6 Process of Revenue Payment and Receipt




BOK = Bank of Korea, dBrain = Digital Brain, FEF = file-exchange format, MOEF = Ministry of Economy and Finance.
Source: Ministry of Economy and Finance (2014): 14.

Figure 7 Process of Disbursement




BOK = Bank of Korea, FEF = file-exchange format, MOEF = Ministry of Economy and Finance.
Source: Ministry of Economy and Finance (2014): 15.

### 2.2.4. Cash Balance Management

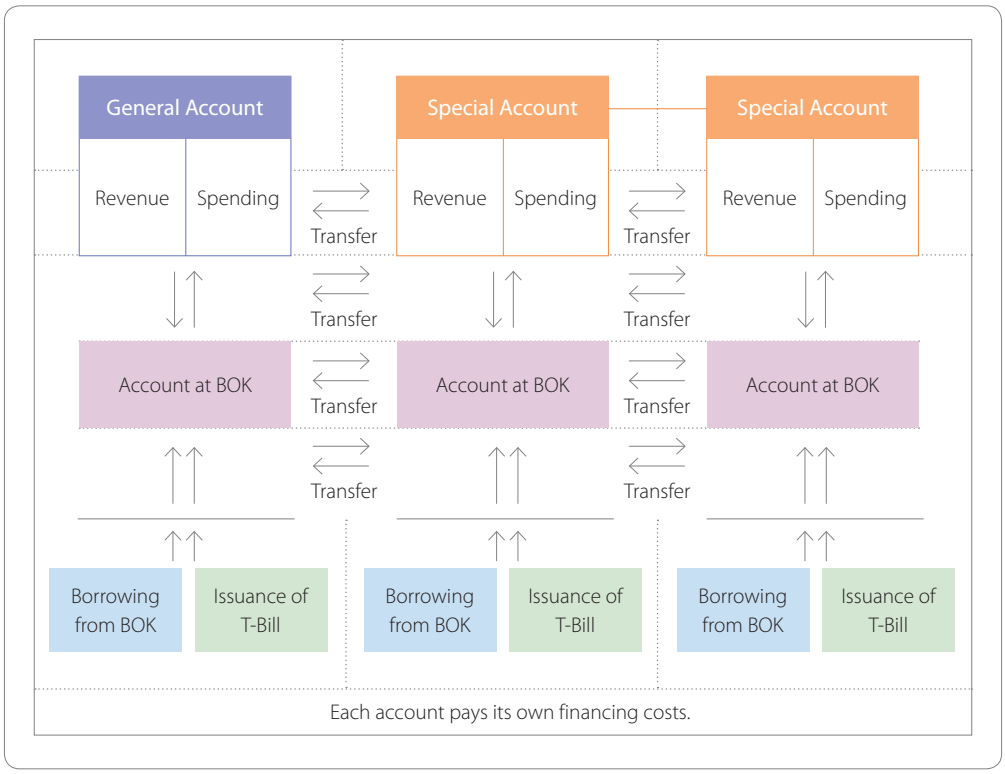
#### A. Accounts of the Treasury Single Account

The government operates one general account and 20 special accounts in 2021. They are managed by TSA in sweeping mode, according to the Management of National Funds Act, amended in 2005 and 2011.

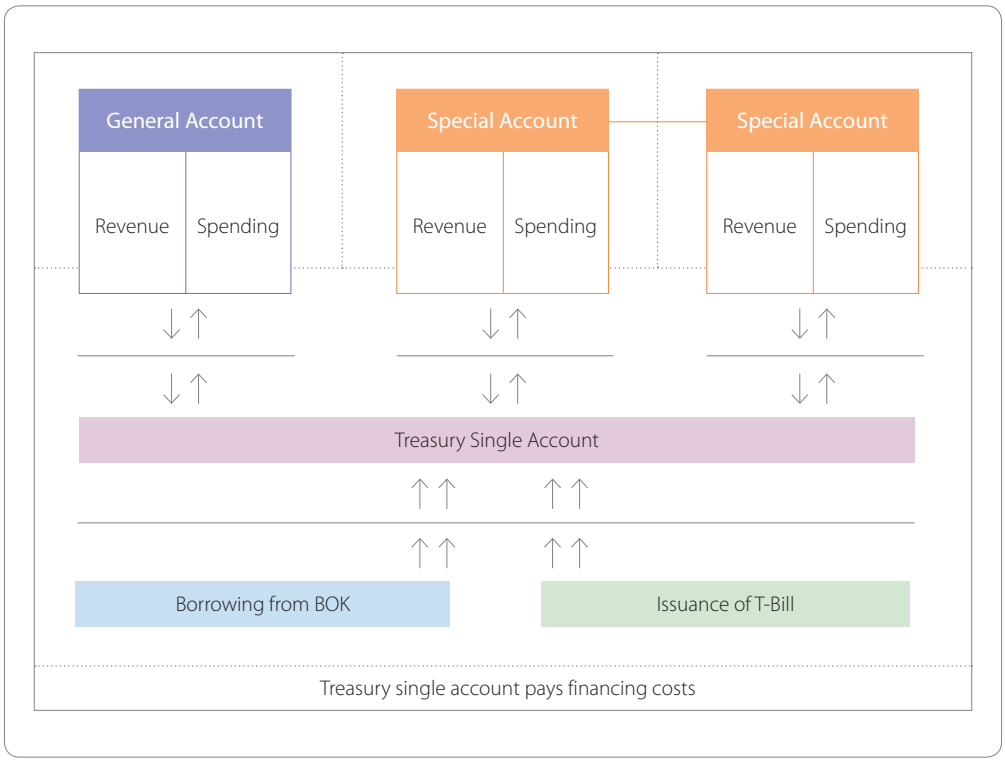
Figure 8 shows the changes in government fund management before and after the introduction of the TSA.

Figure 8 Changes Resulting from the Introduction of the Treasury Single Account

Before Treasury Single Account



After Introduction of Treasury of Single Account




BOK = Bank of Korea, T-bill = Treasury bill.
Source: Ministry of Economy and Finance (2011): 113.

Introducing a TSA, however, requires more than simple integration of accounts. TSA operation needs superior ability to forecast the impacts of cash management operations on financial markets and monetary policy, and close coordination between diverse government entities.

### B. Accounts outside the Treasury Single Account

When the TSA was adopted in 2005, only 10 out of 18 special accounts were integrated into it. The number of inclusions, however, grew to 20 by 2020. Currently, only three special accounts are outside the TSA; they handle revenues and expenditures separately. Both the TSA and non-TSA accounts are in the BOK.

### C. Foreign Currency Accounts

One of the three special accounts outside the TSA is the foreign exchange equalization fund account, established by the Foreign Exchange Transaction Act.

Korea does not operate foreign currency accounts outside the country and is now classified as a Morgan Stanley Capital International (MSCI) Emerging Market. To be an MSCI Developed Market, a country should have an active offshore deliverable currency market. Korea will soon operate an offshore spot exchange market.

#### D. Target and Minimum Balance of Consolidated Cash Balance in the Treasury Single Account

Since the 2005 reform, Korea has been using a target balance system and daily clearing of receipts and payments. Currently, the minimum daily balance target is KRW350 billion. The average end-of-day balance in the TSA over the past 12 months is KRW366.1 billion.

#### E. Surplus Cash Balances, Overnight Funds, and Overdraft

The MOEF is responsible for investing the surplus cash balance. Overnight cash balances are held either by the BOK or Treasury agencies (commercial banks and financial institutions).

The reform in 2010 allowed the Treasury to use many financial institutions to invest idle funds. An investment strategy with approved credit risk limits is applied to counter partners. The average monthly return over the past 12 months on investment of surplus balances was KRW117 billion as of 2020.

In case of a shortage in balance, the Treasury either borrows funds or uses overdraft at the BOK under the contracted terms and conditions.

### 2.2.5. Cash Management Operations

#### A. Staffing

The Treasury Bureau has 68 staff. Under the Treasury Bureau, the Treasury division has 12. Only three are responsible for cash management and request review.

To operate the IFMIS, the MOEF established the Korea Public Finance Information Service in 2016. It has 287 staff, including information technology experts, and serves the Treasury Bureau and end users in all line ministries.

#### B. Payments

All payment procedures, including prepayment processing, approvals, and transmission, are carried out by dBrain.

Line ministry spending units submit payment requests to the Treasury. The central cash management unit checks the payment orders against authorized limits. Then it processes them for payment from the TSA to the requestor's account in a commercial bank via interbank

payment systems. The cash transfer is made either by bank deposit or by credit card points. The use of cryptocurrency is not yet allowed.

#### C. Banking, Payment, and Settlement Systems

dBrain is the only gateway to access government accounts or the TSA. The IFMIS has a settlement function that automatically settles payments and receipts virtually in real time. The government has adopted the accrual-based double bookkeeping accounting system, modifying United States government accounting standards.

The BOK, however, uses a more complicated settlement system for the highest possible level of accuracy and audit. First, the BOK keeps track of all TSA receipts and payments. Second, it accounts for them using the national standard. Lastly, the BOK certifies them after checking them against the accounting results of line ministries and agencies.

#### D. Use of Commercial Banks

The financial system has two tiers: budget and off-budget public funds. All financial matters related to the budget must use the BOK government account. The BOK designates financial institutions such as banks and microfinance enterprises as Treasury agencies. A total of 16,968 Treasury agencies provide transparent and convenient payment methods. The Post Office serves the same function throughout the country.

The 68 public funds can use accounts in commercial financial institutions. Each fund has its own BOK account. The daily balance of the fund account is reported to dBrain in batch mode. The Treasury provides consultation and coordination to manage and operate the off-budget funds.

#### E. Operational Risk Management Framework

Forecasting errors in receipts and payments are the single most important risk in managing government funds. Korea has no specific framework for risk management, but it has been updating the Guiding Principles of Government Cash Management since 2010. The principles include a prenotification system for large payments to minimize mismatch.

### 2.2.6. Policy Coordination

#### A. Coordination with Fiscal Planning and Budget Execution

From a macroeconomic perspective, government spending is a main factor determining the size of the national economy. The effect of government expenditure on the national economy is presumed to become larger when it is spent early in the year than when the same amount is spent later in the year. The MOEF uses the early execution policy by allocating the budget as

early as it can.

Line ministries and agencies spent 62 percent of the annual budget in the first half of 2020. A private company that has signed a contract with the government can, for example, be paid quickly and receive a larger advance payment.

However, early execution is not free. Income taxes are one of the two most important revenue sources and are collected after June every year. The Treasury borrows more funds from the BOK and issues Treasury bills.[12] In the first half of 2020, the Treasury had to pay the BOK KRW102 billion for interest and fees.

#### B. Coordination with Monetary Policy

Since the 2010 reform, the government has maintained a stable target balance because of the active cash management system. The stability of the target balance has, in turn, improved the predictability of the BOK's monetary policy.

The MOEF's Bureau of Economic Policy monitors monetary situations continuously and reports to the economy and finance minister. IFMIS operators commonly cooperate with the BOK.[13] The minister and the Financial Services Commission occasionally meet with the BOK governor.

### 2.2.7. Lessons Learned

The 2005 and 2010 reforms resulted in efficient and active cash management. The introduction of the TSA and the daily clearing system enabled the Treasury and the BOK to take a step toward fine-tuning cash management. Korea developed cash management capacity in line with the sound practices highlighted by Lienert (2009) and Williams (2010):

1. The introduction of the TSA and the new cash management system required improving forecasting capacity and cooperation among related offices. The government has one general account, 20 special accounts, and 67 public funds as of 2021. It has tried to reduce the number of accounts many times but abolishing them is difficult. The TSA helps smoothly remove the inter-account divide in fiscal management.

2. Even with the introduction of the TSA and the IFMIS, receipts and payments might be mismatched at any time. The prenotification system minimizes that possibility. Line ministries must notify the MOEF at least one day before a large payment. The system seems applicable to other countries.

3. Implementing the MOEF's early execution policy is costly for cash management but

12 Usually the possible shortage is not big (Figure 10).
13 Unlike monetary policy makers, MOEF and BOK IFMIS operators communicate with each other frequently.

good for the national economy. The policy pushes line ministries and agencies to work faster and minimizes the year-end spending rush.

4. A developed capital market is needed to manage idle government funds. The World Bank often emphasizes that the smooth establishment of a government bond market is the basis for more efficient management. However, reforming the capital market is not an easy task.

5. Korea could handle this problem by attracting pensions and foreign financial institutions to invest. Korea opened the futures bond market and introduced the primary-dealer system.

6. The bond market in Korea is not as developed as in South Africa. The short-term bond market must be developed. The 2013 amendment of the Management of the National Fund Act states that the Treasury Bureau must issue Treasury bills before borrowing from the BOK. Since 2016, the Treasury has been increasing issuances of Treasury bills but volume remains small. Treasury bills have had only one maturity period—63 days—since the 1960s.

7. The cash management system is key to ensuring responsible and efficient government financial management (Tanberg 2005). But the system has developed slowly. A first step might be assigning more staff to the Treasury Division and the Treasury Bureau. The current number of staff is adequate only for daily routines, but active cash management requires much more skillful control over liquidity.

Two factors will soon affect the development of the cash management system:

1. Korea recently upgraded its IFMIS for the next generation and is ready to use advanced technology such as big data and deep learning. The IFMIS is expected to provide the Treasury with better diagnoses, forecasts, projections, and legal advice.

2. The government has a midterm plan to join the Financial Times Stock Exchange (FTSE) World Government Bond Index, which is the leading benchmark for global treasury exposure. To join, Korea needs to make its market more accessible to foreign investors. They are expected to invest US$55 billion in government bonds. But the issue has long been controversial, for many in Korea are hesitant to open the capital market so widely.

