

Cyprus: Technical Assistance Report-Debt and Cash Management



CYPRUS

TECHNICAL ASSISTANCE REPORT—DEBT AND CASH MANAGEMENT

January 2022

This technical assistance report on Cyprus was prepared by a staff team of the International Monetary Fund. It is based on the information available at the time it was completed on April 13, 2021.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090

Telephone: (202) 623-7430 • Fax: (202) 623-7201

E-mail: publications@imf.org Web: <http://www.imf.org>

Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



TECHNICAL ASSISTANCE REPORT

CYPRUS

Debt and Cash Management

APRIL 2021

Prepared By

*Thordur Jonasson (Mission Chief), Shirin Nikaein (MCM), Michael Papaioannou, and
Jim Siracusa (External Experts)*

Authoring Department:

**Monetary and Capital Markets
Department**

Glossary	5
Preface	6
Executive Summary	7
I. Introduction	10
A. Recent Developments and Outlook	10
B. Public Debt Management Office (PDMO)	10
II. Debt Portfolio Risks	11
A. Debt Sustainability	11
B. Debt Management Strategy	16
III. Debt and Cash Management Practices	19
A. Sound Practices	19
B. Developing a Cash Buffer	20
C. Assessment	22
D. Recommendations	22
IV. Determining Liquidity Buffers in Debt Management	22
A. Current Practices	22
B. Assessment	27
C. Quantifying Liquidity Buffers	30
D. Recommendations	30
V. Management of the Cash Liquidity Buffer	33
A. Investment Options to Manage Liquidity	33
B. Liability Management Operations (LMO) – Use of the Cash Buffer and Tools for Influencing Liquidity Requirements	35
C. Recommendations	38
References	49
Tables	
1. Main Recommendations	9
2. Risk Metrics, end-September 2020	15
3. Medium-Term Public Debt Management Strategy, 2021–23	18
4. Annual Funding Plan for 2021	24
5. Annual Financing Plan (revised end-November 2020)	29

Figures

1. Public Debt and Fiscal Balance, 2012–20.....	12
2. Composition of Public Debt, 2012–September 2020.....	13
3. Weighted Average Cost of Public Debt, 2012–September 2020.....	13
4. Debt Portfolio Risks, as of end-September 2020.....	15
5. Monitoring and Managing the Cash Buffer.....	26
6. Euro Area Yield Curve, December 2020.....	35

Boxes

1. Towards a Quantitative Framework for Estimating the Annual Funding Plan.....	32
2. Investment Guidelines for Excess Cash.....	38

Annexes

I. T-Bills Settlement Procedures.....	39
II. Experiences of PDMOs in Managing Cash Buffers.....	41
III. Views of Domestic and International Banks.....	44
IV. PDMO's Procedures for the Development of the Annual Funding Plan (AFP).....	46

GLOSSARY

AFP	Annual Financing Program/Annual Borrowing or Funding Plan
CBC	Central Bank of Cyprus
CET1	Common Equity Tier 1 (Tier 1 Capital)
DMO/PDMO	Debt Management Office/Public Debt Management Office
DvP	Delivery-versus-Payment
ECB	European Central Bank
EMTN	European Medium-Term Note
EZ	Eurozone
FC, FX	Foreign Currency
GDP	Gross Domestic Product
GMRA	Global Master Repurchase Agreement
HQLA	The stock of high-quality liquid assets; that is, the numerator of the Liquidity Coverage Ratio (LCR) of banks
IMF	International Monetary Fund
LMO	Liability Management Operations
MCM	Monetary and Capital Markets Department
MoF	Ministry of Finance
MTDS	Medium-term Debt Management Strategy
PDML	Public Debt Management Law
T-bill	Treasury Bill

PREFACE

In response to a request from the Ministry of Finance of Cyprus, a mission from the International Monetary Fund's Monetary and Capital Markets Department (MCM) conducted a virtual visit to Nicosia from December 7–18, 2020.¹ The objective of the mission was to provide technical assistance to the authorities on further strengthening their debt and cash management framework.

In carrying out its work, the mission met with Phaedon Kalozois, Director of the Public Debt Management Office and his staff, Yiola Georgiou, Stelios Leonidou, and Irene Theocharous. Meetings were also held with George Panteli, the Permanent Secretary of the Ministry of Finance, and officials from the Treasury Department of Cyprus. The mission also held extensive discussions with domestic and foreign banks.

The mission team expresses its appreciation to all officials for the warm welcome extended and for being available repeatedly, often at short notice, for discussions. Special thanks are owed to Yiola Georgiou for aptly managing the mission's agenda and information requirements.

¹ The mission consisted of Thor Jonasson (Mission Chief), Shirin Nikaein (both IMF), Michael Papaioannou, and Jim Siracusa (both IMF external experts).

EXECUTIVE SUMMARY

In tandem with Eurozone financial market developments and the prevalence of negative interest rates in 2020, Cypriot banks passed through the costs of their liquidity to their customers, reducing the attractiveness of placing PDMO cash surpluses in domestic bank deposits. Suitable investment alternatives to central bank deposits for the PDMO's liquidity buffer are scarce, given negative yields on other Eurozone sovereign and agency issues. This situation is shared by the PDMO with almost all of its Eurozone peers. While this is likely to persist in the short term, it should not preclude establishing a framework governing the PDMO's investment policy or a suitable set of guidelines.

The PDMO predominantly builds its liquidity buffer via pre-funding in the international capital markets through its EMTN program. Size and structural limitations in the domestic Treasury bill (T-bill) market preclude the use of the market to both manage liquidity and finance the Republic. Consideration should be given to addressing these operational limitations in order to develop further the domestic T-bill market, to facilitate the necessary T-bill issuance volumes to attract higher domestic and international investor participation.

Other options to manage upcoming maturities include the use of Liability Management Operations (LMOs) and the establishment of a contingent credit line. While LMOs could be pursued, investors may be reluctant to exchange higher coupon debt with lower coupons in the current environment if the exchange is not cash neutral.

The mission found that Cyprus' current liquidity buffer is appropriately sized given current uncertainties.² Going forward, determining the appropriate buffer size is important. As per the PDMO's current strategy, the cash buffer is determined using the following main quantitative variables: (i) the refinancing needs, at the end of every month, for the next 9 and 12 months, (ii) the projected budget deficit/surplus, and (iii) other contingent liabilities not included in the budget balance, with a reasonable provision for contingent liabilities being included in the annual budget. Additional idiosyncratic factors are also taken into account.

Some features of the current approach can lead to overfunding. The funding plan is on an annual basis, but the cash buffer size is determined monthly. This means that formulating the AFP requires taking into account the forecasts of all factors determining the required cash buffer for the next 2 years and not just for the next 12 months. In addition, the rather long reference period of forecasts, combined with increased cashflow uncertainty, can lead to serious discrepancies between the targeted and required cash liquidity. This holds true since

² The numerical figures, information, and recommendations cited in this report reflect projections, knowledge, and assessments during the time of the mission (December 7-18, 2020).

cash-flow projections rely heavily on fiscal and macro forecasts that tend to be very volatile under conditions of increased instability.

The mission recommended that the level of cash buffer be closely monitored and managed. This necessitates a cash-management policy framework, and the necessary infrastructure. A key consideration in the PDMO's investment decisions pertains to the determination of investment options for the excess liquidity stock.

The mission proposed a number of high-level recommendations (see Table 1):

- **As COVID-19 conditions ease and forecast uncertainty declines, the PDMO may consider reducing the size of the cash buffer in a gradual manner, to the range provisioned in the PDML.** The mission provided a broad quantitative framework for determining the range of the liquidity cash buffer needed during the period of the pandemic and during normal times, along with an indication of the excess cash balances that may be invested in other euro-zone countries' higher-yielding instruments or used for buybacks.
- **The reliance on predominantly long-term (greater than one-year maturity) debt instruments to fund the cash buffer should be revisited, with a view to shift to shorter-term financing sources, especially T-bills, for part of this funding, in order to give flexibility to vary the buffer in-year.**³ Based on the mission's discussions with domestic and foreign banks, this would necessitate advancing the T-bill market through mainly liquidity-enhancing measures for the money market and other institutional changes, relating to custodian and settlement systems, in particular if foreign investors are targeted to participate in the T-bill market. Since this would represent a change in issuing policy that could affect investor perceptions, the PDMO should appropriately communicate its plans with the public.
- **The authorities should consider a more proactive approach to managing the redemption profile with LMOs.** LMOs could be considered in the context of launching new debt. Smaller near-term redemptions would reduce the target size of the cash buffer.
- **Investment options of the cash surplus are rather limited at present but should improve as market conditions change.** In the prevailing negative interest rate environment, the PDMO can either deposit funds with the Central Bank of Cyprus (CBC), at a rate of -0.50 percent, or with commercial banks at a similar rate. When the pandemic passes and market conditions normalize, the PDMO may consider investing excess cash surpluses in instruments from other euro-zone governments that may offer higher yields than commercial-bank deposits, possibly by taking some duration risk, or

³ The use of funding instruments for the buffer with a maturity of greater than one year introduces significant rigidities in the buffer, as it reduces the flexibility to change the buffer during a year, i.e., the buffer's size cannot be adjusted in-year by the proportion of securities that have a maturity in excess of a year.

paying back maturing debt or undertaking some liability management operations, including ad-hoc buybacks and early redemptions. Finally, the mission offered some general considerations for involving external investment managers for investing in other euro-zone countries' instruments or undertaking buyback operations.

Table 1. Cyprus: Main Recommendations	
Recommendation	Milestone
Prepare an internal model to calibrate the size of the cash liquidity buffer	Internal model completed
Improve custody and settlement features of Treasury bills to reach international investors	Treasury bills are eligible for settlement with an international central securities depository or a comparable mechanism
Conduct LMOs more actively, targeting upcoming maturities	LMOs are implemented as and when feasible
Invest excess cash surpluses	Investment policy is developed
Constant monitoring for the possible emergence of new contingent risks and/or the possible elimination of economic/financial risks that no longer necessitate liquidity coverage	New contingent risk(s) is(are) identified and/or existing economic/financial risks that no longer necessitate liquidity coverage are eliminated
Consider reducing the size of the cash buffer in a gradual manner and in line with the provisions of the PDML, as the COVID-19 pandemic conditions ease	Size of the cash buffer is gradually reduced

I. INTRODUCTION

A. Recent Developments and Outlook⁴

1. **Real GDP growth in Cyprus is projected to be -6.4 percent in 2020, down from 3.2 percent in 2019, due to the negative effects of the COVID-19 pandemic.** Economic activity is expected to recover as the health crisis subsides, approaching 4.7 percent in 2021 and around 3 percent in the medium term. However, various internal and external risks could slow down the recovery, such as the possibility of another COVID-19 wave, geopolitical factors, deteriorating confidence, the high percentage of domestic non-performing loans and the speed at which the tourism sector recovers.
2. **Consumption and investment are expected to continue contributing positively to the growth rate of the Cypriot economy.** The largest drivers of growth are expected to remain the retail, tourism, professional services, and construction sectors. The recovery of the tourism sector in 2021, though not expected to return to pre-pandemic levels, will significantly contribute to medium-term growth. The implementation of major infrastructure projects is also expected to positively impact growth and diversify the Cypriot economy.
3. **Inflation, unemployment, and the fiscal balance were adversely affected by the pandemic and are projected to slowly recover.** Inflation dropped to -0.6 percent in 2020 as demand fell but is projected to return to positive territory in 2021. Unemployment is projected to decline after the crisis, reaching 5.2 percent in 2023. The fiscal overall balance is expected to decline from a surplus of 1.7 percent of GDP in 2019 to a deficit of 5.6 percent in 2020, as revenue contracted, and social and health expenditures rose significantly. From 2021 onwards, the deficit will gradually decrease and will reach a surplus of around 1 percent of GDP in the medium term.
4. **Systemic domestic banking institutions have improved their ability to absorb losses with higher CET1 capital ratios.** Non-performing loans have fallen from €28.4 billion (48 percent of total loans) in 2014 to €6.6 billion (22 percent) by July 2020. Although banks' cash liquidity is high, new lending in 2020 was limited as economic activity froze during the pandemic. Moreover, profitability is under intense pressure given the low interest rate environment. To mitigate the effects of the pandemic, the European Central Bank (ECB) has announced a package of measures to support the banks' capital position and ensure favorable financing conditions.