## 2.3. COVID-19 and Cash Management

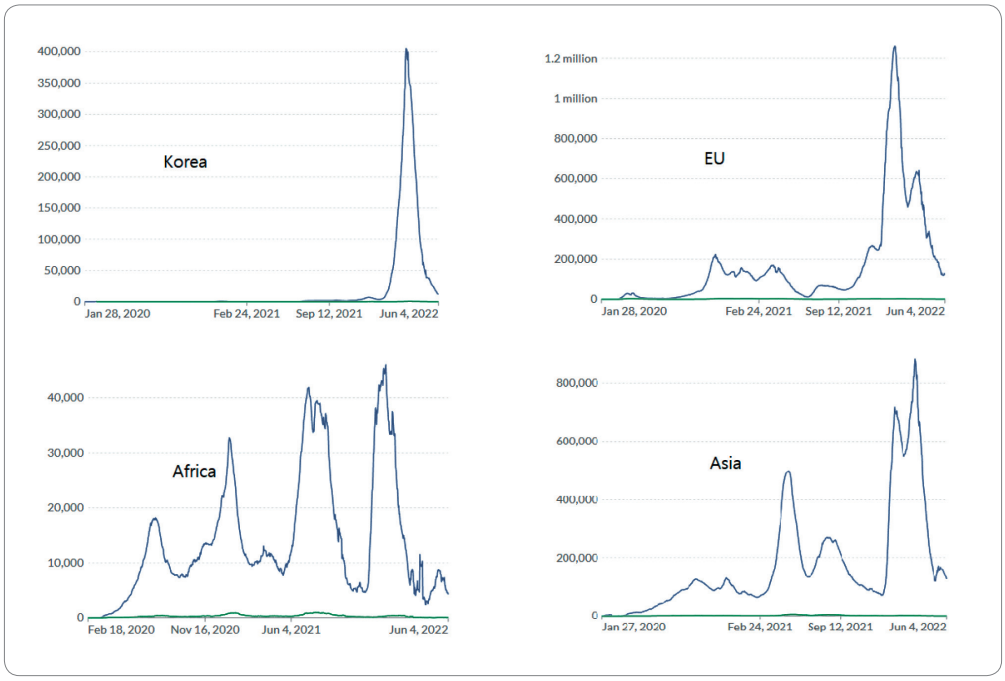
### 2.3.1. Impact of COVID-19

#### A. Introduction

Unlike other countries, Korea faced three unusual circumstances during the COVID-19 pandemic, affecting the ability of public finance to cope with the crisis.

First, the pattern of COVID-19 occurrence was different from that in other countries (Figure 9). Korea had a significantly smaller number of COVID-19 patients during the first two years of the pandemic because of the strict social distance policy and economic sacrifice. But the sacrifice was not free. People in need requested for compensation. The government prepared supplementary budgets four times in 2020, twice in 2021, and once in 2022.

Figure 9 Daily New Confirmed COVID-19 Cases




Source: Arranged from OurWorldinData.org, from Johns Hopkins University Center for Systems Science and Engineering COVID-19 data.

Second, tax revenues were much higher than expected in the pandemic's second year. National tax revenue increased by 20.5 percent in 2021 compared with 2020 because of

big changes in housing policy and the tax system. The government increased housing-related tax rates to up to 75 percent for those owning two or more houses. Many avoided the tax by selling their houses before the tax law was enacted, resulting in extremely high house sales volume and collection of a huge amount of tax revenue in 2021. It surpassed the MOEF's forecast by 21.7 percent. With the increased tax revenue, the government prepared supplementary budgets for COVID-19 measures twice in 2021.

Third, Korea had four important elections in 2021 and 2022. For presidential, congressional, and local government elections, political parties and candidates ask the MOEF for an enormous compensatory subsidy for people in need.

The three factors resulted in a vortex for public finance. Financial policy making became exceptionally difficult. The Treasury had to handle a larger volume of receipts and payments than ever. Most of the supplementary budget must be executed two months after a month of preparation, as required by the National Assembly. The issuance of Treasury bonds and bills rose from KRW101.7 trillion in 2019 to KRW174.5 trillion in 2020 and KRW180.5 trillion in 2021.

### B. Fiscal Response to Outbreak

The government implemented comprehensive measures to cope with the pandemic, including massive testing, contact tracing, prompt isolation, and vaccination. The government spent not only on health but also on other areas.

The government directly spent KRW123.7 trillion—6.4 percent of GDP—on COVID-19 measures from 2020 to 2021. They included disease prevention and treatment, vaccination, support for affected households, emergency relief payment, loans and guarantees for affected businesses, support for affected local economies, and job creation and social safety nets. Table 10 shows the government's direct expenditures for COVID-19 measures.

Table 10 Breakdown of Direct Expenditure

| Total Direct Expenditure and Foregone Revenue | KRW123.7 trillion/GDP: 6.6% |
|---|---|
| 1. Additional direct spending in the health sector | KRW14 trillion/GDP: 0.7% |
| 2. Additional direct spending in areas other than health | KRW109.6 trillion/GDP: 5.7% |
| 3. Foregone revenue | KRW3.4 trillion/GDP: 0.2% |

GDP = gross domestic product.
Note: Expenditures are summed up as of September 27, 2021.
Source: Adapted from the International Monetary Fund database

### C. Monetary Response

The BOK has taken comprehensive measures to cope with a possible economic crisis by lowering the base rate, providing liquidity through open market operations, and purchasing Treasury bonds. For small and medium-sized enterprises, the BOK increased the ceiling of the bank-intermediated lending support facility and lowered the interest rate to 0.25 percent.

Financial stabilization funds include those for key industries, the stock market, and the bond market. They expand lending of state-owned and commercial banks to small merchants, medium-sized firms, and large companies. The funds provide emergency lending, partial and full guarantees, and collateralization of loan obligations. The bond market stabilization fund purchases reverse repo through the short-term money market. Table 11 describes the measures.

Table 11 Breakdown of Monetary Measures

| Contingent Liabilities [KRW195.9trillion (tn)/GDP 10.2%] | |
|---|---|
| Guarantees (on loans, deposits, etc.) | |
| KRW70.9tn/GDP 3.7% | • First financial support program for small merchants (KRW 16.4tn)<br>• Second financial support program for small merchant (KRW 10.0tn)<br>• Full & special guarantees for SMEs and small merchants provided by state-backed financial institutions (policy banks) (KRW 16.8tn)<br>• Preferential guarantees for SMEs and export companies (KRW 7.9tn)<br>• P-CBO for companies affected by COVID-19 (KRW 11.7tn)<br>• Guarantees/loans related to trade to financing and overseas projects (KRW 6tn)<br>• Guarantees/loans for venture capital and start-up (KRW 2.1tn) |
| Quasi-fiscal operations (noncommercial activity of public corporations on behalf of government) | |
| KRW125tn/GDP 6.5% | • Credit recovery program by KAMCO (KRW 2.0tn)<br>• Loan expansion to SMEs provided by state-backed financial institutions (KRW 21.2tn)<br>• Support package to stabilize corporate bond short-term funding market, except P-CBO (KRW 11.1tn)<br>• Low-rated corporate bond and CP purchase program (KRW 20.0tn)<br>• Key Industry Stabilization Fund (KRW 40.0tn)<br>• Stock Market Stabilization Fund (KRW 10.7tn)<br>• Bond Market Stabilization Fund (KRW 20.0tn) |

COVID-19 = coronavirus disease, CP = Commercial Paper, KAMCO = Korea Asset Management Corporations, P-CBO = Primary Collateralized Bond Obligation, SMEs = small and medium-sized enterprises.
Note: Expenditures are summed up as of September 27, 2021.
Source: Adapted from the International Monetary Fund database.

### D. Challenges for Cash Management

The biggest challenge for cash management is sufficient and timely payment to the emergency subsidy for disaster (ESD). It was implemented six times from 2020 to 2022.

The first ESD was paid to every citizen in May 2020 to expedite economic recovery. The Treasury cooperated with the Ministry of Public Administration and Security to identify individual recipients through a residence registry database. The subsidy was paid in the form of prepaid cards, credit card points, and gift certificates. The recipient had to consume the subsidy in three months.

The second ESD, in September 2020, was provided to small business owners, freelancers, and households in crisis. The eligibility rule was applied. Recipients had to pass the means test of 80 percentile of household income. The Treasury cooperated with the Ministry of Welfare and the Ministry of Labor in notifying eligible recipients. This ESD was carried out six times until 2022.

Another challenge to cash management was the large revenue surplus. It was not due to the economy but to big changes in housing policy, which were supported by changes in taxation and resulted in increased tax revenue much beyond expectation. The average rate of error in making tax revenue forecasts was 6.3 percent in Korea and 4.8 percent in major developed countries.[14] However, the rate rose to 21.9 percent after the new housing policy and tax system.[15] The MOEF recently announced that the Tax Bureau would present the tax revenue outlook twice a year instead of once.

### E. Debt Management

After the COVID-19 outbreak, the issuance of Treasury bonds increased in 2020 and remained high in 2021 as a consequence of the government's response to the crisis.

The Treasury always monitors the government bond market closely to determine when to stabilize it. For example, the MOEF implemented emergency buybacks when surplus revenues occurred in 2020, stabilizing the interest rate. The national credit rating was stable during the

14 Comparison of errors in tax revenue forecast by period:

| | 5-year period (2013-2017) | 10-year period (2008-2017) |
|---|---|---|
| United States | 4.7% | 7.5% |
| Japan | 5.1% | 7.8% |
| United Kingdom | 1.0% | 2.2% |
| Korea | 6.3% | 4.7% |

Source: Kookminilbo (February 5, 2020).

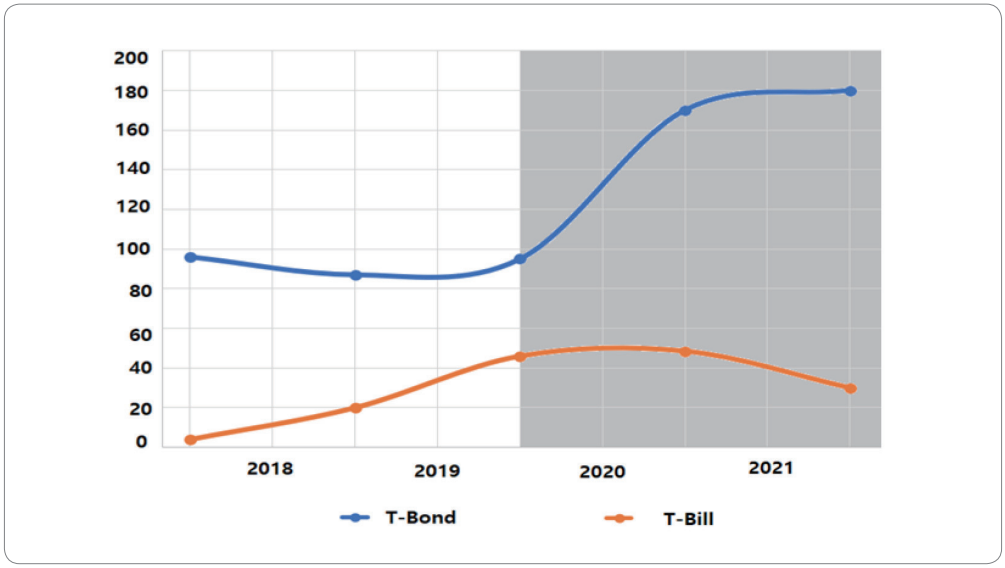
15 The forecast error was 5.7 percent in 2017, 9.5 percent in 2018, –0.5 percent in 2019, 2.1 percent in 2020, and 21.7 percent in 2021. Kookminilbo (February 5, 2020).

epidemic. The S&P, Moody's, and Fitch credit ratings are stable at AA.

Issuance of Treasury bills decreased after rising in the early shocking stage of the outbreak. Tax revenue increased greatly in 2021 because of the punitive tax rate accompanying the new housing policy. The Treasury had less pressure to issue Treasury bills to remedy the short-term fund shortage, which might have been unique to Korea during the pandemic.

The average overdraft balance from the BOK decreased from KRW4.8 trillion in 2020 to KRW0.1 trillion in 2021. Consequently, the yearly cumulative amount of overdraft fell from KRW97.2 trillion in 2020 to KRW7.5 trillion in 2021 (Figure 10).

Figure 10 Issuance of Treasury Bonds and Treasury Bills




Source: Ministry of Economy and Finance (2021).

### 2.3.2. Cash Management in the Post–COVID-19 Era

#### A. Introduction

In March 2022, the omicron variant of COVID-19 started spreading significantly and it has not yet reached its peak. However, the country is preparing for the post–COVID-19 era. Managing government finance will be tougher for many reasons.

First, the MOEF must boost economic recovery by spending more. The newly elected President wants to correct the punitive housing taxes, which suggests that tax revenue will

decrease. However, he prefers rearranging the existing budget allocation to issuing more bonds.

Korea's inflation is high. It is not just a local problem; the global supply chain has been severely affected by the pandemic. The BOK will raise the base interest rate, in response to tapering by the US Federal Reserve, to shrink market liquidity.

### B. Economic Outlook

The economy recovered in 2021. The GDP growth rate fell to –0.9 percent in 2020 and bounced back to 4.0 percent in 2021.

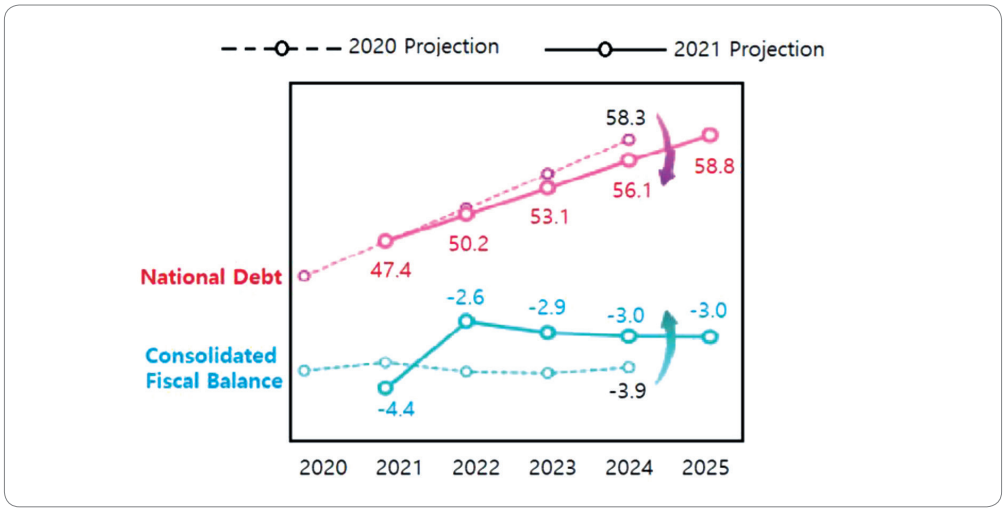
The government expects a GDP growth rate of about 3.5 percent, close to the world economic growth rate of 3.4 percent in 2023–2026 that the International Monetary Fund expects. Actual economic performance, however, might be lower than forecast because of the base interest rate increase, possible stagflation, and the Russia-Ukraine war.