B. Public Debt Management Office (PDMO)

5. **The Cyprus PDMO is mandated to maintain and monitor a cash liquidity buffer as a precaution against difficult financial market conditions.** In general, debt

⁴ See footnote 2.

management tends to focus on prudently financing the sovereign's borrowing needs, while cash management commonly handles the government's liquidity needs through the buildup of a cash buffer (Jonasson and Papaioannou, 2018). Implementing a precautionary cash buffer is typically costly, as the interest earned on surplus cash is much less than the cost of additional borrowing.

6. **The PDMO's current guidelines require the liquidity buffer to cover 9–12 months of the sovereign's gross financing needs.** However, since the onset of the COVID-19 pandemic, the borrowing requirement has increased significantly, and financial market conditions have become less predictable. Given the uncertainty, the authorities stepped up borrowing in order to raise the liquidity surplus to around 20 percent of GDP. The current modalities for investing the cash balance are limited to deposits in the CBC earning a negative interest rate. This has a substantial cost of carry. There are options for placing deposits or investing the surplus within the domestic banking system and internationally, however, given current monetary policy in the Euro area, and abundant banking sector liquidity, any options to earn a higher return are limited.

7. **The PDMO has received TA from MCM in the past which included formulating a debt management strategy, debt market development and debt management institutional issues.** The TA has strengthened debt management and provides a foundation for better aligning debt management operations with its liquidity management framework and investment policy. In parallel, the PDMO is considering liability management operations to better manage the near-term debt profile and wants to identify relevant risk indicators to do so. If the PDMO were to move into managing a share of the liquid financial resources, it would also want to consider the relevant metrics to evaluate its investment performance by the PDMO (and any potential external fund managers) as well as compliance with investment policies.

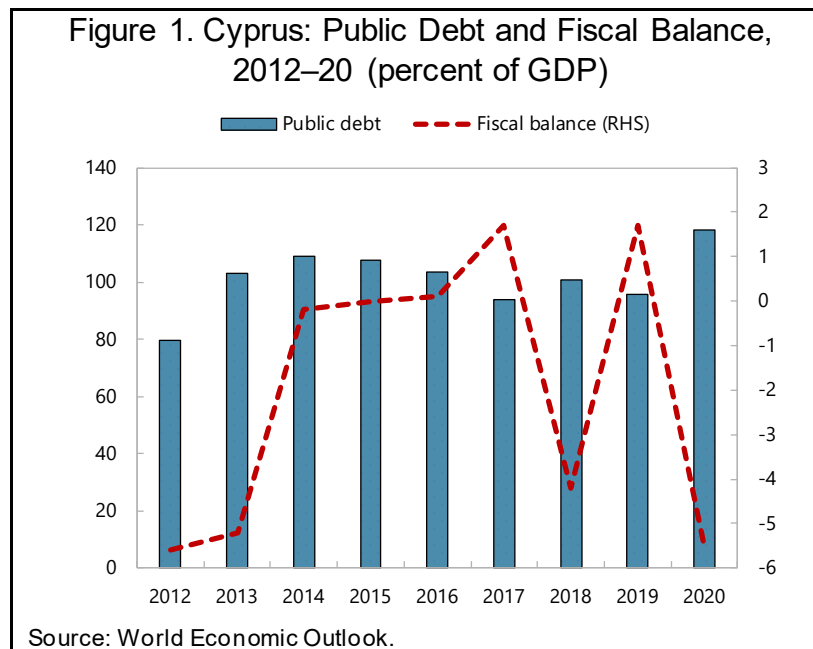
8. **This report presents the findings of the mission.** It is structured as follows: Section 2 discusses the debt portfolio and the debt management strategy. Section 3 discusses cash management practices and its interaction with debt management. Section 4 proposes a methodology to monitor and assess the liquidity buffer, and Section 5 discusses options for mitigating refinancing risk and improving investment efficiency.

II. DEBT PORTFOLIO RISKS

A. Debt Sustainability

9. **Public debt in Cyprus has increased due to fiscal pressures and contraction of the economy caused by the COVID-19 pandemic (Figure 1).** General government debt is projected to reach 118.4 percent of GDP (€24 billion) by end-2020 from 95.5 percent of GDP (€21 billion) at end-2019, an increase of €3.1 billion. The average remaining maturity of debt has increased slightly. Increased issuance of medium and long-term Eurobonds has contributed to maintaining an adequate cash buffer, projected to stand at 17 percent of GDP

by end-2020, sufficient to cover the gross financing needs of more than the next nine to twelve-months. As the economy recovers, public debt is expected to gradually decline and reach pre-COVID levels by 2023.

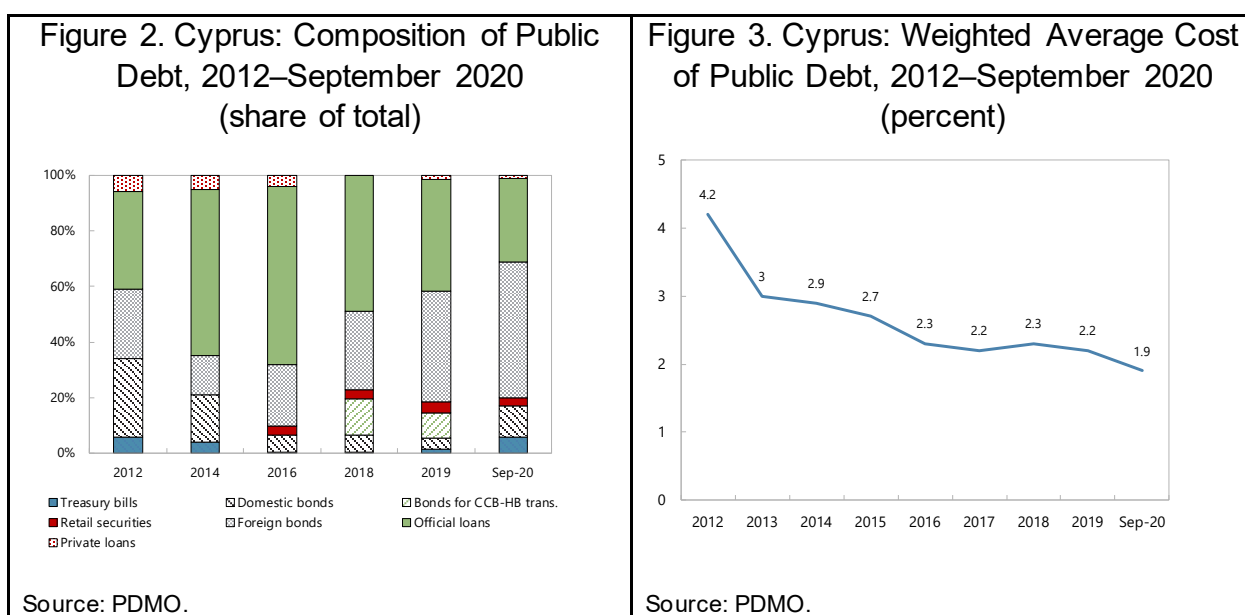


10. In January 2020, the PDMO issued a 10-year and a 20-year EMTN, totaling €1.75 billion; these issuances helped to complete the Cyprus yield curve and increased cash reserves. However, market conditions and the fiscal outlook deteriorated in March 2020 due to the outbreak of the COVID-19 pandemic. Cyprus, in concert with other European countries, proceeded with “lock-downs” to restrain the spread of the virus, resulting in a significant contraction in economic activity and GDP. The fiscal implications due to the need to support jobs and the economic activity in Cyprus in general, combined with the high uncertainty of the economic impact of the COVID-19 pandemic, have made it imperative to frequently revise the fiscal projection and therefore the annual financing program (AFP) for 2020.

11. As such, in April 2020 the PDMO issued 7 and 30-year EMTNs totaling €1.75 billion and €1.25 billion in a 52-week Treasury Bill to boost government cash reserves, as well as to cover the loss of fiscal revenues, finance expenditures to support the economy, and manage refinancing risks. In addition, in July 2020, the PDMO proceeded with €1 billion in tap issues of two existing EMTNs, a 5- and 20-year bond, taking advantage of the favorable conditions prevailing in international markets at the time. The transaction was aimed at further boosting government cash reserves in the event of a new pandemic wave in the autumn, as well as improving the liquidity of existing bonds, demonstrating the ability to execute portfolio liability management transactions to smooth the redemption profile and reduce refinancing risk.

12. **The composition of the debt portfolio has shifted in recent years, with greater reliance on foreign and domestic bonds rather than loans (Figure 2).**⁵ As of end-September 2020, externally-placed bonds were the most used instrument in the debt portfolio, reaching 49 percent of the total. Domestic bonds and bills, including the recent T-bill issuance, amount for 17 percent of total debt. Official loans were only 30 percent as a share of total debt, down from almost 50 percent as of end-2018, as other instruments gained prominence and IMF loans were repaid.

13. **The weighted average debt portfolio cost is on a downward trend approaching 1.9 percent at end- August 2020, compared to 4.2 percent in 2012 and 2.2 percent in 2019 (Figure 3).** The cost reduction is due to the improvement in Cyprus' credit rating, the low interest rate environment, the execution of liability management transactions, and the replacement of high-cost debt with new lower-cost issuance.