### C. Government Finance

Anticipating the end of the pandemic, the government has changed its midterm projection to one more optimistic. Figure 11 demonstrates the five-year projection for consolidated fiscal balance and national debt. Even though the national debt keeps increasing, the rate of increase will be lower than once projected.

Figure 11 Projections of Government Finance

(percentage of GDP)



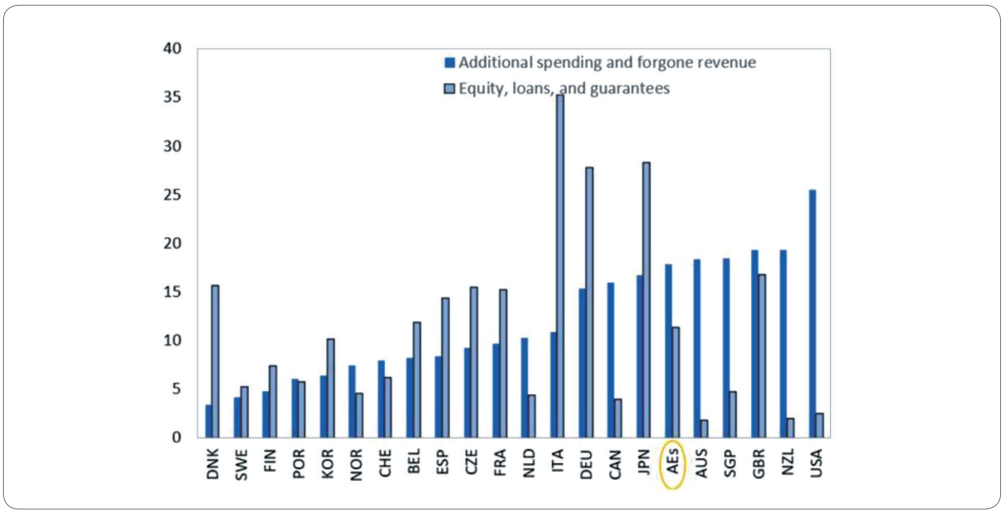

Source: Ministry of Economy and Finance (2020).

As the pandemic diminishes and expansionary budget expenditures change, the consolidated fiscal balance will improve.

### D. Contradiction and Uncertainty

Korea spent less on COVID-19 measures than other advanced economies (Figure 12). However, whether the President will expand the subsidy for economically damaged people after the pandemic is unsure. Many who lost their jobs and shops still need government support.

Figure 12 International Fiscal Responses to the COVID-19 Crisis




AEs = advanced economies, AUS = Australia, BEL = Belgium, CHE = Switzerland, CZE = Czech Republic, DEU = Germany, DNK = Denmark, ESP = Spain, FIN = Finland, FRA = France, GBR = Great Britain, ITA = Italy, KOR = Republic of Korea, NLD = Netherlands, NOR = Norway, NZL = New Zealand, POR = Portugal, SGP = Singapore, SWE = Sweden, USA = United States of America.
Source: International Monetary Fund. Fiscal Monitor Database

### E. Cash Management Capacity

The practice of cash management will likely improve with the use of new technologies such as big data and machine learning. The new IFMIS began operating in January 2022.

The original dBrain processed some Treasury information in batch mode. The new dBrain handles it seamlessly. The electronic early warning system can now detect diverse deviant transactions. Most importantly, the new dBrain provides Treasury officers with an online data analysis center. The machine learning tool helps them instantly analyze time series, regression, or structural equation models. Financial decision-making requires far more than electronic information but can be helped by it.

### 2.3.3. Lessons Learned

Korea responded to the COVID-19 crisis with unprecedented speed and volume of financial assistance to the most vulnerable. Some missteps and confusion occurred early on but were not uncommon in a crisis. Cash and debt management were done properly and on time. Lessons learned can be summarized in two categories.

The first is the **flexible adaptation** to unprecedented circumstances.

1. Korea has a long tradition of forecasting annual revenue every August. However, when the forecast error turned out to be large in 2021, Korea decided to forecast revenue twice a year.
2. The MOEF expanded the minimum daily balance target from KRW300 billion to KRW400 billion.
3. During the pandemic, the MOEF introduced the two-year Korea Treasury bond issuance in 2020 to strengthen the government's ability to manage bond issuances and to reduce borrowing costs.
4. To ease the volatility in interest rates, the MOEF established an emergency buyback system for the first time. The emergency buybacks in 2020 and 2021 were evaluated on time.

The second category is the **agility** of fiscal administration.

1. When the National Assembly implemented the ESD, the Treasury made payments in a remarkably short time, with 80 percent of KRW62 trillion paid to more than three million people in three days.
2. The BOK announced the unlimited purchase of government bonds during the pandemic, purchased them from time to time. And provided a KRW71 trillion guarantee.

3. The IFMIS was effective in performing enormous financial transactions.

## 2.4. Conclusion

Overall, Korea responded well to the crisis. The MOEF supplied financial resources to people in need as quickly as it could. The economy is recovering against all odds.

The crisis gave the MOEF an opportunity to introduce measures such as the emergency buyback system, the issuance of the two-year Korea Treasury bond, and the biyearly fiscal

forecasting system. However, the cash and debt management system has unfinished business. First, it needs to actively manage cash although reaching the fine-tuning stage usually takes a long time. Second, the government wants to join the World Government Bond Index. To do that, the MOEF needs to exempt nonresidents and foreign corporations from tax on government bonds, interest, and capital gains. Joining the index will expedite the development of the debt management system.

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CHAPTER

3

COUNTRY CASE STUDY:

# CASH MANAGEMENT IN SOUTH AFRICA AND POLICY RESPONSE TO COVID-19

CHAPTER 3

# COUNTRY CASE STUDY: CASH MANAGEMENT IN SOUTH AFRICA AND POLICY RESPONSE TO COVID-19

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## 3.1. Introduction

Starting in 2021, the Public Expenditure Management Network in Asia (PEMNA) embarked on new research. The Treasury Community of Practice decided to conduct research on cash management and optimization for its In-Depth Research project, including how different countries responded to the coronavirus disease (COVID-19) in ways that could benefit other PEMNA countries. South Africa, not a PEMNA member, was selected because its case will add value to the cross-country analysis and enrich discussions.

This chapter provides an overview of cash management practices in South Africa, its response to cash management challenges during the COVID-19 pandemic, and lessons learned.

## 3.2. Cash Management Practices in South Africa

### 3.2.1. Introduction

In 1995, South Africa's National Treasury reviewed the entire debt management policy and strategy and developed a framework of philosophies and principles to manage public debt. As part of the extensive debt management reforms that followed, a cash management unit was established in 1999. It took over the Reserve Bank's limited cash-forecasting functions. South Africa's cash management operations now exhibit most of the main features of modern cash management.

Lessons learned and improvements made to cash management in the aftermath of the 2009 global financial crisis ensured that South Africa would have a well-developed and reliable

cash management function that coordinated well with debt, fiscal, and monetary policy. The government had adequate liquidity to meet its payment obligations during the COVID-19 pandemic when the National Treasury faced a liquidity crisis due to reduced revenue and increased public expenditure.

This chapter explains the main features of the government's cash management framework.

### 3.2.2. Key Policy Objectives of Cash Management

Cash management has three main policy objectives:

1. Ensure that the government manages its cash effectively to have sufficient cash to meet its obligations when they are due.
2. Minimize the impact of government cash flows on the domestic banking sector by ensuring that no large and unpredicted changes occur in banking liquidity and that the Reserve Bank's monetary policy is not undermined.
3. Minimize surplus cash and maximize returns thereon.

### 3.2.3. Legal and Institutional Arrangements

#### A. Legislation

The legal framework for cash management is prescribed in the Public Finance Management Act of 1999 and in the Treasury Regulations. The act prescribes that the National Treasury:

1. must ensure that the National Revenue Fund always has sufficient money;
2. must prescribe frameworks for how cash should be managed, conditions for opening bank accounts, and banking arrangements for the National Revenue Fund; and
3. may invest money temporarily locally or elsewhere, and that the money invested and interest thereon is part of the National Revenue Fund.

The act prescribes that all money received by the national government must be paid into a bank account of the National Revenue Fund and that any tax revenue and other moneys collected by the Revenue Service must be promptly deposited into the fund.

Only the finance minister is allowed to borrow money and only to maintain credit balances in the National Revenue Fund and to regulate internal monetary conditions.

The Treasury Regulations, published to support the Public Finance Management Act, prescribe a banking, cash management, and investment framework for the national and

local governments and public entities. The framework prescribes how line ministries and the Revenue Service must provide cash-flow forecasts to the National Treasury to monitor the budget and to forecast the government's cash requirements.

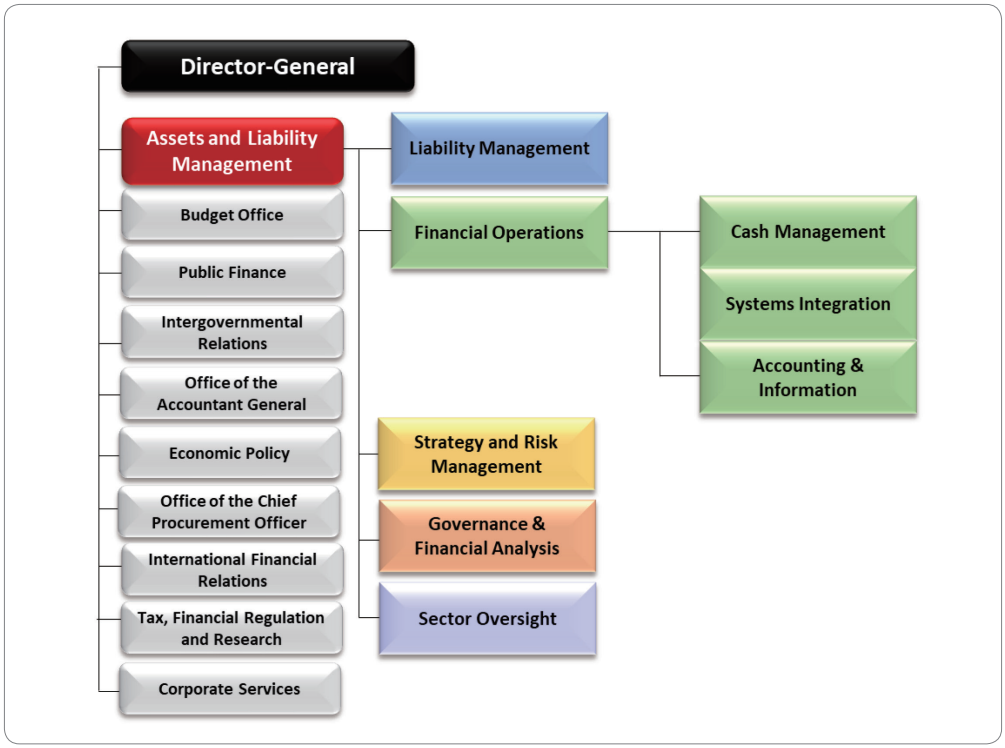
In addition to managing cash as prescribed by the act and regulations, the National Treasury issues practice notes.

## B. Institutional Arrangements

### National Treasury

The cash management unit is in the asset and liability management division, one of the 10 National Treasury divisions (Figure 13). The asset and liability management division is responsible for managing debt and cash and the associated risk. The division also conducts financial oversight of state-owned companies.

Figure 13 Organizational Chart, South African National Treasury




Source: National Treasury.

Since the cash management unit is in the same division as the debt and risk management units and the units responsible for financial oversight of state-owned companies, coordination on matters affecting cash management is smooth and informal. A weekly meeting of all units, chaired by the head of the asset and liability management division, ensures that the funding strategy is coordinated and risks are identified and mitigated on time.

The overall forecasting of cash flows is a collective effort involving not only units in the asset and liability management division but also five other National Treasury divisions. The budget office division provides aggregate budget figures to calculate the borrowing requirement, while the public finance and intergovernmental relations divisions engage with line ministries and provincial governments to generate monthly cash plans, including payment schedules. The tax policy division works with the Revenue Service on tax revenue projections.

The accountant general division provides data on daily approved and processed payments and in consultation with the cash management unit ensures that a functional treasury single account (TSA) structure of accounts is maintained.

The National Treasury has no formal cash management committee. The cash management unit and other National Treasury divisions meet informally from time to time, and the head of the National Treasury (director-general) chairs the budget coordination committee, where the cash management unit is represented.

### Line Ministries

Forecasts by line ministries are mainly inputs to the National Treasury to prepare and monitor the budget. Line ministries plan their own resources and provide monthly cash plans to the National Treasury. The cash management unit has direct relations with some line ministries, especially those with large expenditure flows such as social grants.

### Revenue Service

The Revenue Service administers the tax system and customs service and reports to the finance minister. The Revenue Service provides regular revenue projections to the cash management unit under a formal agreement.

### Reserve Bank

The Reserve Bank is the banker to the government and holds its main bank account and other accounts to facilitate expenditure by line ministries. The bank is the issuing agent for Treasury bills and domestic bonds and holds some of the government's local and foreign currency deposits.

The Reserve Bank and the National Treasury have formal consultative arrangements to coordinate fiscal and monetary policy. The consultative process comprises several standing

committees and subcommittees, which report to bilateral meetings between the Reserve Bank governor and the finance minister. The cash management unit meets regularly with Reserve Bank officials to ensure that the government's cash management operations are synchronized with the Reserve Bank's activities.

### 3.2.4. South Africa's Treasury Single Account Structure

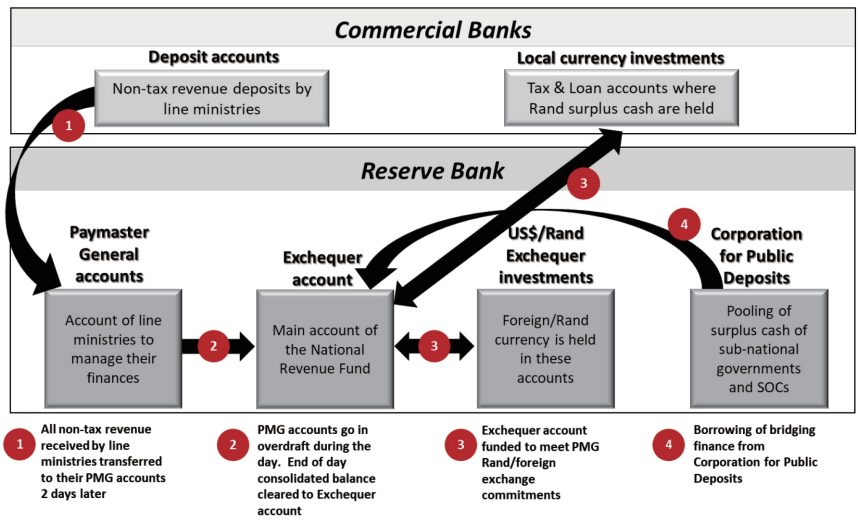
South Africa's TSA is a unified structure of government bank accounts, which enables the consolidation and optimal utilization of the government's cash resources. The TSA structure is called the National Revenue Fund.

#### A. Coverage of the Treasury Single Account

The TSA structure comprises of all the bank accounts of the National Revenue Fund at the Reserve Bank and commercial banks (Figure 14). The TSA does not include the accounts of provincial revenue funds and extra-budgetary funds. It does, however, include accounts at the Corporation for Public Deposits used to consolidate the surplus cash of provincial governments and some government-funded state-owned companies.

Petty cash accounts held by line ministries at commercial banks to meet small cash commitments form part of the TSA structure, but their balances are not consolidated daily.

Figure 14 South Africa's Treasury Single Account Structure and Daily Settlement Arrangements




PMG = Paymaster General, SOC = state-owned company.
Source: National Treasury.

### B. Bank Account Structure

All cash flows relating to national government revenue, expenditure, debt issuance, and investments are fully integrated into the TSA. It comprises the government's main bank account at the Reserve Bank with sub-accounts at the Reserve Bank and commercial banks.

### C. Payment Cycle

Line ministries are responsible for budget execution, accounting control, collection of nontax revenue, and for their own expenditure transactions. All line ministries have zero-balance subledger transaction accounts (Paymaster General accounts) at the Reserve Bank, which serve as their main bank accounts and which form part of the government's transaction-processing systems.

Even though line ministries record and approve payments on the government's transaction processing system, the accountant general makes the final authorization before transactions are submitted to the Reserve Bank for processing.

### D. Receipt Cycle

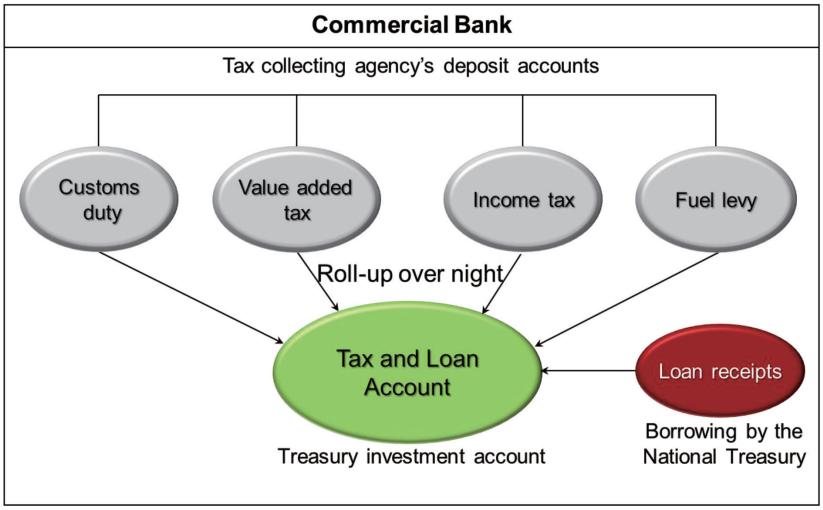
Commercial banks are used to facilitate the collection of tax revenue and nontax revenue.

**Nontax revenue** is collected by line ministries. They hold deposit accounts with commercial banks into which all nontax revenue is deposited or received electronically. Two days after receiving deposits, commercial banks clear deposit accounts to the transaction subledger accounts of line ministries at the Reserve Bank. Line ministries then transfer their nontax revenue receipts to the government's main account at the Reserve Bank.

At the beginning of each day, commercial banks report to the cash management unit the amount of nontax revenue, which will be transferred to the line ministries' Reserve Bank accounts. This transfer provides certainty to the cash management unit when forecasting the daily inflows into the government's accounts at the Reserve Bank. In exceptional cases, line ministries are allowed to transfer large one-off nontax revenue receipts directly into their Reserve Bank accounts after receiving approval from the cash management unit and the accountant general.

**Tax revenue** is collected by the Revenue Service. The tax authority has a structure of accounts with commercial banks to facilitate the collection of tax revenue (Figure 15). These Revenue Service accounts do not form part of the government's TSA structure.

Figure 15 Tax Revenue Receipt Cycle (Tax and Loan Account Structure)




Source: National Treasury.

For the Revenue Service to transfer tax collections to the government, the National Treasury opened a tax and loan account with each commercial bank used by the tax authority to collect taxes. As part of their end-of-day processing, commercial banks roll up the balances in the Revenue Service accounts to the tax and loan accounts overnight. All taxes collected are received by the government on the same day, earn interest, and are available to fund the government's expenditure the next day. Should the cash management unit not have sufficient liquidity, arrangements can be made with commercial banks to do within-the-day roll-up of tax collections to the tax and loan accounts, e.g., at 13:00, enabling same-day utilization of tax revenue receipts.

Proceeds from domestic bond issuances are transferred to the tax and loan accounts. To facilitate the dematerialized settlement process of Treasury bills, proceeds from Treasury bill auctions are not paid into the tax and loan accounts at commercial banks but directly into the government's main account at the Reserve Bank.

Proceeds from international borrowing are paid into the government's foreign currency accounts at the Reserve Bank but, should they be converted into local currency, the local currency is paid into the tax and loan accounts.

### E. Investment Accounts

Besides call deposits in the tax and loan accounts at commercial banks, the National Treasury

holds local and foreign currency investment accounts with the Reserve Bank.

### F. Accounts to Coordinate Broader Public Sector Cash

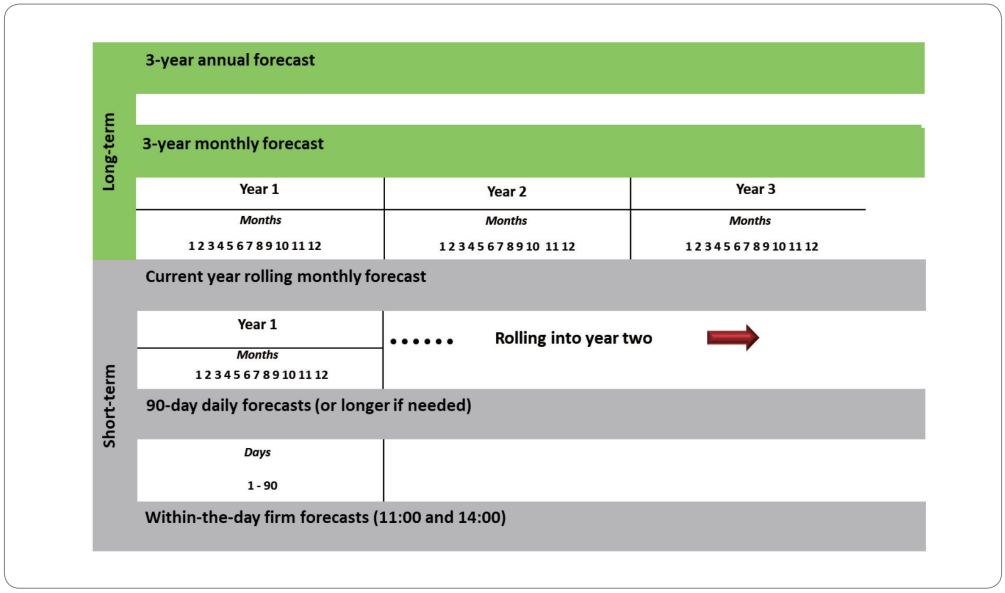
The National Treasury uses the Corporation for Public Deposits to pool the surplus cash of provincial governments and of state-owned companies that are dependent mainly on transfers from the national budget.

To facilitate the pooling, portfolios of accounts for provinces and state-owned companies were opened at the corporation. The National Treasury has an account used to borrow money from or invest money with the Corporation for Public Deposits.

## 3.2.5. Cash-Flow Forecasting

Extensive forecasting of cash flows is key to ensure that the government's payment obligations are fully met when due. Since being established in 1999, the cash management unit has developed an extensive framework to forecast revenue, expenditure, domestic and external debt redemptions, financing of borrowing requirements, and the resulting change in cash balances with different frequencies (Figure 16).

Figure 16 Cash-Flow Forecasting Frequencies




Source: National Treasury.

Forecasts of annual borrowing plans are on a high level, with monthly cash-flow forecasts showing more detail and daily forecasts the most detail.

To ensure that the government has sufficient foreign exchange to meet its foreign currency commitments, the cash management unit separately maintains cash-flow forecasts of interest and redemption payments on foreign loans, foreign currency commitments of line ministries, and foreign loan proceeds. These projections are included in the main short- and long-term horizon cash-flow forecasts.

### A. Long-Term Horizon Forecasting

Annual borrowing plans and monthly cash-flow forecasts are prepared for three years using the multiyear budget estimates when the main budget is presented in February and the medium-term budget policy statement in October.

The purpose of the three-year annual borrowing plan is for the National Treasury to agree on a funding strategy to cover the government's gross borrowing requirement based on a given fiscal framework. The plan forms the basis for the three-year monthly cash-flow forecasts, which identify cash-flow pressures that could affect the funding strategy and require the accumulation of cash well in advance. The forecasts also serve as inputs when projecting the government's debt service cost.

A top–down approach is used, with the budget office division of the National Treasury providing the multiyear fiscal framework of revenue and expenditure estimates. Historical trends are used by the cash management unit to project the long-term monthly expenditure and revenue cash flows. Debt management systems provide the profile of debt service payments. The debt issuance strategy to finance the borrowing requirement is agreed with the debt management unit. Domestic long-term loan issuance is spread evenly throughout the year, while Treasury bills and other short-term bridging finance facilities are used to cover temporary cash pressures.

Leading up to a budget, the three-year annual borrowing plans are frequently updated in line with updated fiscal frameworks received from the budget office division. The borrowing plans are often used when engaging the budget office division on the ability to finance the borrowing requirement of different fiscal paths. To show the government's long-term trajectory of debt service cost and total debt levels, 10-year borrowing plans are often prepared.

### B. Short-Term Horizon Forecasting

Once the budget figures have been finalized, the long-term horizon monthly cash-flow forecast of the first year, where expenditure and revenue forecasts are based on historical trends, is updated with projections received from line ministries and the Revenue Service.

To identify within-the-month cash pressures, daily cash-flow forecasts for 90 days are maintained. The daily forecast period will be extended when cash pressures are anticipated.

The National Treasury's public finance division, the Revenue Service, and the debt management unit are key to maintain short-term horizon forecasts.

### C. Expenditure Forecasting

The public finance division is responsible for estimating and monitoring budget expenditure. Line ministries submit their budgets via a web-based portal to the public finance division to compile expenditure estimates for the main budget in February and the medium-term budget policy statement in October each year.

Once budget allocations of expenditure have been made, line ministries are required to submit monthly cash plans to the public finance division for the first year. The cash plans include detailed payment schedules showing amounts and payment dates of, among others, transfer of revenue shares and grants to subnational governments, social grants, and other regular payments. The public finance and cash management units coordinate closely to ensure that cash plans are aligned with the seasonality and within-the-month patterns of revenue inflows. Once agreed to by the cash management unit and approved by the director-general of the National Treasury, line ministries may deviate from their monthly cash plans only after the midyear adjustments budget or after prior approval by the National Treasury.

The monthly cash plans and payment schedules are used by the cash management unit to forecast the monthly and daily cash flows. The cash management unit has agreed with line ministries on fixed payment dates of large payments that do not appear on payment schedules. This arrangement, together with variance analysis between projected and actual cash flows to identify forecasting errors and the implementation of corrective steps, enables the cash management unit to minimize unknown daily expenditure of the 90-day cash-flow projections to that of goods and services, which is a small share of the government's total daily expenditure.

### D. Revenue Forecasting

A three-year estimate of tax revenue is made along with the main budget in February and the medium-term budget policy statement in October each year. The revenue estimation committee—comprising the division responsible for tax policy in the National Treasury and the budget office, economic policy, and asset and liability management divisions, and the Reserve Bank and the Revenue Service—is responsible for estimating tax revenue.

The economic policy division, responsible for tax policy; the Reserve Bank; and the Revenue Service separately present their tax revenue forecasts to the committee, after which the committee reaches a consensus on tax revenue estimates.

Once the tax revenue estimates have been finalized, the division responsible for tax policy in the National Treasury and the Revenue Service agrees on a monthly breakdown of the first year's tax revenue. The monthly estimates are initially used by the cash management unit to update its monthly cash-flow projections but stay the same throughout the year and are adjusted only when the budget is adjusted at midyear and are not suitable for cash-flow forecasting.

As a result, the cash management unit has arrangements with the tax authority to regularly update monthly revenue projections and provide daily forecasts for 90 days. Although the tax authority and the cash management unit have a formal memorandum of understanding, their relationship remains informal, with monthly meetings and regular personal contact to ensure early notification of deviation from forecasts or unanticipated flows.

While the forecast of revenue received from the Revenue Service is detailed by revenue category, the cash management unit uses only high-level revenue data in its monthly and daily cash-flow forecast.

### E. Debt Service Forecasting

Payment schedules of debt redemptions and interest are obtained from the government's debt management systems and the debt service cost forecasting model housed in the asset and liability management division. The cash management unit has direct access to these systems to update projections of monthly and daily cash flows.

### F. Debt Issuance Program

Before the beginning of a financial year, a funding strategy drawn up by the debt management unit in close collaboration with the cash and risk management units is approved by the finance minister. The funding strategy includes a detailed debt issuance program of domestic and foreign bonds, Treasury bills, and other short-term financing instruments for the new financial year.

The debt issuance program is used in the monthly and 90-day daily projections of cash flows.

### G. Forecasting of Extra-Budgetary Cash Flow

Extra-budgetary entities do not form part of the TSA and are not normally part of the government's cash-flow forecasting.