14. **Key risks of the Cypriot debt portfolio are the following (Figure 4, Table 2).**

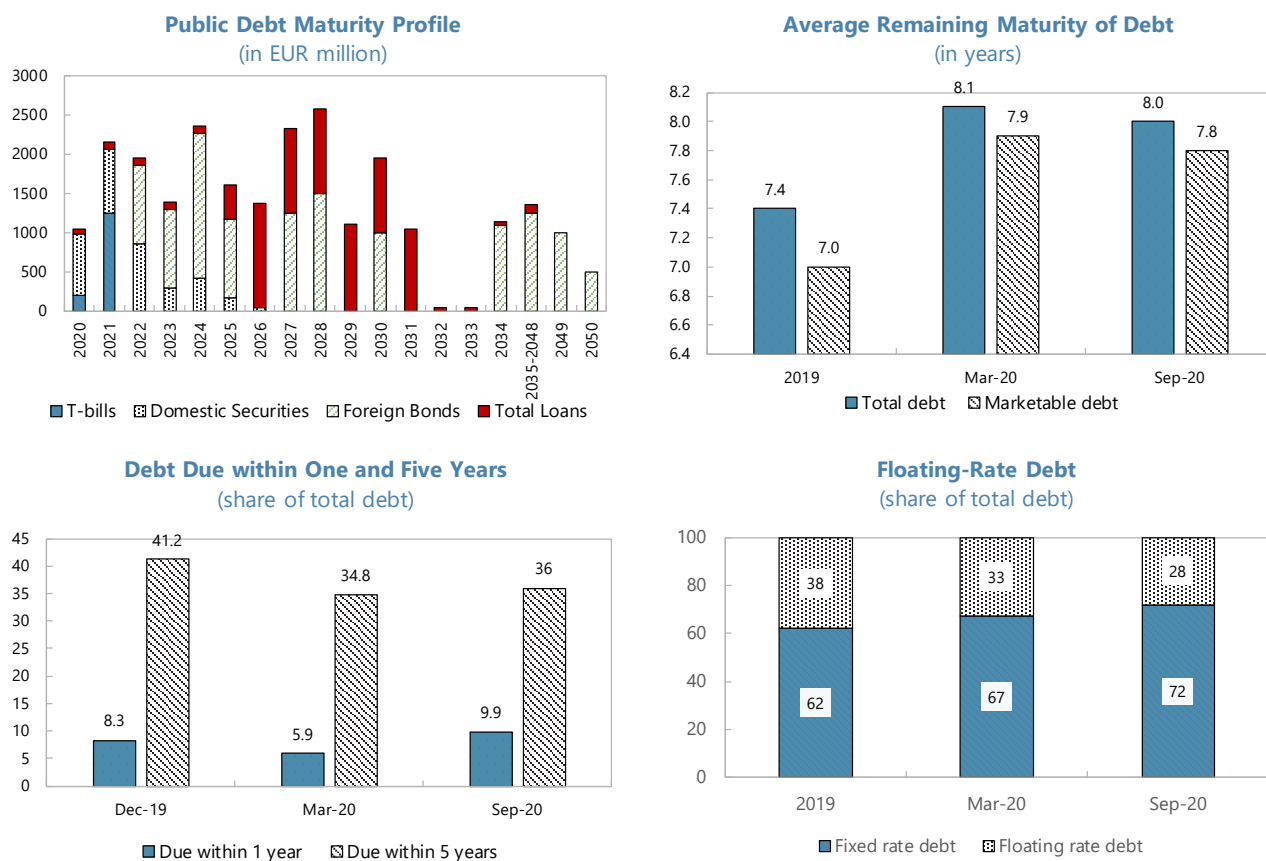
- **Refinancing risk:** The maturity structure of government debt has changed due to the pandemic and the PDMO's efforts to lengthen the debt maturity profile. At mid-April 2020, the debt redemption profile extended until the year 2050, following the issuance of the 30-year EMTN. In addition, the 7-, 10-, and 20-year EMTN issues, along with the 5- and 20-year taps, increased the average time to maturity from 7.4 to 8 years from end-2019 to end-September 2020, approaching the euro area average. The ratio of debt maturing within one year increased from 8.3 to 9.9 percent of total debt from 2019 to end-September 2020 given the issuance of the 52-week T-bill to mitigate refinancing risk

⁵ Both foreign and domestic bonds are denominated in Euros.

in 2020. The share of debt maturing within five years also dropped from 41.2 to 36 percent in the same period following the early repayment of the IMF loan (February 27, 2020). When the pandemic subsides, given the large existing cash buffer, a share of the debt stock maturing in 2021 might not need to be rolled over, with a consequent reduction in refinancing risk.

- **Interest rate risk:** The share of debt with a floating interest rate has decreased from 38 to 28 percent of total debt from end-2019 to end-September 2020. This is mainly due to the repayment of the floating-rate IMF loan. Fixed-rate borrowing has also increased slightly in line with the objectives of the 2020–22 and 2021–23 MTDS, further lowering the risk stemming from potential changes in interest rates of existing debt.
- **Currency risk:** After the early repayment of the IMF loan of €717 million in February 2020, the foreign exchange risk of the Cypriot public debt portfolio was eliminated. As of end-August 2020, there was no outstanding debt in foreign currency, and thus no risk associated with the volatility in exchange rates and its impact on interest and exchange rate cost of foreign currency debt.
- **Liquidity risk:** Cash reserves have increased from €0.95 billion to €3.6 billion from end-2019 to end-2020, allowing for room to deal with fiscal implications of a sudden increase in new COVID cases. This easily covered the financing needs of the next 9–12 months as a precaution against difficult financial market conditions. The risk from insufficient funds to meet cash flow obligations has been mitigated in the short term.

Figure 4. Cyprus: Debt Portfolio Risks, as of end-September 2020



Source: PDMO.

Table 2. Cyprus: Risk Metrics, end-September 2020

Average life (in years)	8.0
Average time to next refixing (in years)	5.8
Refinancing risk 1Y	9.9%
Refinancing risk 5Y	35.8%
Refixing risk 1Y	38.8%
Refixing risk 5Y	63.8%
Ratio of non-Euro debt to total debt (before derivatives)	0.0%
Ratio of non-Euro debt to total debt (after derivatives)	0.0%
Ratio floating debt to total debt (before derivatives)	28.3%
Ratio floating debt to total debt (after derivatives)	28.3%
Total debt outstanding (billion EUR)	25.38

Source: PDMO.

B. Debt Management Strategy

15. **The ultimate objective of the public debt management is to ensure that the financing needs of the Republic are: (i) always met in time and, (ii) the cost of borrowing is the lowest possible in the medium term, within the framework of an acceptable level of risk.** The medium-term debt management strategy, which covers a horizon of 3–5 years, is prepared and updated at least once a year on a rolling basis by the PDMO and is provisionally approved by the Minister of Finance and submitted for final approval to the Council of Ministers. Cyprus' medium-term debt management strategy considers: (i) the borrowing needs of the Republic, (ii) the current macro-economic conditions, (iii) the current conditions of the market, and (iv) any other factors which may be related to the market development and the public debt management strategy. The public debt management strategy includes the range of acceptable risks to the debt portfolio.

16. **The PDMO prepares an annual financing program for every fiscal year, which covers the projected accumulated borrowing needs of the Republic.** This is based on the determined medium-term debt management strategy and the annual cash flow forecast of the Republic and includes scheduled borrowing transactions for the year, the borrowing tools to be used and the indicative date or indicative period of such a loan. The annual financing program is updated at least twice a year and it is approved by the Minister of Finance.

17. **Efforts have been made to mitigate key debt portfolio risks.** This includes increasing the visibility of EMTNs and completion of the yield curve. Refinancing risk has been reduced through recent issuance of several medium and long-term EMTNs, extending the debt redemption profile to the year 2050. Interest rate risk has decreased as the share of debt with a floating interest rate has fallen from 38 to 28 percent of total debt from end-2019 to end-September 2020. Currency risk was removed from the portfolio after the IMF loan was repaid in February 2020. Regarding liquidity risk, the cash buffer of €3.6 billion (as of end-December 2020) currently covers the financing needs of the next 9-12 months by a factor of 1.7, serving as a precaution against difficult future financial market conditions, and allowing for room to deal with fiscal implications of a potential new outbreak. By 2020, interest charges were about 6 percent of general government revenue down from a peak of 10 percent in 2013 helped by a low-interest environment, compression of spreads and abundant liquidity. The ECB's new program—the Pandemic Emergency Purchase Program, announced in March 2020—provides additional comfort for supportive funding conditions.

18. **The Cypriot authorities consider that the fixed rate EMTN remains the most realistic option to achieve an acceptable cost-risk level.** Financing operations will be implemented within a 3-pillar framework:

- **Refinancing risk:** The main objective of the PDMO is to maintain a balanced debt maturity profile with gross financing needs below 10 percent of GDP. To reduce interest and exchange rate risks, the majority of new borrowing is expected to have a

fixed interest rate and to be in euros. The cash buffer will continue to be maintained at a level that meets the gross financing needs throughout the year. This implies a 24-month forward-looking approach.

- **Development of the government securities market:** The stock of government securities will continue to grow in future years through international bond issuance, as they replace other existing borrowing, such as loans. The development of the government securities market will continue to be a strategic objective focusing on (i) issuing a benchmark bond in the primary market on a regular basis through the EMTN program and (ii) enhancing the pricing mechanism, the transparency, and the liquidity of the Cyprus bond in the secondary market through the operation of international banks based on a widely-used electronic trading platform (MTS BondVision, LSE).
- **Development of investor relations:** The PDMO will continue its efforts to maintain contacts with existing investors, in addition to finding new investors to extend the investor base and diversify it geographically.

19. **The above guidelines are interrelated, and a single action can contribute to the satisfaction of multiple guidelines at the same time.** In general, the above pillars are expected to contribute positively to the minimization of the debt portfolio cost and containment of financial risks. Table 3 presents the key indicators of Cyprus' MTDS for 2021–2023 along with the employed debt portfolio-risk indicator targets.





Table 3. Cyprus: Medium-Term Public Debt Management Strategy, 2021–23

Progress as of end-September 2020

Guideline 1. Smoothing the maturity profile of public debt and extending the maturity of marketable debt

Action/quantitative target	Target status (est.)	Achieved/in progress
A1. Short-term debt structure: ≤5 percent	5.7 percent	
A2. Maturity of marketable debt: >7 years	7.8 years	


Guideline 2. Risk mitigation

Action/quantitative target	Target status (est.)	Achieved/in progress
A3. Refinancing risk: Maintain total liquid funds of the 9-12 months needs throughout the year	Achieved	
A4. Gross financing needs: Maintain annual GFN up to 10 percent of GDP	10.1 percent	
A5. Foreign exchange risk: Upper limits on total outstanding debt (<5 percent) foreign currency exposure	Total debt: 0 percent	
A6. Interest rate risk: Upper limit on total outstanding debt (<35 percent) floating interest rate exposure	Total debt: 28 percent	

Guideline 3. Development of the government securities market

Action/quantitative target	Target status (est.)	Achieved/in progress
A7. Introduce a suitable market structure	A market group of international investment banks was formed and put into operation. MTS platform became operational by the end of last year.	
A8. Improve the price discovery mechanism	Ongoing - in conjunction with A7.	
A9. Build up of a longer sovereign yield curve	Ongoing - significant improvement. The yield curve was extended up to 30 years.	

Guideline 4. Minimization of marketable debt borrowing cost

Action/quantitative target	Target status (est.)	Achieved/in progress
A10. Improved investor relations	Ongoing - implemented actions:	
A11. Improved market intelligence	- Regular publications - Investor presentations	
A12. Expansion of the investor base	- Non-deal road shows to core and non-core European markets and US East Coast market	

Source: PDMO.