However, when large government transfers are due to state-owned companies, the cash management unit closely monitors them. Where transfers are made on a need-to-have basis and could impact the government's daily estimates of expenditure, the cash management unit will track such entities' cash requirements.

### H. Updating Frequency

The monthly cash-flow statements are updated monthly with actual cash flows for the previous month and new projections. The 90-day daily cash-flow projection is managed actively and updated daily with actual flows of the previous day and any new data on future cash flows that become available. When there are cash pressures and the government's cash position needs to be closely monitored, the daily cash-flow statement could be updated frequently every day.

### I. Within-the-Day Forecasting

The net position of all local and foreign currency inflow and outflows through the government's accounts at the Reserve Bank is calculated daily, first at 11:00 then at 14:00. The forecasts must be accurate as they determine movement of cash and could impact the Reserve Bank's monetary policy operations.

Transactions recorded in the government's accounting system are used for these calculations, while actual flows through line ministries' accounts at the Reserve Bank are monitored during the day. An end-of-day report from the Reserve Bank is used to verify that all government transactions have been processed and that the end-of-day balance of the government's main account at the Reserve Bank is zero.

Line ministries are required to record and approve their payments on the government's accounting system four days in advance. Same-day payments are allowed only if approved by the accountant general after consulting the cash management unit. This arrangement provides the cash management unit with an advance view of expenditure flows.

### J. Coordination with the Reserve Bank

The cash management unit regularly shares its cash-flow projections with the Reserve Bank. Every month, the Reserve Bank is provided with updated daily cash-flow projections for a 90-day period. Within-the-day cash flow forecasts at 11:00 and 14:00 are shared with the Reserve Bank daily. To assist it in investing the government's foreign exchange cash holding, the Reserve Bank is provided annually or more frequently on request with monthly projections of foreign currency cash flows for a three-year period.

The Corporation for Public Deposits at the Reserve Bank is provided with monthly estimates of what short-term borrowing the National Treasury will require from the corporation.

To assist with coordination, the financial markets division at the Reserve Bank and the cash management unit meet virtually every month to discuss the government's cash-flow projections.

### 3.2.6. Daily Settlement Arrangements of Actual Cash Flows

The daily settlement arrangements for the accounts in the TSA are shown in Figure 14.

First, the net balance of all payments from and receipts into the government's bank accounts at the Reserve Bank, which at the end of the day clear to the government's exchequer account (the government's main account), is estimated using within-the-day forecasting.

Should the estimated net position of the government's main account for the day be negative, money is transferred from the tax and loan accounts at commercial banks to the government's main account at the Reserve Bank. Money is drawn from the Corporation for Public Deposits if bridging finance is required. Foreign currency commitments are settled from the government's foreign currency deposits with the Reserve Bank. Should the government's main account be in a surplus, money is transferred back to the tax and loan accounts at commercial banks or to the Corporation for Public Deposits. This arrangement ensures that the balance of line ministries' sub-ledger accounts and the government's main account at the Reserve Bank is zero at the end of each day.

### 3.2.7. Bridging Finance Facilities

To smooth out short-term liquidity pressures, the cash management unit maintains a wide range of bridging finance facilities, including short-term borrowing instruments.[16] A "what if" matrix prioritizing bridging finance options forms part of the cash management framework.

The matrix prioritizes the issuance of short-maturity Treasury bills, borrowing from the Corporation for Public Deposits, the within-the-day roll-up of revenue receipts from the tax authority accounts, and the use of local and foreign currency deposits with the Reserve Bank. As a last resort, the conversion of foreign currency to local currency using currency swaps, repos in domestic bonds, and the reschedule of payments will be considered.

### 3.2.8. Cash Balance Management

The cash management unit is responsible for investing cash balances in local currency and in foreign exchange held with commercial banks and the Reserve Bank.

#### A. Cash Reserve Funds

To increase the country's foreign exchange reserves, the National Treasury in 2005 made local currency deposits of R67 billion to a sterilization deposit account at the Reserve Bank to sterilize the money market liquidity, which resulted from the purchase of foreign exchange

16 Bridging finance facilities or cash management instruments are short-term borrowing instruments and other financing options used to help manage the timing mismatch between inflows and outflows.

reserves. As the use of the sterilization deposit will add to money market liquidity, the Reserve Bank agreed that the National Treasury may only use up to 15 percent of the sterilization deposit amount as bridging finance for no longer than a month at a time.

Foreign currency deposits of US$7.5 billion were made in 2010 with the Reserve Bank to increase official foreign exchange reserves. The National Treasury was allowed to temporarily use part of the deposits to meet its foreign currency commitments and replenish them later with proceeds from foreign bond issuance in the international market. The arrangement provided the National Treasury with the flexibility to enter the international market only when it is beneficial to do so.

The Reserve Bank lifted all restrictions on the use of the government's cash reserve holdings since the pandemic, allowing the National Treasury to fully withdraw the deposits to meet part of the borrowing requirement. The government's cash reserve deposits with the Reserve Bank are now part of operational cash and no longer held mainly to increase official foreign exchange reserves.

The National Treasury and the Reserve Bank have a formal investment mandate under which the Reserve Bank must invest the National Treasury's foreign currency holding together with the Reserve Bank's own foreign exchange. The National Treasury receives interest on local currency and US dollar deposits equal to the average rate of return earned by the Reserve Bank on the total foreign exchange portfolio of investments.

### B. Operational Cash Buffers

The National Treasury maintains operational cash buffers in the rand and the US dollar. The cash buffers' level is informed by projections of cash requirements. There is no minimum or maximum cash target balance. A wide range of bridging finance facilities safeguard the government's liquidity position and minimize the amount of cash maintained to cover cash-flow peaks and to meet unforeseen commitments.

Rand surplus cash in the tax and loan accounts of the National Treasury is on call and earns interest at the South African Bank overdraft rate set by the Reserve Bank daily. Deposits with commercial banks are not collateralized. An investment strategy with oversight by the risk management unit approves counterparties and credit risk ratios and limits.

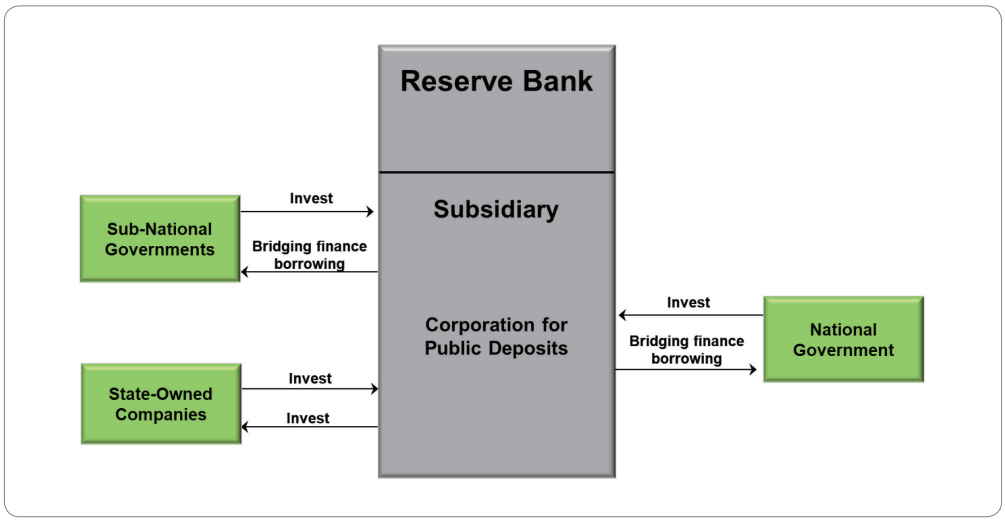
### C. Coordination of Broader Public Sector Cash

Except for cash in line ministries' petty cash accounts at commercial banks, all TSA cash is invested centrally. Large amounts of money are transferred by the national to provincial governments and state-owned companies. The money is not fully utilized, resulting in surplus cash accumulating, which is invested by the entities with commercial banks.

To minimize the credit risk exposure of the entities and to optimize the use of the idle cash balances, the Corporation for Public Deposits pools the surplus cash of provincial governments and of state-owned companies wholly dependent on transfers from the national budget (Figure 17). Money invested with the corporation is on call and earns interest at a rate linked to the three-month Treasury bill yield rate.

The National Treasury borrows from the corporation to finance its commitments. Provincial governments have limited borrowing facilities from the corporation.

Figure 17 Pooling of Broader Public Sector Cash in the Corporation for Public Deposits




Source: National Treasury.

### 3.2.9. Cash Management Operations

#### A. Staffing and Responsibilities

The cash management unit has five staff members and the following main functions:

1. Maintain extensive forecasting of the government's cash flows.
2. Perform within-the-day projections of cash requirements and transfer of cash to ensure a zero balance of the TSA at the Reserve Bank.
3. Maintain short-term bridging finance strategies, including the issuance of Treasury bills.

4. Invest surplus cash.
5. Perform back-office short-term funding and investment operations.
6. Report on short-term funding and other cash management activities.

### B. Business Continuity and Disaster Recovery Plans

The business continuity and disaster recovery plans of the cash management unit are part of the plans of the asset and liability management division, which are consolidated with those of the National Treasury to ensure that core business operations are maintained. The plans are reviewed and tested annually.

The main risks faced by the cash management unit are the unavailability of systems to perform within-the-day cash management processes and the inability to raise debt to meet funding needs. Staff can work remotely from home and alternative operational and systems back-up sites are maintained. Reserve Bank offices can be used as they provide access to most of the information needed to perform within-the-day cash management and to execute debt issuance auctions.

### C. Data Systems for Cash Management

MS Excel is currently used to perform most cash management activities. Communication with divisions in the National Treasury, the Reserve Bank, line ministries, and the Revenue Service is via email.

The cash management unit has internet banking access to all government bank accounts at the Reserve Bank. Access to the Safety Web system used by the accountant general for final approval of line ministries' payments is an important source of data to estimate the within-the-day expenditure cash flows.

A computer system was recently implemented to perform daily within-the-day cash-flow forecasts and to transfer money between the Reserve Bank and commercial banks using the Society for Worldwide Interbank Financial Telecommunication (SWIFT) platform. The system will ensure that investments with commercial banks stay within prescribed ratios and limits.

## 3.3. Impact of COVID-19 and Cash Management Challenges

### 3.3.1. Introduction

The first case of COVID-19 was reported in South Africa on March 5, 2020. The government took decisive early action, declared a national state of disaster on March 15, 2020, and enforced a nationwide lockdown on March 27, 2020 to avoid the first wave overwhelming the health system.

Before the global COVID-19 pandemic, South Africa's economic growth was already low, the fiscal position had deteriorated, and borrowing requirements had increased significantly. For years, the National Treasury had been warning that the absence of fiscal space would leave South Africa vulnerable to external shocks. With the pandemic, the risk was now a reality.

The epidemiological path and economic consequences of the pandemic were highly uncertain and evolving rapidly. Policy and forecasts needed rapid adjustments. To set out the government's initial economic and fiscal response to the COVID-19 pandemic and to establish a bridge to the October 2020 medium-term budget policy statement, when a fuller picture of the pandemic's effect was expected, a special adjustments budget was presented to Parliament on June 24, 2020. The budget showed that the government's gross borrowing requirement was increasing steeply, posing liquidity and cash management challenges.

### 3.3.2. Economic Outlook Weakened

Real gross domestic product (GDP) grew by just 0.2 percent in 2019 and the 2020 budget presented in February 2020 before the pandemic reached South Africa projected real growth of 0.9 percent for the year.

The lockdown restricted most economic activity, taking a severe toll on an already fragile economy. Over the first three months, all sectors contracted steeply. Construction, retail, and hospitality were particularly hard hit, and retail sales restrictions had significant knock-on effects across the economy. Reduced global demand and border closures, alongside uncertainty about the application of lockdown regulations, further hampered activity.

The June 2020 special adjustments budget projected that the economy would contract by 7.2 percent in 2020.

### 3.3.3. Fiscal Position Deteriorated

Before COVID-19, the impact of low growth on revenue collection had already been considerable. In 2019/20, the under-collection of revenue exceeded that of 2009/10 in the immediate aftermath of the global financial crisis. Adding to the fiscal pressures, requests for support from financially distressed state-owned companies increased. The state was

borrowing at an increasing rate to fund its operations and the February 2020 budget projected the deficit in 2020/21 to be 6.6 percent of GDP.

Shortly after the pandemic started, the government initiated a wide-ranging temporary relief package to manage the immediate impact of the virus. The package involved scaling up capacity in the public health system and mitigating the effects of restricted economic activity on households and businesses. The Land and Agricultural Development Bank of South Africa needed an equity investment from the government to recapitalize the bank, which defaulted on its debt obligations on April 1, 2020. Debt service costs increased steeply because of the sharp increase in the government's gross borrowing requirement and rising cost of borrowing resulting from credit-rating downgrades and capital market outflows.

The situation led to a steep increase in projected expenditure, which was partly funded by shifting resources from existing programs and drawing down surplus funds from institutions such as the Unemployment Insurance Fund. As a result, projected expenditure in the June 2020 special adjustments budget increased to 32.5 percent of GDP in 2020/21, higher than the February 2020 budget estimate of 31.7 percent.

At the same time, restricted economic activity caused sharp declines in revenue. Tax relief measures implemented as part of the COVID-19 relief package further reduced revenue. The tax base was expected to shrink even further as businesses closed and people lost their jobs. In the first few months of the pandemic, sharp reductions of the two largest revenue items—domestic VAT and pay as you earn—were already evident. The June 2020 special adjustments budget now projected tax revenue underperformance of R298.5 billion for 2020/21, with tax revenue reaching 19.8 percent of GDP against the February 2020 budget estimate of 25.1 percent.

Revenue shortfalls, lower GDP, and higher spending because of the pandemic led to a significant increase in the budget deficit. The deficit for 2020/21, estimated at 6.6 percent of GDP before the pandemic, increased to 12.8 percent in the June 2020 special adjustments budget.

### 3.3.4. High Domestic Loan Repayments

Before COVID-19, South Africa had large loans that had to be repaid. The February 2020 budget showed that in 2020/21 and the next two years, R266.4 billion of debt or 4.8 percent of GDP was scheduled for redemption, of which domestic bonds accounted for 88.1 percent, excluding refinancing risk posed by the frequent rollover of three-, six-, nine-, and 12-month Treasury bills.

The issuance of shorter-dated domestic bonds and increased issuance of Treasury bills to finance the higher gross borrowing requirement caused by the pandemic further increased the government's refinancing risk.

To manage refinancing risk and reduce the gross borrowing requirement, an enhanced domestic bond-switch program, which exchanges short- for longer-dated domestic bonds, was reintroduced. Years ago, the program used to consolidate the domestic bond portfolio and was later successful as a cash management tool to manage the government's refinancing risk in advance, reducing not only the gross borrowing requirement but also cash-flow peaks.

The government's debt management policy is to reduce the outstanding amount of a bond through the switch program to levels that do not adversely affect market liquidity. Budget documentation does not show the amounts by which the switch program will reduce annual loan repayments. To construct the debt issuance program and to forecast cash flow, the debt and risk management units agree with the cash management unit on the amount by which the bond-switch program could reduce loan redemptions and the borrowing requirement.

The domestic bond-switch program reintroduced in 2020 focused on reducing the maturity amount of a mega domestic benchmark bond maturing in 2022/23 and did not include the two smaller benchmark bonds maturing in 2020/21 and 2021/22, which were closer to maturity and could be financed through normal debt issuance.

### 3.3.5. Gross Borrowing Requirement Increased

During the year before the COVID-19 outbreak, the government's gross borrowing increased by 68.3 percent, from 4.6 percent of GDP (R246.9 billion) in 2018/19 to 7.3 percent (R415.7 billion) in 2019/20. The borrowing requirement in 2020/21 was estimated to increase to 7.8 percent of GDP (R432.7 billion).

Because of the pandemic, the June 2020 special adjustments budget estimated an increase of 79.5 percent in the 2020/21 gross borrowing requirement, reaching 14.0 percent of GDP (R776.9 billion). Including the rollover of Treasury bills, the gross borrowing requirement for 2020/21 stood at R1.3 trillion or 23.0 percent of GDP.

Table 12 shows the increase in the gross borrowing requirement for 2020/21 estimated at time of the June 2020 special adjustments budget.

### 3.3.6. Sovereign Ratings Deteriorated to Sub-Investment Grade

During 2019, the risk to South Africa's credit rating became more pronounced. Only Moody's and Rating and Investment Information rated South Africa's debt investment grade. A downgrade by Moody's would have triggered exclusion of domestic bonds from indexes such as the FTSE World Government Bond Index and prevented some institutions from holding the country's debt.

Shortly after COVID-19 reached South Africa, two rating agencies (Moody's and Fitch) downgraded the government's credit rating to sub-investment grade, triggering a sell-off of

bonds by foreign investors, putting the domestic market under press.

### 3.3.7. Reliable Cash-Flow Forecasting Became Challenging

As was the case during the global financial crises in 2009, South Africa's extensive cash-flow forecasting framework ensured that the government could meet its commitments, notwithstanding an environment of cash-flow uncertainty and a steep increase in borrowing requirements caused by COVID-19 pandemic.

At the onset of the pandemic in March 2020, the cash management unit had annual borrowing plans and monthly cash-flow forecasts for a three-year period, which was prepared for the February 2020 budget. With the 2020/21 financial year starting on 1 April 2020, daily cash flows were forecast for three months to June 2020. Line ministries' monthly cash plans for 2020/21 were due for submission to the National Treasury. The Revenue Service was preparing its monthly tax revenue estimates for 2020/21 and reviewing its daily revenue estimates.

The scale of the crisis required rapid decisions by the government in response to fast-changing conditions. At the beginning, the impact the pandemic would have on growth and revenue was uncertain. The government was still finalizing a wide-ranging relief package, the impact of which on expenditure was uncertain. However, in discussions between the cash management unit and other Treasury divisions, it was clear early on that the borrowing requirements for 2020/21 and over the medium term would be increasing steeply. Cash-flow forecasts had to be updated urgently.

#### Developed Annual Borrowing Plan Scenarios

To inform National Treasury policy discussions and to start strategic discussions with the debt management unit on how a significantly higher borrowing requirement could be financed, the cash management unit prepared annual borrowing plans for the next three years, based on pessimistic, most likely, and worst-case fiscal framework scenarios obtained from the budget office division.

The annual borrowing plan scenarios were key in ensuring that important funding decisions, such as borrowing from international finance institutions and the Reserve Bank allowing the government to use its cash reserve holdings, were agreed to on time.

#### Focused on Short-Term Cash Flows

The monthly cash flow forecasts for 2020/21 and daily forecasts until July 2020, which, at that stage, were based on historical trends, had to be updated. Given the heightened volatility in revenue and expenditure and the uncertainty associated with disbursement of emergency spending, maintaining the cash-flow forecast statements became challenging. In this uncertain environment, credible assumptions of revenue estimates from the Revenue Service

and updated cash plans and payment schedules from line ministries were not possible. Past patterns of spending and revenue were no longer a good predictor of future cash flows.

When expenditures are high and revenue receipts low in the first quarter of a financial year, the Treasury normally experiences liquidity pressures until the end of June, when it receives large revenue inflows. Large expenditure in July and August often contributes to liquidity pressures. Challenges in efficient data collection to update cash-flow forecasts were, therefore, of concern.

During this period of uncertainty, the cash management unit strengthened its communication with the public finance and budget office divisions and the Revenue Service and updated its short-term cash-flow projections frequently as soon as estimates of crisis-related spending measures and revenue receipts became available. As the pandemic's effect on expenditure and revenue evolved, more reliable data for cash-flow forecasting became available. The early forecasts made clear that, from July 2020, the government would not be able to finance its commitments unless it made policy decisions on the use of cash reserves and borrowing from international finance institutions and development banks.

As soon as the June 2020 adjustments budget was finalized, the situation became more certain and the long- and short-term horizon forecasts could be updated with reliable figures from other Treasury divisions, line ministries, and the Revenue Service through normal data collection processes.

### 3.3.8. Funding Strategy Needed to Be Revised

South Africa's deep and liquid domestic market has always been the primary source of financing. The policy was that of the total amount borrowed in the domestic market, 12.4 percent was in Treasury bills with maturities of 12 months or less. The remainder was in fixed-rate, inflation-linked, and retail bonds. Fixed-rate and inflation-linked bonds were issued across the yield curve with maturities up to 25 years.

Borrowing in international markets was limited to the amount of foreign currency needed to meet interest and redemption payments on foreign currency-denominated debt and to meet foreign currency commitments of line ministries. Borrowing from multilateral institutions was considered only to finance infrastructure projects and had the benefit of additional technical support.

When deciding on an appropriate funding strategy to finance the higher borrowing requirement due to the COVID-19 pandemic, the cash and debt management units faced the following challenges:

1. The increase in the borrowing requirement was substantial.
2. The liquidity shortfall was immediate.
3. Financing the higher borrowing requirement primarily in the domestic market was not possible.
4. Domestic bond yields increased and foreign investors were selling their holdings of domestic bonds.
5. The National Treasury's local and foreign currency cash reserves with the Reserve Bank were allowed to be used only for bridging finance and only to a limited extent.
6. The government's policy was not to borrow from international finance institutions or development banks for deficit financing.
7. Conditions for issuance in global capital markets were unfavorable and, even if possible, would take time.

The revised funding strategy proposed by the cash management unit was aimed at reducing the quantum and the cost of borrowing. The debt and risk management units agreed that the revised funding strategy for 2020/21 should follow the following funding priorities:

1. Reintroduce the bond-switch program.
2. Use the government's cash reserves with the Reserve Bank.
3. Fully utilize public sector deposits with the Corporation for Public Deposits.
4. Substantially increase Treasury bill issuance.
5. Draw down on facilities available from international finance institutions and development banks.
6. Use part of foreign currency borrowing proceeds to finance local currency expenditure.
7. Minimize the increase of domestic bond issuance.

Table 12 shows the variance between the June 2020 special adjustments budget funding strategy for 2020/21 and the original February 2020 budget strategy.

Table 12 Increase in Gross Borrowing Requirement and Financing in 2020/21

| R billion | 2019/20 ouycome | 2020/21 | | Variance |
|---|---|---|---|---|
| | | Feb 2020 budget[1] | June 2020 adj budget[2] | |
| BORROWING REQUIREMENT | | | | |
| Main budget balance | -345.1 | -368.0 | -709.7 | -341.7 |
| *Percentage of GDP* | *6.1%* | *6.6%* | *12.8%* | *6.2%* |
| Revenue | 1345.9 | 1398.0 | 1099.5 | -298.5 |
| *Percentage of GDP* | *23.7%* | *25.1%* | *19.8%* | *-5.3%* |
| Expenditure | -1690.9 | -1766.0 | -1809.2 | -43.2 |
| *Percentage of GDP* | *29.7%* | *31.7%* | *32.5%* | *0.8%* |
| Loan redemtions | -70.6 | -64.7 | -67.2 | -2.5 |
| Domestic long-term | -19.4 | -52.5 | -52.5 | 0.0 |
| Foreign | -51.2 | -12.2 | -14.7 | -2.5 |
| Gross borrowing requirement | -415.7 | -432.7 | -776.9 | -344.2 |
| *Percentage of GDP* | *7.3%* | *7.8%* | *14.0%* | *6.2%* |
| FINANCING | | | | |
| Domestic short-term loans | 36.1 | 48.0 | 146.0 | 98.0 |
| Treasury bills | 26.0 | 48.0 | 146.0 | 98.0 |
| Corporation for Piblic Deposits | 10.1 | 0.0 | 0.0 | 0.0 |
| Domestic long-term loans | 305.4 | 337.7 | 462.5 | 124.8 |
| *Percentage of total domestic issuance* | *89.4%* | *87.6%* | *76.0%* | *-11.6%* |
| Foreign loans | 76.1 | 29.3 | 125.2 | 95.9 |
| *US$ equipment* | *5.0* | *2.0* | *7.0* | *5.0* |
| Change in cash balances[3] | -1.9 | 17.7 | 43.2 | 25.2 |
| Total financing | 415.7 | 432.7 | 776.9 | 344.2 |
| *Rand/US$ exchange rate* | *15.2* | *14.6* | *17.9* | |

1. The 2020 budget presented a month before COVID-19 related South Africa.
2. A special adjustment budget for 2020/21 presented four months after COVID-19 reached South Africa
3. A positive value indicates that cash is used to finance part of the borrowing requirement.
Source: National Treasury.

### Use of Domestic Bond-Switch Program Considered

The domestic bond-switch program reintroduced in 2020 did not include the two benchmark bonds maturing in 2020/21 and 2021/22 and focused on reducing the outstanding amount of the mega benchmark bond maturing in 2022/23. However, because of the steep increase in the gross borrowing requirement in 2020/21, using the domestic bond-switch program to reduce the amount to be borrowed in 2020/21 by reducing the domestic loan repayment amount was considered. In the end, using the bond-switch program was not required as other funding options were sufficient and the bond maturing in 2020/21 was close to maturity.

### Used Government's Cash Holdings with the Reserve Bank

At the end of March 2020, total cash deposits with the Reserve Bank amounted to US$13.1 billion (3.4 percent of GDP), R67 billion (US$ 4.6 billion equivalent) in the sterilization deposit account, and US$8.5 billion in the foreign currency account.

Historically, the deposits were partly used only as bridging finance to cover short-term obligations, but the National Treasury has always indicated to the Reserve Bank and to the market that the deposits would be used for deficit financing in the event of a crisis.

To partly finance the higher gross borrowing requirement, the Reserve Bank agreed that the National Treasury draw down the sterilization deposits to meet local currency commitments and use its foreign currency reserves holding to pay for foreign commitments (Table 13).

Table 13 Analysis of Total Cash Balances, 2020/21 to 2022/23

| R billion | 2020/21 | | | 2021/22 | | 2022/23 | |
|---|---|---|---|---|---|---|---|
| | Feb 2020 budget[1] | June 2020 adj budget[2] | Mar 2021 overcome | June 2020 adj budget[2] | Feb 2022 budget | June 2020 adj budget[2] | Feb 2022 budget |
| RAND CURRENCY | | | | | | | |
| Opening balance | 117.2 | 111.7 | 111.7 | 112.9 | 239.7 | 57.2 | 145.5 |
| Closing balance | 117.2 | 112.9 | 239.7 | 57.2 | 145.5 | 50.0 | 50.0 |
| *of which* | | | | | | | |
| *Tax and Loan accounts* | *50.0* | *85.8* | *198.6* | *50.0* | *104.4* | *50.0* | *50.0* |
| *Sterilisation deposit accounts* | *67.2* | *27.2* | *41.2* | *7.2* | *41.2* | - | - |
| FOREIGN CURRENCY | | | | | | | |
| Opening balance | 121.6 | 124.0 | 124.0 | 83.7 | 97.9 | 60.5 | 144.5 |
| Closing balance | 109.0 | 83.7 | 97.9 | 60.5 | 144.5 | 70.7 | 140.4 |
| *US$ equipment* | *7.1* | *5.5* | *6.4* | *3.7* | *9.1* | *4.2* | *8.7* |
| Total closing cash balance | 226.2 | 196.6 | 337.6 | 117.7 | 290.0 | 120.7 | 190.4 |
| *Percentage of GDP* | *4.1* | *3.5* | *6.1* | *1.9* | *4.6* | *1.9* | *3.0* |

1. The 2020 budget presented a month before COVID-19 related South Africa.
2. Special adjustment budgets for 2020/21 to 2022/23 presented four months after COVID-19 reached South Africa

Source: National Treasury.

### Utilized Public Sector Deposits with the Corporation for Public Deposits

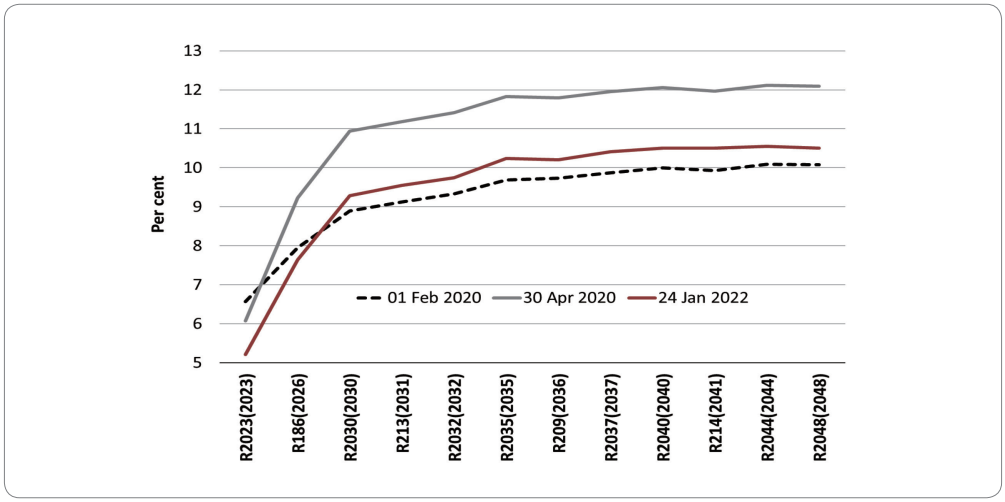
To provide liquidity, borrowing from the Corporation for Public Deposits was increased steeply at the beginning of 2020/21 but was repaid fully toward the end of the year as excess liquidity was being realized from higher revenue receipts.