III. DEBT AND CASH MANAGEMENT PRACTICES

A. Sound Practices

20. **The interplay between cash and debt management in safeguarding access to liquidity is crucial.** The overriding objective of cash management is to ensure that the government is able to fund its expenditures in a timely manner, while attaining cost effectiveness, risk reduction, and efficiency. Specifically, it is important that the government's obligations are met as they fall due and (i) the costs of holding cash balances in the banking system are minimized, (ii) risks, including market, credit, and operational risks, are reduced, (iii) flexibility is added to the ways in which the timing of government cash inflows and outflows can be matched, and (iv) other financial policies are supported, in particular debt management policy, monetary policy, and the development of domestic financial markets.

21. **In general, there are three distinct phases in the development of a modern cash management function:** (i) developing the Treasury Single Account (TSA), the integration of government bank accounts, and the sweeping of overnight balances into a single account or a network of linked accounts held by the Treasury at the central bank; (ii) building a cash flow forecasting capability, the development of capacity within the Treasury to monitor and forecast flows in and out of government, i.e., changes in the balances in the TSA;⁶ and (iii) moving to more active cash management, borrowing and lending in the money market to a pattern deliberately designed to smooth or reduce the volatility of net daily cash flows.

22. **The typical instrument of choice in moving to more active cash management is T-bills.** Net T-bill issuance will be higher or lower in any week depending on whether outflows are expected to be higher or lower than inflows in that week. The forecast should also guide the maturities of the securities to be issued, as well as the volumes (and potentially also the volumes and maturities of any investments of temporary cash surpluses), with a view to smoothing the cash flow across the TSA. A smoother cash flow means lower average cash balances with reduced net borrowing costs and also, when applicable, less pressure on the central bank's monetary policy operations (because, other things equal, the mirror image of fluctuations in the TSA is fluctuations in banking sector liquidity).

23. **T-bills are also core instrument in domestic financial markets.** As a risk-free instrument, T-bills are important to banks, to meet risk and liquidity requirements; to asset managers, to facilitate achieving the chosen cost-risk trade-off; and to the authorities, to meet

⁶ In the case of Cyprus, the Office of the Accountant-General plays the role of the "Treasury," with the Directorate of Economic Studies of the MoF and the PDMO mainly generating cash-flow forecasts. Cyprus' Treasury is mostly used as a source of information rather than a forecasting entity.

debt management, cash management, and monetary policy objectives. They are also in demand as collateral.

24. **Government cash management is focused on a much shorter time horizon than debt management.** Short-term T-bills are more useful than bonds or longer-term bills from that perspective. While it may be possible to issue bonds to refinance maturing bonds, the underlying primary balance will have a profile linked to the quarterly or monthly flow of tax receipts, salaries, or transfers and expenditure. Many countries use one-month T-bills for cash management, or T-bills with odd maturities linked to days of future inflows (for example, the United States uses two-week T-bills). The volume issued can be more readily varied to offset peaks and troughs in the cash profile. T-bills with a maturity of three months or more are less flexible, and the stock outstanding is more often held steady in line with investors' demand and portfolio requirements.

25. **In addition to T-bills, repos⁷ and reverse-repos are the instruments of choice for cash management fine tuning.** Repos have the advantage that the lending is collateralized, reducing any credit risk concerns. It is also very flexible, in both the speed of execution and the range of maturities available. Many settlement systems are able to settle same day, also handling the collateral automatically.

B. Developing a Cash Buffer

26. **In addition to active cash management, the use of dedicated cash (or 'liquidity') buffers has grown in recent years.** However, building a buffer to meet upcoming maturities has an opportunity cost, as the sovereign's funding cost is higher than the return on the buffer because the yield curve is typically upward sloping (the sovereign borrows long and invests short—with a negative cost of carry). Therefore, as with traditional debt management, use of a cash buffer implies a cost-risk tradeoff.

27. **The size of the cash buffer should, inter alia, be based on the debt manager's financing needs and its policy and use of liability management operations.** Some countries determine their cash buffers as the maximum amount of financing needed if capital markets were disrupted for several months, and no issuance could take place during those months. Another rationale for the buffer, closely related to the first, is to provide comfort to investors that the sovereign will be able to honor its debt obligations. A flexible cash buffer would be needed to leave room for inflows from possible pre-financing. Finally, a cash buffer may be used for contingent liabilities and/or for buybacks of outstanding securities.

28. **Cash buffers can be divided into separate uses.** Commonly, cash buffers consist of a (i) transactions buffer for an unanticipated fall in cash balances stemming, inter alia, from the combination of volatility and forecasting errors in the cash forecasting, and (ii) a safety

⁷ The sale of securities tied to an agreement to repurchase them later.

buffer for an unanticipated fall in cash balances stemming, for example, from sudden disruptions in capital markets for a period when no bond/bill issuances would be possible.

29. Twenty-nine of 35 OECD countries that responded to a survey in 2018 found liquidity buffers to be an important and effective tool to mitigate refinancing risk and liquidity risk (see also Annex 2). Country practices indicate that having an immediate access to a liquidity buffer increases financial flexibility, cushions events caused by market stress or temporary loss of market access, which in turn supports predictability of borrowing programs and enhances market confidence. Predominantly, debt management offices (DMOs) build cash reserves through over borrowing (93 percent of the agencies with a liquidity buffer). In addition, slightly more than half of the respondents indicate budget surpluses as a source of their liquidity buffer. Cash is part of the liquidity buffer in more than 90 percent of the agencies that hold one. After cash, the most commonly used securities are highly liquid assets (e.g., T-bills and T-bonds), followed by precautionary credit lines.

30. Responses to the survey demonstrate the value that DMOs place on the design and implementation of a liquidity buffer policy. DMOs target a minimum level to cover an amount of financing needs (i.e., average disbursements, cash deficits or debt service obligations) to withstand severe liquidity strains for a certain period of time (e.g., one week to one year). Although the target level varies across countries due to country specific factors (e.g., having access to liquid financial markets and existence of other contingency funding tools), the most common practice is to keep a buffer level that is sufficient to meet one month of expenditures. In order to set this target, they consider several financial indicators associated with cash flows and debt service. In addition to baseline estimations, scenario analyses are often conducted. As for the currency composition, about half of the countries carry only domestic currency in their liquidity buffer. In this regard, an asset liability management model is commonly applied to determine currency composition.

31. While liquidity buffers are useful to cope with liquidity strains, they are not costless. Less than half of the participants state that they measure the cost of maintaining a liquidity buffer. For those who measure it, most compare it with the cost of funding. In response to cost-related concerns, almost all of the participants invest excess cash balances. DMOs argue that any cost assessment should consider the significant benefits of holding a liquidity buffer which is seen as an insurance and improves a country's risk profile. Nevertheless, benefits from holding liquidity buffer are difficult to quantify.

32. In terms of investment policy, liquidity buffers are often invested in demand and/or time deposits in local currency. Only a quarter of the responding countries invest in foreign currency assets. Most countries have deposits at the central bank to mitigate credit risk, while half of the countries with a cash buffer have deposits at local private banks. To manage the risk associated with investing the liquidity buffer, the most common measure is to create limits based on counterparty ratings.

C. Assessment

33. **The PDMO's management of Cyprus' cash buffer during the recent period of heightened uncertainty owing to the COVID-19 pandemic has been prudent.** The build-up of the liquidity buffer as Cyprus entered the pandemic, and its maintenance at relatively high levels throughout, is justified by the uncertainty surrounding the severity and duration of the COVID-19 crisis, the fact that the sovereign had recently exited its financial crisis, and the status of a small issuer. The mission's assessment is that adequate liquidity should be maintained until the pandemic is totally under control, despite significant carry costs. The accumulation of the current cash surplus has been achieved by issuance of medium-term bonds in addition to the T-bill program (see Annex 1).

34. **The authorities have rightfully expressed concerns about the high carry costs involved and have looked at investment options that would reduce these costs.** However, they realize that their options are limited at present given global, and particularly euro-zone, liquidity circumstances. In this context, the authorities contemplate continuing to deposit all or part of the cash surpluses with the CBC, at a rate of -50 basis points, or deposits with commercial banks, if better rates could be offered (highly unlikely due to the current excess-liquidity environment in the banking system). Alternatively, there could be investment in other euro-zone assets with higher-than-zero yields, especially if some duration exposure could be undertaken, or alternatively LMOs, such as debt buybacks, could be considered.

D. Recommendations

35. **With regard to the integration of cash and debt management strategies and policies, the mission recommends that the PDMO:** (i) Maintains alertness towards new contingent risks that may be emerging and/or eliminating other factors that may have ceased to constitute economic or financial risks necessitating liquidity coverage, and (ii) as the present COVID-19 pandemic conditions ease, the PDMO may consider reducing the size of the cash buffer in a gradual manner in line with the provisions of the PDML (see Table 1).

IV. DETERMINING LIQUIDITY BUFFERS IN DEBT MANAGEMENT

A. Current Practices

36. **The levels of the liquidity buffer of the government of Cyprus are based on Article 20 (3) of the 2012 PDM Law and a decision of the Council of Ministers on June 3, 2020, renewed on December 22, 2020.** Accordingly, the minimum to maximum cash buffer covers the financial needs of the next 9 to 12 months, measured on a monthly basis within the financial year (January–December). Due to confidentiality, the decision on the cash buffer level is not published in the Official Government Gazette. However, the decision is communicated to the market participants and the rating agencies during bilateral meetings. It is worth noting that before June 2020 the cash buffer coverage period was 6 months (min) to 9 months (max). In June 2020, the authorities, reacting to the uncertainty stemming from

the pandemic of COVID-19, decided to lengthen the cash coverage period to 9 months (min) to 12 months (max).

37. There is a set process for determining the appropriate level and range of liquidity cash stock, according to Article 20 (1) of the PDML. The PDMO prepares a proposal for the desired level and the minimum-maximum range of liquidity buffer stock for the Republic of Cyprus, to be held in the General Government Account (TSA), by taking into consideration the factors addressed by Article 20(1)(a)-(d) of the PDM Law. The factors include: (i) the level of market volatility, (ii) the current credit facilities of the government, (iii) the accuracy of the forecasts of cash reserves and cash flows of the government, and (iv) any other factors that are relevant in determining the appropriate liquidity buffer stock.

38. By law, the PDMO's proposal for the size of the cash buffer must be updated on a quarterly basis and approved by the Council of Ministers. As per PDMO's current strategy, the cash buffer that should be held at any point in time should be sufficient to cover the gross financing needs of the next 9 to 12 months on a rolling basis. Further, the decision of the Council of Ministers provides that the cash buffer by the end of each month be sufficient to meet the gross financing needs of the following 9 to 12 months. This assumes knowledge of the following quantitative variables:

- Refinancing needs, at the end of every month, for the next 9 and 12 months (this is known with almost 100 percent accuracy).
- Fiscal needs, i.e., the projected budget deficit/surplus (under normal domestic and international economic conditions, budget-balance forecasts for a horizon of two years ahead). These projections are typically accurate, with a margin of error in fiscal needs that is easily manageable. However, under uncertain conditions, such as those caused by the pandemic, it may be impossible to generate forecasts with acceptable accuracy and therefore an additional amount of cash is necessary to be held in the form of an increased liquidity buffer.
- Contingent liabilities not included in the budget balance, with a reasonable provision for contingent liabilities being included in the annual budget. However, under conditions of severe economic instability emanating from exogenous shocks, such budgeted amounts may prove to be insufficient to cope with contingent liabilities resulting from unexpected events.

The Impact of the Cash Buffer on the Annual Funding Plan (AFP)

39. According to Article 10 of the PDML, the PDMO prepares the AFP for the next fiscal year (t+1). The AFP is approved by the Minister of Finance not later than the end of November of the current year (t), with the AFP being updated at least twice a year. The fact that the funding plan has an annual basis whereas the size of the cash buffer has a monthly

basis, leads to the need, when formulating the AFP, to take into account the forecasts of all factors determining the required cash buffer for the next two years and not just for the next 12 months. For example, the already adopted AFP for 2021, which is applicable in the reference period of January–December 2021, had to make provision for the necessary cash buffer by the end December 2021 that is needed to cover the financing needs of 12 months ahead, i.e., up to end-December 2022 (Table 4).

Table 4. Cyprus: Annual Funding Plan for 2021	
Source of Funding / Borrowing Instruments	Amount in mn € (up to)
EMTN	1,250
Treasury Bills	225 – 300
Retail Bonds	40 – 50
EIB/CEB	100
SURE	249
TOTAL	1,864 – 1,949
Source: PDMO	
Note: During the year the AFP 2021 is subject to revisions based on the fiscal developments including any grants or loans from other sources (such as from the EU Resilience and Recovery Fund) and on the basis of capital market conditions. EIB= European Investment Bank, CEB = Council of Europe Development Bank.	

40. **The long forecast period, combined with uncertainty, can lead to serious discrepancies between forecast and actual cash liquidity needs.** This holds true since cash-flow projections rely heavily on fiscal and macro forecasts that tend to be very volatile under conditions of intensified instability. Currently, the budget deficit for the whole year of 2020, according to the European Commission’s autumn 2020 forecasts, is expected to be -6.1 percent of the GDP, while there are signs of improvement in the medium-term, expecting the budget deficit to decrease to -2.3 percent of the GDP in 2021. Meanwhile, the European Commission expects a growth rate of real GDP of -6.2 percent for 2020 and 3.7 percent for 2021 (European Commission’s September 2020 forecasts).

41. **Additional factors that the PDMO takes into account when deciding on the level of cash buffer include:**

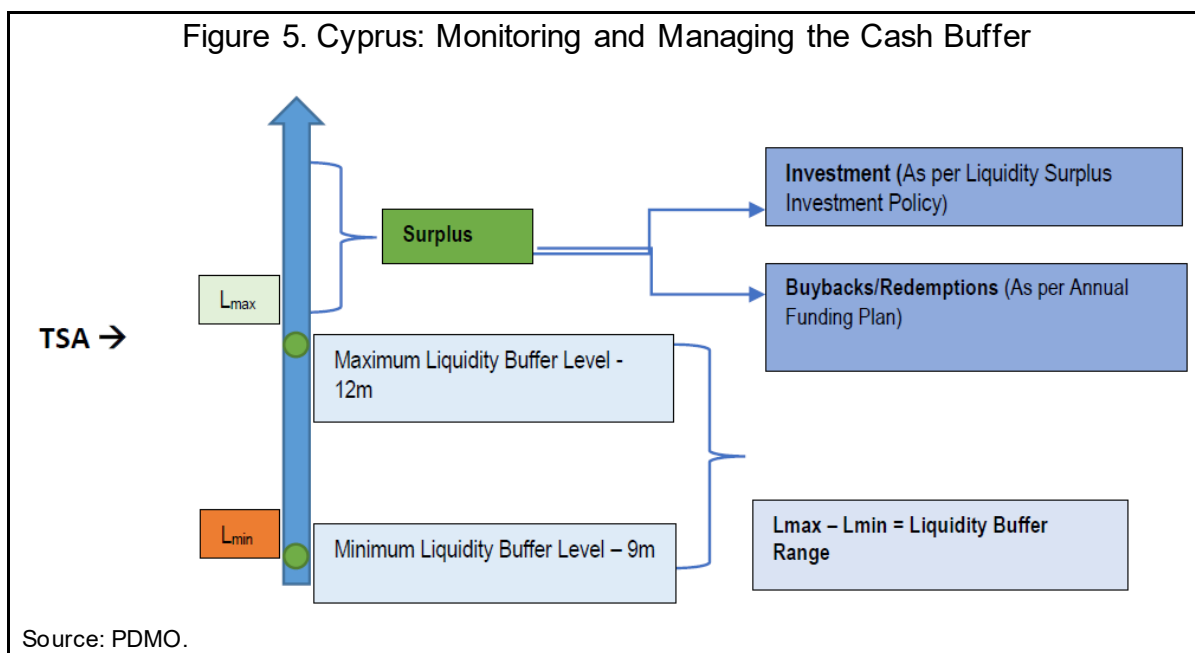
- **Retail securities that are redeemable at short notice.** Currently, there are €636 million in Retail Bonds (held exclusively by natural persons) outstanding, redeemable in 1-3 months on request by the holder. Negative economic developments or confidence shocks could trigger a wave of redemptions. Therefore, the State must have the necessary cash to repay the capital and pay the interest on these bonds, creating upward pressure on the level of cash buffer.
- **The PDMO’s lack of authority to control cash outflows around supplementary expenditure.** While the PDMO lacks any power to stop or slow down cash-outflows (resulting from supplementary budget expenditure) even when the level of the liquidity stock falls below the minimum level decided by the Council of Ministers,

the PDML assigns the PDMO the mandatory task to raise additional funding from the market in order to fill the gap. This exerts a pressure on the PDMO, first, to propose higher levels of cash and, second, to draft an AFP with higher than projected funding.

- **The position of Cyprus on the cusp of Investment Grade and consequence implications for market access.** Three global credit rating agencies (S&P, Fitch, DBRS Morningstar) have assigned Cyprus an investment grade rating with stable outlook (before the outbreak of COVID-19, the outlook was positive with expectations for an upgrade). However, Moody's rates Cyprus two notches below investment grade (with positive outlook). The country's sovereign rating is heavily dependent on the performance of the banking system and its ability to cope effectively with the legacy of NPLs. Unfortunately, progress made by the banking sector in this area was interrupted by the pandemic.
- **The relatively small size of the sovereign as an issuer in the international capital markets and the potential refinancing needs.** The main source of funding for the Republic of Cyprus is the European EMTN market (Euro Medium-Term Notes), issued under English Law. Cyprus issues relatively small amounts of bonds (compared to other issuers) and therefore pays an additional premium. To avoid paying this premium, the nominal value of each bond issue must be at least of benchmark size (usually €1.0 bn). As a result, even when the amount needed is smaller, there are substantial market benefits to issue at least €1 bn.

Monitoring the Level of Cash-buffer as Outlined in PDML Article 21

42. **Under the above stated conditions, the level of cash buffer needs to be closely monitored.** When the level of the cash buffer falls below the projected financing needs of the next 9 months, the PDMO must raise additional funding for completing the liquidity gap (Article 21(1)). Conversely, if the level of the cash buffer exceeds the projected financing needs of the next 12 months, the excess cash has to be used either for early redemptions of outstanding debt or to be invested based on a written investment policy (Article 21(2)-(3)). This necessitates the monitoring and formulation of a cash-management policy framework, as well as setting-up the necessary infrastructure for implementing such policy (Figure 5).



Liquidity Surplus and Investment Policy

43. Based on PDML Article 21(3), the PDMO is responsible for preparing a written investment policy for a liquidity surplus. Prior to being approved by the Minister of Finance, necessary consultations with the Permanent Secretary take place in compliance with internal procedures of the Ministry of Finance. Main considerations in the PDMO's investment decisions include:

Investment of Excess Liquidity

44. Investment of excess liquidity predicates a cash buffer that is always maintained for the financing of the next 9–12 months. In case that redemption of public debt is chosen instead of investments, the following factors are to be considered: (i) the risk metrics are not affected negatively (especially the weighted average maturity of public debt, the interest rate and FX risk and the counter-party risk), and (ii) a net fiscal benefit will result as a consequence of the transaction or, at least, such transaction will not produce any net fiscal cost.

Available Investment Options

45. Available investment options can be deposits in domestic commercial banks, or investments in T-bills or medium-term bonds of other sovereigns (as long as they are denominated in euro). Given the ample level of liquidity that currently exists in domestic banks, commercial bank deposits are unlikely to be beneficial, as banks are not eager to accept more cash.

Past Frameworks

46. **In the past, the framework used by the PDMO involved investment in domestic commercial banks where a cap was imposed on that particular investment, as well as to each bank.** Additionally, banks had to have a minimum credit rating and collateral in the form of T-bills or government bonds. These criteria have been adjusted several times.

47. **At even earlier stages, there were attempts to develop a credit scorecard assessing the risks of each bank.** The risk assessment was measured using liquidity, capital adequacy, credit, interest and market ratios, as well as credit rating. These were given certain weights that determined these banks' ranking. However, there was a time lag when it came to the availability of all such information.

B. Assessment

48. **Factors taken into account in forecasting liquidity buffers include:** (i) the split investment grade/non-investment grade ratings of the Sovereign and the contingent liabilities imposed by the domestic banking sector, and (ii) Cyprus' profile as a small issuer in the international markets combined with the investor requirement to issue individual tranches of €1 billion. This potentially leads to liability management challenges in smoothing its maturity curve as well as limiting secondary market options as tools to assist in managing the cash position of the Republic.

49. **Given the uncertainty, the authorities have resorted to large borrowing, raising the cash position.**⁸ The current modalities for investing the cash balance are limited to deposits in the CBC earning a negative interest rate with the addition of a carry cost. There are options for placing deposits or investing the cash surplus in the domestic banking system and internationally; however, given abundant banking sector liquidity both domestically and in the Euro area, options to earn a higher return may be limited.

50. **The present policy of the PDMO to maintain 9-12 months in gross financing needs seems broadly appropriate.** In parallel, the PDMO could consider liability management operations to better manage the near-term debt profile and better identify relevant risk indicators. If the PDMO were to move into actively managing a share of the liquid financial resources, it would also want to consider metrics to evaluate its investment performance by the PDMO (and any potential external fund managers) as well as compliance with investment policies.

51. **Since the onset of the COVID-19 pandemic the borrowing requirement has increased, and financial market conditions have become less predictable.** During normal

⁸ This is in line with OECD's guidance of March 2020 (see https://read.oecd-ilibrary.org/view/?ref=126_126652-xww0besra3&title=Public_debt_management_responses_to_COVID-19).

times, the PDMO considers that its 24 month-ahead forecasts of fiscal budget deficits are reasonably accurate, but the quality of forecasts have deteriorated during COVID-19 due to emergency spending responses and falls in revenue. Overall, the PDMO views the effects on forecasting during this period of extreme instability as placing upward pressure on the size of the liquidity buffer.