### Substantially Increased Treasury bill Issuance

The National Treasury issues three-, six-, nine-, and 12-month Treasury bills as bridging finance and to finance the budget deficit.

In the wake of the March and April 2020 rating downgrades and the COVID-19 outbreak, the domestic bond market was under pressure and the government bond yield rose substantially (Figure 18).

Figure 18 Interest Rates on Domestic Government Bonds




Source: National Treasury.

To moderate pressure on the domestic bond market and to reduce the cost of borrowing, borrowing in Treasury bills was increased from the normal 12.4 percent to 24.0 percent of total domestic debt issuance to finance part of the higher borrowing requirement.

### Borrowed from International Finance Institutions and Development Banks

In the year before the pandemic, the government raised US$5 billion in the global capital markets. Given unfavorable global capital market conditions since the pandemic started, the anticipated issuance of the US$2 billion in 2020/21 was no longer possible. It was not a great concern as the government's foreign currency deposits of US$8.5 billion with the Reserve Bank were sufficient to cover the government's total foreign currency commitments of US$6.4 billion over the next two years.

Before the pandemic, the government did not have any loans from international finance institutions or development banks. The government now had to consider borrowing from these institutions to, among others, partly finance its domestic commitments as financing them primarily in the domestic market was no longer possible.

Cash-flow forecasts showed that the government was facing a local currency liquidity crisis in the short term. Under local market conditions, it would not be possible to suddenly ramp up domestic issuance to cover the looming liquidity shortfall. Funding from international finance institutions and development banks, which was immediately available and could be converted into local currency, had to be considered. The loans would not only be cheaper but would also have solved the government's liquidity crisis.

In total, US$5.6 billion was raised from the International Monetary Fund, the New Development Bank, and the African Development Bank in 2020/21. Of that amount, US$4.6 billion was converted into local currency to partly fund domestic commitments.

### Increased Domestic Bond Issuance

Domestic bond issuance was increased, but to ease the burden in the domestic market and to reduce the cost of borrowing, domestic bond issuance as a share of the total amount that had to be borrowed in the domestic market to finance the government's domestic commitments in 2020/21 was reduced to 76.0 percent compared with 89.4 percent the previous year.

As a temporary measure, the government revised its domestic bond borrowing strategy to focus on issuing shorter-dated bonds with a weighted average time-to-maturity of seven to 10 years, compared with 15 years seen in the previous year. This strategy helped lower the cost of borrowing and balanced available market demand. The intention was to resume issuing bonds over the full yield curve when market conditions improved.

## 3.3.9. Borrowing Arrangements with State-Owned Companies Considered

The Corporation for Public Deposits could have been an effective tool to establish on-demand short-term borrowing arrangements with state-owned companies that are not legally obliged to hold deposits with the corporation.

Legally, the government may not borrow from state-owned companies directly but, by arrangement, the National Treasury can request companies that hold idle cash to make deposits with the Corporation for Public Deposits.

As a short-term funding measure, the cash management unit considered increasing the pool of money available for borrowing from the Corporation for Public Deposits by requesting state-owned companies with idle cash to make deposits with the corporation. However, this was not possible as the financial position of these entities was deteriorating. The pandemic and associated economic restrictions were reducing their revenues, and market volatility limited their ability to borrow in the capital markets and to service their debt. As a result, many state-owned companies were at risk of defaulting on their debt.

The Unemployment Insurance Fund, which provides short-term unemployment benefits to qualifying workers, was the only entity with large cash reserves, but these were used to fund the Temporary Employee/Employer Relief Scheme established to provide immediate financial support to workers and firms affected by the pandemic.

## 3.3.10. Investor Relations Program Continued



The National Treasury runs an active investor relations program and, following the February

main budget and October medium-term budget policy statement each year, conducts domestic and international roadshows. The roadshows aim to strengthen relationships with investors and to keep them informed about economic, fiscal, political, and social developments in the country. The Treasury meets with investors throughout the year.

Roadshows and meetings continued but were virtual during the pandemic. An investor relations website providing investors with a single-entry point to a wide range of information was maintained.

The cash management unit participates fully in these investor relations activities.

### 3.3.11. Communication and Coordination Intensified

During the period of uncertainty that followed the start of the pandemic, communication and coordination between cash and debt management and between the monetary and fiscal authorities were vital. No new coordination structures were created. Existing coordination structures were sufficient to help the cash management unit perform its activities, but engagement had to be more frequent.

More regular engagements than the weekly meetings between the debt and cash management units were required to ensure that liquidity needs were identified in a timely manner and that borrowing plans were adjusted as needed.

The electricity supply company (Eskom) received large recapitalization transfers from the budget. To ensure that the transfers were aligned with the government's cash flows, the cash management unit continued to closely monitor Eskom's daily and medium-term cash requirements as it did the year before the pandemic.

To prevent state-owned companies and the government from competing for funds in the market—and ensure that borrowing calendars do not overlap—the National Treasury annually consolidates the borrowing calendars of state-owned companies and the government. Monitoring progress against the consolidated calendar and the possibility of liquidity pressures resulting from government guarantees continued during COVID-19.

During the extensive lockdown period, electronic media were used effectively to communicate.

### 3.3.12. Debt Projected to Reach Unsustainable Levels

Notwithstanding a steep increase in Treasury bill issuance and international borrowing to finance the higher borrowing requirement, the debt portfolio remained optimally structured within the government's strategic portfolio risk benchmarks. A year after the pandemic reached South Africa, the weighted term-to-maturity of fixed-rate bonds and Treasury bills

was 11.8 years and that of inflation-linked bonds 13.2 years. Only 10 percent of total debt was foreign currency loans.

The government's gross debt as a share of GDP increased sharply during 2020/21 from 57.4 percent of GDP to 70.7 percent. In 2020/21, at 22 percent, the growth rate of debt was higher than in the preceding five financial years and the weighted cost of funding increased by 71 basis points compared with the previous year.

The cost of servicing debt as share of total expenditure increased from 12.1 percent to 13.0 percent in 2020/21.

### 3.3.13. Private Sector Relationships Strengthened

The government strengthened its working relationship with the private sector in response to the COVID-19 emergency. The private health sector made valuable contributions, providing critical-care beds at a favorable rate and complementing efforts to ramp up testing and vaccinations. The Solidarity Fund, a private sector initiative, augmented the government's efforts to procure medical and personal protective equipment. Banks provided debt relief and payment holidays to their clients.

The pandemic impacted commercial banks' liquidity management operations. Money in the government's tax and loan accounts is on call and can have an impact on banks' liquidity operations. The cash management unit started to provide the tax and loan account–holding commercial banks with advance estimates of daily cash balances and with a forward-looking view of large expenditure and revenue flows.

### 3.3.14. Reserve Bank's Response to COVID-19

The Reserve Bank used monetary policy, financial market operations, and its regulatory tools to help the continued smooth functioning of the financial sector and the stability of the financial system.

The Reserve Bank responded as follows:

1. Reduced interest rates by 275 basis points—the largest by any emerging market central bank during this period—easing financial conditions, providing short-term relief for households and businesses, and supporting economic activity.

2. Helped fund markets by providing liquidity to clearing banks more frequently and longer and by purchasing government bonds from the secondary bond market.

3. Provided banks with regulatory relief measures such as capital relief on loans that were restructured due to the crisis, a lower liquidity cover ratio, and lower capital requirements.

The Reserve Bank did not directly assist the government in financing the steep increase in its borrowing requirement. The Reserve Bank Act does not allow the bank to provide government with overdraft facilities. The act does allow the Reserve Bank to buy a limited amount of bonds directly from the government, but the bank has never done so. The Reserve Bank did, however, allow the National Treasury to utilize the government's cash reserve deposits to finance the borrowing requirement.

The Reserve Bank, in partnership with the National Treasury and the Banking Association of South Africa, launched the COVID-19 loan guarantee scheme in May 2020. The arrangement was designed to enable commercial banks to support firms until economic activity could resume. The National Treasury guaranteed support of up to R100 million (later increased to R200 million).

## 3.4. COVID-19 Stabilizing Phase and Lessons Learned

### 3.4.1. Introduction

Two years after the COVID-19 outbreak, public finances remained under severe strain, but faster than expected revenue growth enabled the government to support households, the economy, and the health sector, while narrowing the deficit more rapidly than projected. A surge in commodity prices has increased economic growth and tax revenue.

The government's gross borrowing requirement declined and debt issuance and debt levels were lower than initially projected.

### 3.4.2. Lower than Projected Gross Borrowing Requirement

The economy had recovered more rapidly than anticipated in response to improved global conditions and eased lockdown restrictions, supported by international demand and higher commodity prices. While the COVID-19 shock led to a 6.4 percent contraction in GDP growth in 2020, the February 2022 budget estimates GDP growth of 4.8 percent in 2021, averaging 1.8 percent in the next 3 years.

Since the June 2020 special adjustments budget, tax collections have outperformed expectations because of the strength of mining revenue and an upturn in earnings following the 2020 recession. The 2020/21 budget deficit was 9.9 percent of GDP, compared with the 12.8 percent projected in the June 2020 special adjustments budget. The February 2022 budget projects the deficit for 2021/22 to be 5.5 percent of GDP before increasing to 6.0 percent in 2022/23.

The gross borrowing requirement declined sharply from 11.1 percent of GDP (R618.3 billion) in 2020/21 to 6.6 percent (R412.0 billion) in 2021/22 (Table 14).

Table 14 Gross Borrowing Requirement and Financing, 2020/21 to 2022/23

| R billion | 2020/21 | | | 2021/22 | | 2022/23 | |
|---|---|---|---|---|---|---|---|
| | Feb 2020 budget[1] | June 2020 adj budget[2] | Mar 2021 overcome | June 2020 adj budget[2] | Feb 2022 budget | June 2020 adj budget[2] | Feb 2022 budget |
| BORROWING REQUIREMENT | | | | | | | |
| Main budget balance | -368.0 | -709.7 | -550.6 | -495.6 | -346.9 | -430.5 | -387.3 |
| *Percentage of GDP* | *6.6%* | *-12.8%* | *-9.9%* | *-7.9%* | *-5.5%* | *-6.7%* | *-6.0%* |
| Revenue | 1398.0 | 1099.5 | 1238.4 | 1268.2 | 1549.1 | 1378.8 | 1588.0 |
| *Percentage of GDP* | *25.1%* | *19.8%* | *22.2%* | *20.3%* | *24.8%* | *21.4%* | *24.7%* |
| Expenditure | -1766.0 | -1809.2 | -1789.0 | -1763.8 | -1896.0 | -1809.3 | -1975.3 |
| *Percentage of GDP* | *31.70%* | *32.5%* | *32.1%* | *28.2%* | *30.3%* | *28.1%* | *30.7%* |
| Loan redemtions | -64.7 | -67.2 | -67.6 | -64.9 | -65.1 | -150.0 | -97.3 |
| Domestic long-term | -52.5 | -52.5 | -53.2 | -60.5 | -61.2 | -134.2 | -81.3 |
| Foreign | -12.2 | -14.7 | -14.4 | -4.4 | -3.9 | -15.8 | -16.0 |
| Gross borrowing requirement | -432.7 | -776.9 | -618.3 | -560.5 | -412.0 | -580.5 | -484.6 |
| *Percentage of GDP* | *7.8%* | *14.0%* | *11.1%* | *9.0%* | *6.6%* | *9.0%* | *7.5%* |
| FINANCING | | | | | | | |
| Domestic short-term loans | 48.0 | 146.0 | 95.3 | 56.0 | -6.8 | 64.0 | 0.0 |
| Treasury bills | 48.0 | 146.0 | 122.6 | 56.0 | -6.8 | 64.0 | 0.0 |
| Corporation for Piblic Deposits | 0.0 | 0.0 | -27.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Domestic long-term loans | 337.7 | 462.5 | 523.4 | 388.4 | 285.3 | 451.4 | 330.4 |
| *Percentage of total domestic issuance* | *87.6%* | *76.0%* | *84.6%* | *87.4%* | *100.0%* | *87.6%* | *100.0%* |
| Foreign loans | 29.3 | 125.2 | 91.9 | 31.9 | 80.6 | 63.2 | 47.9 |
| *US$ equipment* | *2.0* | *7.0* | *5.6* | *2.0* | *5.3* | *4.0* | *3.0* |
| Change in cash balances[3] | 17.7 | 43.2 | -92.4 | 84.2 | 52.9 | 1.9 | 106.2 |
| Total financing | 432.7 | 776.9 | 618.2 | 560.5 | 412.0 | 580.5 | 484.5 |
| *Rand/US$ exchange rate* | *15.2* | *17.9* | *16.4* | *16.0* | *15.7* | *15.4* | *16.0* |

1. The 2020 budget presented a month before COVID-19 related South Africa.
2. Special adjustment budgets for 2020/21 to 2022/23 presented four months after COVID-19 reached South Africa

Source: National Treasury.

### 3.4.3. Debt Issuance Program Adjusted to Reduce Cash Balances

The constant lower-than-forecast gross borrowing requirement caused large cash balances to accumulate. Investments in tax and loan accounts with commercial banks at times exceeded investment limits.

Managing cash balances down was initially challenging. They could not be reduced before it was certain to what extent the government would be using the higher-than-expected tax revenue to narrow the deficit. The situation required ongoing adjustments to the government's debt issuance program.

Debt issuance from 2020/21 to 2022/23 has changed in response to the lower gross borrowing requirement since the June 2020 adjustments budget estimates, shortly after the COVID-19 outbreak (Table 14). The major changes were as follows:

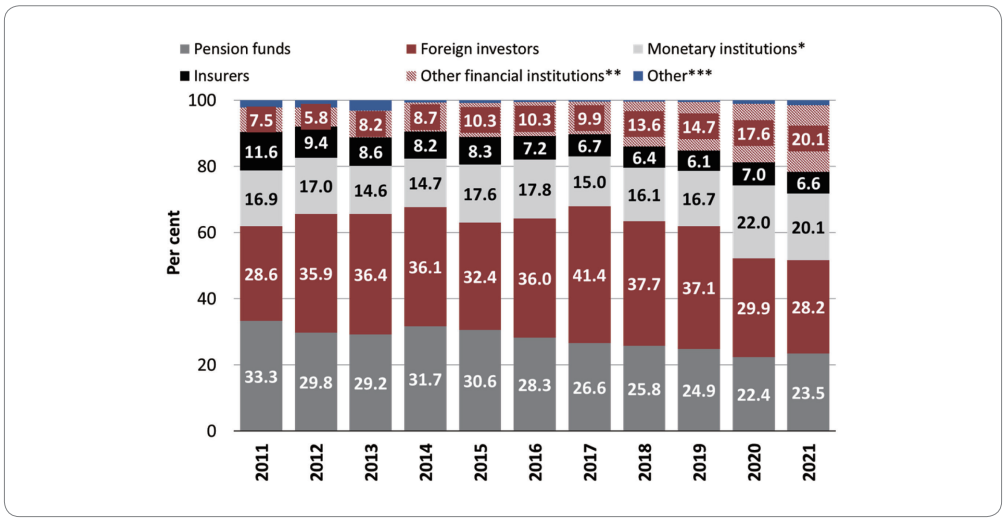
1. Borrowing from the Corporation for Public Deposits of R27.1 billion was fully repaid in 2020/21 and the government did not borrow from the corporation during 2021/22. The corporation will be used only as a bridging finance instrument over the medium term.
2. Treasury bill issuance was reduced sharply, R50.7 billion lower than anticipated in 2020/21, a net decline in issuance of R6.8 billion in 2021/22, and no net increase in 2022/23, reducing refinancing risk and balancing market demand.
3. Weekly domestic bond auctions were reduced steeply, with domestic bond issuance in 2022/23 projected to decrease to 5.1 percent of GDP (R330.4 billion) from a high of 9.4 percent (R523.4 billion) in 2020/21.
4. The government is again considering opportunities to enter the international capital markets to fund its foreign currency commitments. Market funding will be replaced or complemented with lower-cost funding from international finance institutions where possible.
5. The government has substantially drawn down its cash holdings. Cash balances, which reached a high of 6.1 percent of GDP (R337.6 billion) in 2020/21, are projected to decrease to 3.0 percent of GDP (R190.4 billion) by 2022/23 (Table 13).

As part of the International Monetary Fund general special drawing right allocation to member countries, South Africa received about US$4.2 billion in August 2021. The funds will be used to meet the government's foreign currency commitment.

The government continued its domestic bond-switch program to reduce refinancing risk in 2022/23. By February 2022, the maturity value of domestic bond redemptions in 2022/23 had been reduced by 40 percent from R134.2 billion in 2020/21 to R81.3 billion.

Confidence in the domestic bond market has improved but the yield curve remains slightly higher than before the pandemic, as shown in the difference between the 2020 and 2022 yield curves in Figure 18. The sell-off of domestic bonds by foreign investors continued. Although investors remain the largest category of domestic bond holders, their share declined to a 10-year low of 28.2 percent by the end of 2021 (Figure 19).

Figure 19 Ownership of South African Domestic Bonds




*South African registered banks, mutual banks, and South African branches of foreign banks.
**Unit trusts, financial companies, and holding companies.
***Public sector, private nonfinancial corporates, households, and nominee companies.
Source: National Treasury and Share Transactions Totally Electronic.

### 3.4.4. Cash Management Activities Normalized

The pandemic did not lead to any changes in the cash management framework. Although data collected by the cash management unit has been more reliable since the pandemic started, forecasting tax revenue remained challenging, with continuous large tax revenue overruns.

Mindful that past patterns of spending and revenue may no longer be a good predictor of future cash flows, the cash management unit has started to work more closely with the public finance division and the Revenue Service when using historical trends to forecast cash flows.

### 3.4.5. Government Debt Stabilizing at Higher than Pre-Pandemic Levels

The February 2020 budget, released a few weeks before the government declared a national

state of disaster, projected gross debt to increase from 64.0 percent in 2020/21 to 68.1 percent of GDP by 2022/23. In 2020/21, gross debt increased to 70.7 percent of GDP, and the February 2022 budget projects that gross debt levels will reach 72.8 percent of GDP by 2022/23 and continue to increase to a high of 75.1 percent by 2024/25.

The government is showing ongoing commitment to reduce the deficit and stabilize debt.

### 3.4.6. Lessons Learned

Like the 2009 global financial crises, the COVID-19 pandemic gave the National Treasury the opportunity to review its cash management operations. Overall, they were effective.

The following are some lessons learned:

1. The timely forecasting of cash flows, a functional TSA centralizing government cash balances, strong coordination to ensure timely information sharing between stakeholders, and the use of bridging finance facilities to smooth out cash flows are key to ensure that the government meets its commitments.

2. Although a country can have an extensive framework for forecasting revenue, expenditure, domestic and external debt redemptions, financing of the borrowing requirement, and the resulting change in cash balances with different frequencies, accuracy depends on reliable data.

3. To project cash flow, especially for a longer-term horizon, cash managers extensively use historical trend data. They must be mindful that when forecasting cash flows during a crisis, past patterns of spending and revenue may no longer be a good predictor of future cash flows and that closer coordination with stakeholders is required.

4. It was uncertain at the beginning what impact the pandemic would have on growth and revenue, and on expenditure with the government still finalizing a wide-ranging relief package. Being proactive early on to prepare annual borrowing plan scenarios can be of great value to inform policy discussions within the Treasury and to start strategic discussions with the debt management unit on how a significantly higher borrowing requirement could be financed.

5. Having a safety net against cash-flow volatility is important. South Africa had the benefit of local currency and foreign exchange deposits at the Reserve Bank. The deposits and a wide range of bridging finance facilities ensured that the government met its commitments. Larger cash buffers could be useful for governments with weaker forecasting capacity and poorer access to money markets and other short-term financing instruments.

6. A deep and liquid domestic bond market with a diversified range of funding

instruments is important to ensure that increased debt issuance is taken up, notwithstanding a sudden sell-off of bonds by foreign investors.

7. South Africa benefited from a well-developed money market and could, at the onset of the pandemic, steeply increase the issuance of Treasury bills to finance part of the higher borrowing requirement. The larger issuance and frequent rollover substantially increased refinancing risk of Treasury bills. Although demand for Treasury bills was good when the issuance was increased, subdued demand in the current rising interest rate environment resulted in auctions that at times did not meet funding requirements. The issuance of Treasury bills had to be reduced as soon as possible.

8. A bond-switch program, which exchanges short- for longer-dated debt well before the maturity date can be effective in managing the government's refinancing risk, reducing not only the gross borrowing requirement but also future cash-flow peaks.

9. Before the pandemic, borrowing from international finance institutions and development banks was considered only for financing infrastructure projects because the loans came with technical expertise. Accessing cheaper concessional financing from these institutions to meet foreign currency commitments has become acceptable and complements borrowing in international capital markets.

10. Establishing on-demand short-term borrowing arrangements with state-owned companies could be effective when the government is under liquidity pressures. During a crisis, however, the option may not be possible as the entities' financial position may be deteriorating.

11. The pandemic showed the value of strong coordination and cooperation between all major stakeholders involved in providing data for cash-flow forecasting and other cash management operations. Formal coordination structures are important but so is direct personal contact, which avoids requests for data going up and down a hierarchy.

12. The COVID-19 emergency highlighted that the government's cash flows impact banks' daily liquidity management operations. The cash management unit now provides commercial banks holding National Treasury tax and loan accounts with projections of cash balances and an analysis of large revenue and expenditure cash flows ahead.

13. The extensive COVID-19 lockdowns showed that having disaster recovery and business continuity plans, which include maintaining alternative operational and systems back-up sites, is important, and that core business operations can be maintained by staff working remotely from home if supported by effective information technology systems.

## 3.5. Conclusion

The pandemic reconfirmed the importance of the cash manager's role in ensuring that the government meets its commitments in an emergency.

South Africa has a well-developed and reliable cash management function that mitigated the liquidity crisis caused by reduced revenue and increased public expenditure. The timely forecasting of cash flows, a functional TSA centralizing government cash balances, strong coordination ensuring timely information sharing between stakeholders, and the use of bridging finance facilities to smooth out cash flows guaranteed that the government had sufficient liquidity to meet payment obligations.

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# CONCLUSION

# CONCLUSION

In most countries, the legal status of cash management is set by public financial management laws and regulations, which are mostly limited to the forecasting and control of budget expenditures and revenues and the functioning of the treasury single account (TSA). Sound practice, as in South Africa, suggests a legal framework to prescribe banking, cash management, and an investment framework not only for the central government but also for subnational governments and public companies. Among the Public Expenditure Management Network in Asia (PEMNA) members, only Vietnam has a comprehensive legislative framework covering cash management. All other members have legislation on budget execution, including payments, requirements for a TSA, and management of excess cash and investments.

Although cash management units function in different units, such as the treasury, debt management unit, or cash management unit, PEMNA countries commonly establish the unit within the ministry of finance. In all countries except Vietnam, cash management units are small, with fewer than 10 staff, and most use the government integrated financial management information system (IFMIS) to forecast cash flow and manage cash, the budget, and finance. The Republic of Korea's IFMIS, Digital Brain (dBrain), records in real time all the information related to revenues and expenditures, and data is processed for forecasting and management. The new-generation dBrain, introduced in January 2022, applies Brightics artificial intelligence, which enables electronic warning to detect deviant transactions in real time, and provides the Treasury with a strong EIS dashboard to support decision-making.

Expenditure and revenue departments or entities coordinate closely, overseen by high-level liquidity committees, as in Cambodia, Indonesia, Malaysia, the Philippines, and Thailand. South Africa has no formal cash management committee. However, policy and working coordination and cooperation with the central bank is strong in South Africa and Korea.

All PEMNA countries produce at least monthly expenditure and revenue forecasts, updating them weekly to semiannually. In Korea, the Ministry of Economy and Finance (MOEF) was making financial forecasts once a year and adjusting them every month until 2021, when a significant forecast error occurred. Since then, the MOEF decided to make forecasts twice a year and adjusting the semiannual forecast every month. South Africa, unusually, prepares three-year long-term cash-flow forecasts based on multiyear budget estimates, monthly short-term cash-flow forecasts for the first year of a long-term horizon, and daily cash-flow forecasts for 90-day periods.

In PEMNA countries, cash flows are consolidated through a TSA established following the 1997 Asian Financial Crisis, as in Korea. TSAs, with multiple sub-accounts, including foreign currency accounts, are in the central banks. In all cases, governments operate bank accounts outside the central bank. Sweeping the balances to the TSA at the end of each business day is not common practice among PEMNA countries but it is in South Africa.

Short-term financing instruments vary across PEMNA countries, which use treasury bills, repos, and overdrafts. In Korea, the central bank may lend overdrafts or other forms of loans to the government and may buy government bonds directly from the government. However, the total amount of loans and government bonds directly acquired shall not exceed the limits set by the National Assembly.

Cambodia sets a lower and upper limit for the TSA balance. Almost half of PEMNA countries set a target balance, but only two have an investment strategy and the others are remunerated at the central bank. None of the countries are fine-tuning to smooth short-term changes in the TSA balance. Korea might be an exception given the introduction of the target balance system and the daily cash operation. South Africa's National Treasury borrows from the Corporation for Public Deposits, a short-term financing facility and a pool where the surplus of provincial governments and state-owned enterprises is invested. As a last resort, the National Treasury may consider converting foreign currency to local currency using currency swaps, repos in domestic bonds, and reschedule of payments.

The coronavirus disease (COVID-19) has shown that cash managers must be ready to handle events that may disrupt the delivery of government services and the functioning of the financial system. However, only a few PEMNA countries said they had a business continuity plan. South Africa has business continuity and disaster recovery plans to maintain core business operations. The plans are reviewed and tested annually.

In response to the COVID-19 pandemic, PEMNA countries employed tax relief measures (e.g., Malaysia and Thailand), cash transfers (e.g., Cambodia and Korea), and subsidies (e.g., Brunei Darussalam and Myanmar), and introduced guarantee schemes to support small and medium-sized enterprises (e.g., China and Mongolia). In South Africa, the government had to recapitalize a bank that had defaulted on its debt obligations. Some of the mentioned measures required immediate cash flows, while others, such as guarantees, do not have any immediate impact on government finances but require close monitoring and evaluation as contingent liabilities.

During the pandemic, debt service costs increased in almost all PEMNA countries and in South Africa because projected expenditures increased sharply and could not be fully funded by existing revenue programs and because contingencies were inadequate.

The magnitude and duration of the pandemic significantly reduced the reliability of forecast cash flows given the impact of governments' policy responses on expenditures, and how

much of expected revenues would have been collected was uncertain in all countries. The cash management unit in South Africa strengthened communication with the budget office division and the Revenue Services to update short-term projections more frequently to assess the pandemic's impact on expenditures and revenues and to determine the financing need.

Overall, the findings of this research and the extent of the impact of the COVID-19 pandemic indicate that cash management practices must be strengthened through the following:

1. Improve the legal and organizational framework to cover banking arrangements, remuneration practices, integration of cash and debt management, and the tools and instruments for effective cash management to enable the government to fine-tune its approach.
2. Improve cash-flow forecasting capacity and update cash-flow forecasts more frequently to ensure their accuracy.
3. Review cash buffer policies and set targets for minimum and maximum balances of the TSA, and develop effective management of cash balances to make sure that the TSA balance is remunerated at market rates.
4. Review government funding needs frequently and ensure sufficient and timely government funding through integration or at least improved coordination with debt management where government guarantee schemes and other contingent liabilities are monitored.
5. Develop and put in place an operational risk management framework, including a business continuity plan, to ensure that critical functions and activities, systems, and personnel are maintained in the event of business disruption, drawing on the COVID-19 pandemic experience.

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