52. At the end of 2019, the government cash buffer was €947 million, an amount which covered the financing needs of the government for the following 9 months, as per the relevant provision of the Medium-Term Public Debt Management Strategy 2016-2020. At the end of February 2020, cash and cash equivalents in the General Government Account amounted to approximately €1.817 million, including the fiscal balance, the issuance of two European Medium-Term Bonds (EMTNs) of €1.000 million and €750 million of 10- and 20-years tenor, respectively, the early repayment of the loan to the International Monetary Fund amounting to €717 million as well as the maturity of a 10-year EMTN €668 million.

53. In view of the negative developments from the COVID-19 pandemic at around mid-March 2020, the projected financing needs of the government under the initial scenario were gradually revised upwards from €2.3 billion to €5.6 billion for 2020, necessitating the revision of the Annual Financing Plan (AFP) for 2020. During 2020, the AFP was revised three times (last revised in August 2020). However, the large uncertainty that exists regarding the financing consequences of the second wave of the COVID-19 pandemic necessitates the frequent revision of the budget forecasts and consequently of the AFP 2021, which was approved in October 2020. In all cases, the amount of government cash available reflected its commitment to maintain adequate funds to cover the needs for the next 9-12 months.

54. Table 5 shows the AFP 2020 for December 2020 (revised in November 2020) combined with the AFP 2021 (adopted in October 2020), including the obligation to meet the financing needs of the next 9 months on a monthly rolling basis within 2021.

Table 5. Cyprus: Annual Financing Plan (revised at end-November 2020)			
December 2020 – September 2021			
Financing Needs	Estimated amount in million euros	Financing Tools	Estimated amount in million euros
		(a) Balance of cash available 1/12/2020	<u>4109</u>
Remaining long-term debt maturity 2020	818	EIB/CEB loans	20
Budget Cash deficit Dec. 2020	203	(b) Use of available cash	1001
Total financing needs Dec. 2020	<u>1021</u>	Total remaining funding 2020	<u>1021</u>
Debt maturity for the 9 months of 2021	1729	(c) Cash balance forecast 31/12/2020 (a-b)	<u>3108</u>
Budget balance: Budget Cash deficit (surplus) for 9 months 2021	(364)	Percentage of coverage of financing needs for 9 months (Jan.–Sept.) 2021 (c/d)	<u>228%</u>
(d) Total Financing Needs for 9 months of (Jan.–Sept.) 2021	<u>1365</u>	Cash balance after meeting the financing needs Jan.–Sept. 2021 (c-d)	<u>1743</u>
Source: PDMO, Ministry of Finance. *= EIB: European Investment Bank, CEB: Council of Europe Development Bank.			

55. As of December 18, 2020, the total financing needs of the government for December 2020 are projected to amount to €1.02 billion, of which €818 million relates to the long-term debt and €203 million to the projected budget cash deficit of December. The mentioned financing needs of the government will be covered by existing cash available by 98 percent and by the foreseen financing by 2 percent. The remaining state funding for 2020 is expected to be implemented within the second fortnight of December 2020.

56. In view of the above and taking into consideration the uncertainty related to the COVID-19 pandemic (e.g., a new wave of cases), it is recommended that the macroeconomic scenario prepared by the Ministry of Finance be continued to be reviewed at regular intervals to strengthen as much as possible the validity and reliability of the budget forecasts and consequently the forecasts for the liquid assets of the government for the next year.

57. **It is understood that the AFP 2021, which was approved in October 2020, will be revised periodically taking into account the revised forecasts for the public finances** It is worth noting that the above analysis is based on all available information available at date of the calculations. For this reason, the performed analysis will be repeated when new forecasts for the course of public finances are prepared, which will include new information.

58. **Overall, considering the new revised forecasts for public finances and the projected remaining funding, the amount of cash available at the end of 2020 of €3.1 billion exceeds the total financing needs for the whole year 2021 of €2.2 billion (by €900 million), without any additional funding in 2021.** This allows the PDMO to develop scenarios for early repayment (liability management) of a part of the debt within the year 2021 in order to mitigate the increase in the debt to GDP ratio (see Annex 4 for PDMO's procedures for the development at the Annual Funding Plan).

C. Quantifying Liquidity Buffers

59. **A quantitative framework for determining the size of the cash buffer and the possibility of investing the excess liquidity stock is presented below (Gabriele et al., 2017).** Based on the PDMO's mathematical equation for calculating the Annual Funding Plan, the mission has developed a formula for determining the monthly size of the cash buffer for normal times and distress periods, such as the COVID-19 pandemic period, as follows (Box 1).

60. **The proposed cash buffer framework can be further calibrated based on the experience with the cash buffer liquidity during the COVID-19 period.** During normal times, the PDMO considers that forecasts for the budget deficits out to 24 months to have been reasonably accurate but the quality of forecasts during COVID-19 have deteriorated due to emergency spending responses and the falls in revenue. Also, the PDMO views the effects on forecasting during this period of extreme instability to be adding to a pre-existing set of factors that place upward pressure on the size of the liquidity buffer.

61. **The recent experience with these factors has informed the specification of the above formulas.** As mentioned before, these factors include: (i) the split investment grade/non-investment grade ratings of the sovereign stemming from the contingent liabilities imposed by the domestic banking sector and their potential effect on market access, and (ii) Cyprus' profile as a small issuer in the international markets, combined with the investor requirement to issue individual tranches of €1 billion. This potentially leads to liability management challenges in smoothing its maturity curve, as well as limiting secondary market options as tools to assist in managing the cash position of Cyprus.

D. Recommendations

62. **With regard to the preparation of the AFP in conjunction with the determination of the appropriate size of the cash buffer, the mission recommends:**

(i) modify procedures for the development of the AFP to ensure it fully captures information to calibrate the cash liquidity buffer, and (ii) update the internal model for quantifying the cash liquidity buffer and keep it under review (see Table 1).

Box 1. Towards a Quantitative Framework for Estimating the Annual Funding Plan

Let $y(t)$ be the financing needs for month t , $x(t)$ the refinancing needs for month t , $z(t)$ the budget balance in cash terms (with budget deficit having a positive sign and budget surplus a negative sign) for month t , $w(t)$ the excess cash balance from the previous month $t-1$ (with a negative sign), $u(t)$ extra (supplementary) cash liquidity for precautionary purposes depending on prevailing uncertainties for month t . The PDMO has identified four major constituent uncertainties/risks composing $u(t)$, namely, $r(t)$ the size of the redeemable bonds at month t , $m(t)$ the mandate of the PDMO to raise an unscheduled amount funds at month t , $c(t)$ the risk of credit rating deterioration for market access for month t , and $s(t)$ the small size of the issuer and its implications for refinancing (a availability of funds) for month t . Then, the sovereign financing needs for month t , $y(t)$, can be estimated as follows:

$$y(t) = x(t) + z(t) - w(t) + u(t)[r(t), m(t), c(t), s(t)]$$

During the current period of the COVID-19 pandemic, $y(t)$ may be formulated as:

$$y(t) = x(t) + z(t) - w(t) + u(t)[r(t), m(t), c(t), s(t)]$$

with indicative figures for the individual factors of $u(t)$, which can be adjusted by the PDMO based on its assessment of the impact of each specific shock on the sovereign's borrowing capacity, as follows:

$$r(t) = [75] \text{ percent of the size of redeemable bonds}$$

$$m(t) = [50] \text{ percent of } z(t)$$

$$c(t) = [75] \text{ percent of } x(t)$$

$$s(t) = [50] \text{ percent of } x(t)$$

During normal times, after the pandemic, $y(t)$ may be formulated as:

$$y(t) = x(t) + z(t) - w(t) + u(t)[r(t), m(t), c(t), s(t)]$$

with indicative figures for the individual factors of $u(t)$, which can be adjusted by the PDMO based on its assessment of the impact of each specific shock on the sovereign's borrowing capacity, as follows:

$$r(t) = [25] \text{ percent of the size of redeemable bonds}$$

$$m(t) = [10] \text{ percent of } z(t)$$

$$c(t) = [25] \text{ percent of } x(t)$$

$$s(t) = [10] \text{ percent of } x(t)$$

Then,

B(min) = Minimum size of cash buffer, i.e., liquidity stock for next 6 months, for either distressed or normal times = Sum of y ($t=1$ to 6)

and

B(max) = Maximum size of cash buffer, i.e., liquidity stock for next 9 months, for either distressed or normal times = Sum of y ($t=1$ to 9)

If the actual liquidity stock is greater than maximum size of cash buffer at month t , then PDMO decides on investment options for the excess liquidity stock (i.e., positive difference between actual and maximum size of cash buffer) taking into consideration the individual characteristics of every available option.

If the actual liquidity stock is less than minimum size of cash buffer at month t , then PDMO decides on additional funding options to fill the gap in needed liquidity (i.e., negative difference between actual and minimum size of cash buffer) taking into account existing sovereign debt portfolio.

V. MANAGEMENT OF THE CASH LIQUIDITY BUFFER

63. **In the years prior to the COVID pandemic, many DMOs found maintaining large liquidity buffers impractical as markets exhibited exceptional liquidity and falling interest rates began eroding investment income, increasing carry costs.** Citing these factors, larger, higher rated DMOs tended to reduce the warehousing of liquidity while maintaining T-bill issuance at historical levels. Some smaller DMOs also began to reduce liquidity buffers particularly with the spread of negative interest rates while those with less consistent access to market liquidity continued to maintain liquidity buffers at the higher end of ranges (Annex 2).

64. **However, the COVID outbreak has caused a cross section of DMO's to increase cash buffers in recognition of the additional known and unknown risks which could appear at short notice.** This was despite record levels of central bank support and purchasing programs that have lowered interest rates globally, drastically altered yield curves and driven Euro area yields into negative territory.

65. **The predominant source of DMO cash buffers is pre-funding.** Prudently dimensioning liquidity buffers and managing their cost of carry has always been an important responsibility in order to minimize the all-in debt service cost (including the precautionary reservoir of liquidity).

A. Investment Options to Manage Liquidity

66. **Liquidity buffers are largely held in cash and high-quality liquid assets.** Cash balances may be affected by loss of market access (temporary or permanent) sudden changes to market access or rapid changes in the quantum of financing needs. The advent of negative interest rates has not only focused attention on the costs of maintaining a liquidity buffer but has also introduced practical limitations on the available investment instruments suitable for cash management of the liquidity buffer.

Cash Depositing with the Central Bank/ECB

67. **With the ECB deposit facility rate having been negative for some years, simply depositing liquidity with one's central bank has been additive to the overall cost of borrowing for a DMO.** Nevertheless, the need to keep a healthy portion of any liquidity buffer immediately available will continue to necessitate a significant level of central bank deposits. Given the paucity of suitable investment alternatives, the share of central bank deposits in the aggregate liquidity buffer may increase in the near term.

Cash Depositing with Commercial Banks

68. **Bank deposits within the domestic banking sector have been a common destination for liquidity buffer management.** However, unlike central bank deposits, this

activity necessitates credit risk management and a risk framework to govern amounts, tenors, and products (secured, unsecured, etc.) with individual institutions.

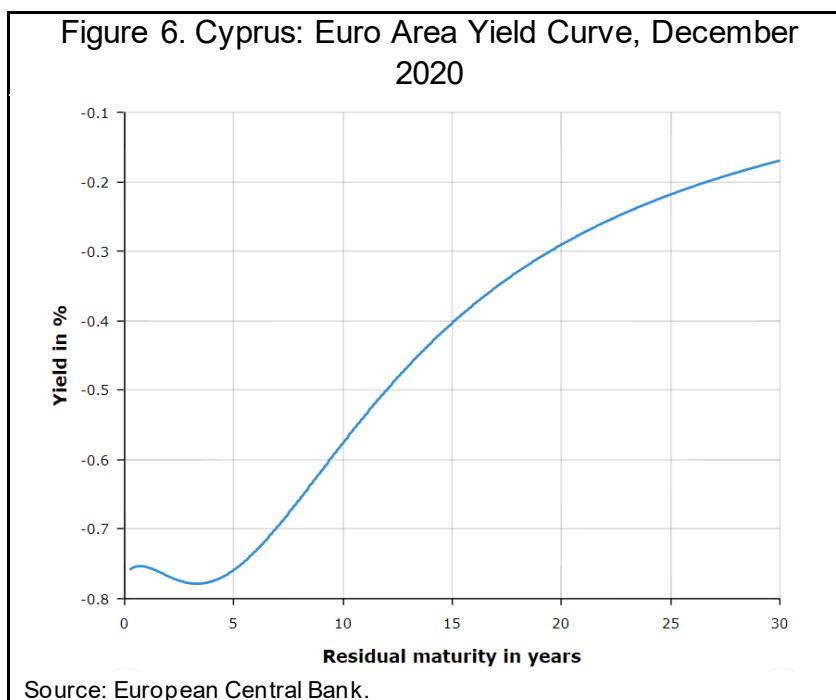
69. **In most Euro area jurisdictions, retail deposits have been shielded from negative interest rates.** However, increasingly private sector banks are passing on the cost of placing their liquidity at the central bank onwards to their institutional clients, including the public sector. Given the current level of excess liquidity in the Cypriot banking system, market participants reported negative rates for institutional clients were forthcoming. Therefore, the merits of depositing liquidity in commercial banks should be re-examined.

70. **While this development may reduce the attractiveness of commercial bank deposits by the PDMO, it could also offer a significant opportunity to expand the size and liquidity of the Republic's T-bill issuance.** It is probable that other institutional accounts will similarly re-examine their investment alternatives when faced with negative yielding commercial bank deposits. Banks may also wish to manage more of their ample excess liquidity in a more liquid T-bill market. Some amendments to current operating features may be required to capture this potential opportunity such as settlement arrangements and the establishment of a repo program.

Investments in Other Eurozone Sovereign Obligations

71. **T-bills from other Eurozone sovereigns have previously represented an attractive high quality, liquid asset class.** However, at present, Eurozone sovereign T-bills also have negative yields (Figure 6). Therefore, they currently offer limited alternatives to simpler, more liquid, and readily accessible central bank deposits.

72. **Furthermore, yields on Eurozone sovereign bonds remain negative further down the yield curve until longer maturities, i.e., after 7 years.** While current market conditions may not present the historical level of interest rate risk given rate expectations in the Eurozone, extending maturities would nevertheless produce a material maturity mismatch for a liquidity buffer which is short term by nature.



B. Liability Management Operations (LMO) – Use of the Cash Buffer and Tools for Influencing Liquidity Requirements

73. **In addition to the investment of the liquidity buffer, DMOs have at their disposal liability management tools which could influence the sizing of the liquidity buffer.**

LMOs allow debt managers to respond to changes in market conditions and preferences as well as changes in the needs of their funding program.

74. **Cyprus' PDMO has either already met or is very close to meeting most of the objectives of its MTDS.** Therefore, any LMO activity may represent refinements on this strategy rather than major changes. LMOs should be appraised in view of suitability in achieving the fundamental objectives of its funding program and liquidity management targets.

75. **LMOs are tried and tested means for assisting debt managers in their quest for optimal access to liquidity, acceptable borrowing costs and providing optionality in minimizing the size its liquidity buffer.** They range from straightforward retirement of existing debt to debt buybacks to debt exchanges.

76. **Since most liquidity buffers are built by pre-funding, decisions to undertake LMOs may center around the cost of service costs of existing debt plus execution costs (fees, etc.) versus the cost of new issuance.** In the prevailing market environment, new issuance conditions may increase the interest of debt managers in conducting LMOs.

Retiring of Outstanding Debt

77. **This relatively passive option would see the DMO using a share of the liquidity buffer to repay maturing existing obligations as they become due.** Any exercise of repaying existing debt versus refinancing would need consideration as part of overall debt management and market development strategy. It should also include deliberate communication to market participants and credit rating agencies.

78. **Given the redemption profile of Cyprus' debt, 2021 redemptions are limited to decisions regarding the 12-month T-bill maturity in April 2021.**

Purchasing Debt in the Secondary Market

79. **Other uses of a liquidity buffer could include buying back debt, prior to maturity, in secondary market.** This would either take the format of opportunistic purchases of debt in the open market subject to when the PDMO's objectives are satisfied or through formal tender offers announced to market participants and rating agencies.

80. **Opportunistic buybacks in the secondary market should involve relatively small amounts to avoid distorting market conditions and pushing pricing out of an attractive range for the PDMO.** In prevailing conditions, achieving material results in terms of nominal amounts may be particularly challenging given investors are preoccupied with reinvestment risks.

81. **Tender offers typically extend the opportunity to investors for a higher level of liquidity than available in the secondary market in terms of size and pricing.** In the current market conditions, where investors are searching for high-quality liquid assets (HQLA) results from a potential tender offer may be less cost effective than under normal conditions. As is always the case, the costs of an opportunistic or formal tender offer must be viewed in terms of the overall program, execution costs and meeting the debt management program's objectives.

82. **Debt repurchases are more typically made when an issuer/sovereign is amassing liquidity via budget surpluses rather than through pre-funding.** Additionally, since repurchases reduce the nominal amounts of marketable securities held by investors, careful consideration should be given to this consequence in light of future market developments and funding requirements.

Debt Exchanges

83. **DMOs often consider the use of LMOs to actively manage their refinancing risk by adjusting their maturity profile with debt exchanges.** One of the characteristics of such a debt swap is that debt maturities can be transformed into maturities more attractive to the DMO. Current markets conditions are potentially conducive for DMOs as higher average

duration of debt can be achieved at historically low costs, sometimes even negative rates. If higher average duration is of interest, such LMOs could lower the required/desired liquidity buffer size by lessening refinancing requirements in the near term.

Towards an Investment Policy Framework

84. **To decide on whether a part of the cash buffer could be invested in instruments other than deposits, a determination needs to be made on the part of the cash surplus that should be readily available.** The remaining amount could be invested in longer-term instruments or be considered for retirement. In such determination, it is important to have a quantitative framework/metrics in place, which in effect will generate the level of cash surplus that could be invested or bought back. Metrics to assist the PDMO to evaluate its own performance, i.e., to allow a self-assessment of the earnings or losses from undertaking such investments, should also be in place. These frameworks/metrics are missing and are identified as key gaps by the mission.

85. **As a first step, the mission looked at the conceptual aspects of developing a basic scenario for the PDMO's investment policy, addressing the current COVID-19 situation.** These aspects include: (i) delineation of the objective of setting up a liquidity surplus investment policy (i.e., a cash-management framework), (ii) determination of the infrastructure needed at PDMO for implementing the above-mentioned cash-management framework, (iii) identification of the necessary procedures required by the PDMO personnel to execute all related actions for implementing this project, (iv) identification of necessary resources in terms of infrastructure and personnel, (v) setting up a related framework with specific quantifiable metrics, (vi) setting up necessary governance and control policies, (vii) development of a system to assist with monitoring cash liquidity (Box 2).

86. **In case that the necessary infrastructure for managing FX risk is considered insufficient at the PDMO, the mission offered general considerations for potential outsourcing the management of the cash-buffer funds,** including (i) the identification and adoption of minimum criteria requirements for recruiting such fund managers, (ii) setting up a system for their selection, that is in line with international best practices, (iii) identification and setting up of their obligations, and (iv) development of procedures to monitor and evaluate their performance.

Box 2. Investment Guidelines for Excess Cash

A more sophisticated Investment activity would require the PDMO to adapt an investment framework. The investment framework would need to encompass current conditions as well as perhaps a return to a more normalized rate and yield curve environment.

The investment strategy of the excess cash reserves should be consistent with the cash and debt management strategies set by PDMO and supported by an appropriate audit system and suitable reporting and accounting frameworks. In this regard, the PDML should be appropriately modified to allow the investment of the excess cash reserves, where the authority to undertake such investment should be established, the determination of the size of the excess cash to be invested should be clearly defined, the objectives of the invested funds should be explicitly stated, along with the permissible instruments for investment, including currency, tenor, and credit quality, and the investment performance be reported.

The institutional and organizational frameworks for investing excess cash would have to be developed. Sound institutional and governance arrangements should be set up with regard to the delegation of authority and associated decision process, along with clearly stated roles, responsibilities and accountabilities, aiming at facilitating efficient decision-making and oversight. The governance structure should also provide for resolution of differences and breaching of responsibilities and specify reporting systems.

Investment management activities relating to excess cash should be based on published investment mandates and investment frameworks that specify the risk tolerance of the investment entity (PDMO). Where such operations/activities to be undertaken internally, i.e., within the PDMO, they would require appropriately qualified and well-trained staff, which would be subject to a code of conduct and conflict of interest requirements. If investment activities of excess cash are conducted by external investment managers, a clearly stated selection process should be followed, and a detailed oversight framework should be in place.

Source: Mission Team.

C. Recommendations

87. **A more flexible and reliable short-term financing tool would be complementary and, in general, would reduce the need for a large cash buffer.** The reliance to predominantly long-term (greater than one-year maturity) debt instruments to fund the cash buffer may need to be revisited by the PDMO, with a view to shift to shorter-term financing sources, especially T-bills.

88. **When the pandemic comes to an end, and conditions start normalizing, there are options to expand the range of investments for the cash surplus.** In addition to domestic and international bank deposits, investments could include instruments from other euro-zone governments that may offer higher yields than commercial-bank deposits, possibly by taking some duration risk, or paying back maturing debt undertaking some liability management operations (see Table 1).

ANNEX 1. T-BILLS SETTLEMENT PROCEDURES

Based on Cyprus PDMO inputs, T-bills are issued under Cypriot law. They are sold through auction using the Bloomberg auctioning system and are listed on the Cyprus stock exchange (CSE), which also acts as the depository.

Participation in auctions: Currently there is no delivery versus payment system in place so the Republic faces an amount of credit risk whenever an auction takes place as there is always the possibility that the money will not be paid while the securities will be delivered to the Cyprus Stock Exchange accounts of the clients. For this reason, the PDMO limits the participation in auctions to domestic banks where the PDMO believes that this credit risk is at its minimum. Banks can make bids on behalf of their clients on the strict understanding that they are solely responsible for providing the relevant funds.

Ability to purchase T-bills: Since the CSE acts as a depository any holder of bonds needs to have an account with the CSE or use a custodian account in order to be able to hold the bonds. This requirement can be sidestepped by using the custodian account that Clearstream has with the CSE. Owners of securities that are listed at the CSE can hold their securities in the Clearstream account and then by extension to their own Clearstream accounts. Although it is our understanding that this is relatively common, we have only one documented case of this taking place for a government security in the primary market (we will explain the process later below).

Clearing and Settlement:

- a. Domestic investors/Domestic custodians:
 - i. Auction takes place – results are notified to participants
 - ii. The PDMO prepares (with input from the banks) an excel file with all the details necessary to set up the securities in the depository
 - iii. The excel file is sent to the CSE which checks it and sends it back to the DMO for final confirmation
 - iv. Final confirmation is given by the DMO to the CSE
 - v. The banks deposit the necessary funds by 9:30 in the morning of the settlement date. This is monitored by the DMO.
 - vi. Unless otherwise informed by the DMO the CSE distributes the securities to the holders at 10:30 in the morning
- b. International investors/Clearstream account (one such case):
 - i. Auction takes place – results are notified to participants
 - ii. The PDMO prepares (with input from the banks) an excel file with all the details necessary to set up the securities in the depository

- iii. The excel file is sent to the CSE which checks it and sends it back to the DMO for final confirmation
- iv. Final confirmation is given by the DMO to the CSE
- v. The bank that has input the bid for the international investor notifies Clearstream and the controller of its account with the CSE about the coming transaction
- vi. The banks deposit the necessary funds by 9:30 in the morning of the settlement date. This is monitored by the DMO
- vii. Unless otherwise informed by the DMO the CSE distributes the securities to the holders at 10:30 in the morning
- viii. Once the securities are in the Clearstream custodian account they are allocated to the banks own Clearstream account and then the bank takes all steps to transfer the securities to the Clearstream account of the investor who has bought the T-bills.

Repayment of T-bills: The CSE prepares the necessary payment instructions based on the depository data and sends them electronically to the Treasury (the Treasury is the Office of the Accountant-General of the Republic). The Treasury executes the repayment.

ANNEX 2. EXPERIENCES OF PDMOs IN MANAGING CASH BUFFERS

Overview

Cash management has an important role in the management of refinancing risk. Building a cash buffer to meet upcoming maturities has an opportunity cost, as the sovereign's funding cost is higher than the return on the buffer because the yield curve is typically upward sloping. Therefore, there is a trade-off to assess between cost on one hand, and the benefits and possible risk reduction provided by the buffer on the other. Commonly, cash buffers consist of a (i) transactions buffer for an unanticipated fall in cash balances stemming, inter alia, from the combination of volatility and forecasting errors in the cash forecasting, and (ii) a safety buffer for an unanticipated fall in cash balances stemming, for example, from sudden disruptions in capital markets for a period when no bond/bill issuances would be possible.

The size of the cash buffer should, inter alia, be based on the debt manager's needs in its debt and liability management operations. Some countries determine their cash buffers as the maximum amount of financing needed if capital markets were disrupted for several months, and no issuance could take place during those months. Another rationale for the buffer, closely related to the first, is to provide comfort to investors that will be able to honor its debt obligations. A flexible cash buffer would be needed to leave room for inflows from possible pre-financing. Finally, a cash buffer may be used for contingent liabilities and/or for buybacks of outstanding maturities, which will also influence its size. The last three factors are directly related to LMOs.

Recent Practices

The 29 of 35 OECD countries that responded to a survey in 2018 found liquidity buffer to be an important and effective tool to mitigate refinancing risk and liquidity risk. Country practices indicate that having an immediate access to a liquidity buffer increases financial flexibility, cushions events caused by market stress or temporary loss of market access, which in turn supports predictability of borrowing programs and enhances market confidence. Predominantly, DMOs build up cash reserves through over borrowing – 93 percent of the agencies with a liquidity buffer. In addition, slightly more than half of the respondents indicate budget surpluses as a source of their liquidity buffer. In terms of the content, cash is part of the liquidity buffer in more than 90 percent of the agencies that hold one. After cash, the most commonly used securities are highly liquid assets (e.g., T-bills and T-bonds), followed by credit lines.

The responses to the survey demonstrate the value that DMOs place on the design and implementation of a liquidity buffer policy. The DMOs target a minimum level to cover an amount of financing needs (i.e. average disbursements, cash deficits or debt service

obligations) to withstand severe liquidity strains for a certain period of time (e.g., one week to one year). Although the target level varies across countries due to country specific factors (e.g., having access to liquid financial markets and existence of other contingency funding tools), the most common practice is to keep a buffer level that is sufficient to meet one month of expenditures. In order to set this target, they consider several financial indicators associated with cash flows and debt service. In addition to baseline estimations, scenario analyses are often conducted. As for the currency composition, about half of the countries carry only domestic currency in their liquidity buffer. In this regard, an asset liability management model is commonly applied to determine currency composition.

While liquidity buffers are useful to cope with liquidity strains, they are not costless. Less than half of the participants state that they measure the cost of maintaining a liquidity buffer. For those who measure it, most compare it with the cost of funding. In response to cost-related concerns, almost all of the participants invest excess cash balances. DMOs argue that any cost assessment should consider the significant benefits of holding a liquidity buffer which is seen as an insurance and improves a country's risk profile. Nevertheless, benefits from holding liquidity buffer are difficult to quantify.

In terms of investment policy, liquidity buffers are often invested in the form of demand and/or time deposits in local currency. Only a quarter of the responding countries invest in foreign currency assets. Most countries have deposits at the central bank to mitigate credit risk, while half of the countries with a cash buffer have deposits at local private banks. To manage the risk associated with investing the liquidity buffer, the most common measure is to create limits based on the counterparty ratings.

In the years prior to the COVID-19 pandemic, many DMOs found maintaining large liquidity buffers impractical as markets exhibited exceptional liquidity and falling interest rates began eroding investment income, increasing carry costs. Citing these factors, larger, higher rated DMOs tended to reduce the warehousing of liquidity while maintaining T-bill issuance at historical levels. Some smaller DMOs also began to reduce liquidity buffers particularly with the spread of negative interest rates while those with less consistent access to market liquidity continued to maintain liquidity buffers at the higher end of ranges.

There is no one-size fits all methodology to determine the size of a cash buffer. Even within the Euro-area, governments may weigh factors differently given their individual characteristics. Some Euro-area sovereigns may not pursue a target cash buffer, while those that do may or may not include refinancing requirements in the coming year or years in their sizing of the cash buffer.

Countries with deep and liquid domestic financial markets are usually in a better position to access liquidity (especially short term) even during stressed market conditions. For example, Germany and the Netherlands, which have not experienced funding pressures and have

continuous access to money markets, do not pursue a target cash buffer policy. On the contrary, even with the current supportive market environment, the importance placed on refinancing risk may be more pronounced for a country being at or near an investment grade rating, with the profile of a relatively small issuance program and with less developed access to a domestic money market liquidity pool.

As the COVID-19 pandemic has unfolded, most DMO's have increased their cash buffers as a general insurance policy against the uncertainty caused by market stress. However, this sensibly cautious approach is an overall shield and difficult to attribute amongst many factors that contribute to the dimensioning of a country's cash buffer, including refinancing risks.

ANNEX 3. VIEWS OF DOMESTIC AND INTERNATIONAL BANKS

As part of the information gathering process of the Technical Mission, the Mission team interviewed banking groups in Cyprus and a number of international banks involved in the PDMO Primary Dealer program/debt issuance program.

Debt Issuance Track Record

The banks were uniformly complimentary of the PDMO's efforts since the Global Financial Crisis. Particular emphasis was put on the Republic's ability to achieve wide involvement of international investor participation in view of its limited borrowing program.

Some operational issues were highlighted as positive including the use of English Law for Cyprus' securities versus a wider EZ trend of onshoring domestic law.

The presence of a cash buffer was also highlighted as a feature that provided comfort to both international and domestic investors as it largely obviated refinancing risk in the near term.

Liquidity in the Cypriot Banking System

As is the case in the Eurosystem in general, Cypriot banks are enjoying high levels of liquidity. Their demand for HQLA is muted somewhat by their high liquidity coverage ratio. The main source of their liquidity are retail deposits which have to date been shielded from negative interest rates incurred by the banking system when depositing their liquidity with the central bank.

However, most major Cypriot banks have already begun to pass through the negative rates on their liquidity to institutional clients, including the public sector. This development effectively eliminates or significantly reduces the opportunity the PDMO to use domestic commercial bank deposits as a home for its cash buffer, focusing the PDMO to exclusively using more expensive deposits with the central bank.

Upward pressure on liquidity is likely to continue given ECB policy and the requirement for Cypriot banks to restart their wholesale funding programs by layering in senior unsecured debt into their liability structure.

T-Bill Market

Both international and domestic banks currently perceive the T-bill market as illiquid and operationally cumbersome. The sizes are cited as too small to accommodate a market-driven auction exercise while settlement and custodian arrangements at the Cyprus Stock Exchange are considered expensive and potentially preclude involvement by international investors.

Subject to overall exposure considerations, domestic banks reported that they would welcome more liquid and more frequent T-bill issuance. However, they also counselled prior to higher levels of regular issuance, operational issues should be dealt with to streamline settlement arrangements. International banks were more insistent regarding the streamlining of settlement as well as highlighting that custodial arrangements needed to be widened to allow for custody outside the Cyprus Stock Exchange.

Domestic banks forecasted a higher level of demand for their own portfolios in addition to those of their institutional clients given the growing presence of negative commercial bank deposit rates. Highlighting that some more detailed investigation would be required, international banks anticipated international investors would be attracted to the T-bill market, post operational developments. However, some banks indicated even with improvements in settlement and custody arrangements, the potential size of an even a larger Cypriot T-bill may remain under larger international investors' liquidity thresholds.

Committed or Contingent Credit Lines

Banks were canvassed on their view of the appetite for the provision of credit lines by commercial banks to the Republic. In the context of the TA Mission on debt and cash management, this unfunded facility was presented a potential replacement for some portion of the existing funded cash buffer.

While both domestic and international banks were, subject to pricing, comfortable with the Cypriot credit, international banks questioned the investor perception of such a facility. While there was an appreciation for the merits for the Republic in terms of minimising cost of carry and managing Debt/GDP ratios, they expressed a view that such a facility is more in keeping with an emerging market credit and inconsistent with the Republic's profile as EZ sovereign.

Suitable Investments for the PDMO Liquidity Buffer

Given the current liquidity in the Euro area, all banks recognised the challenge of identifying appropriate yielding instruments of suitable credit, maturity and liquidity in keeping with cash management of a DMO liquidity buffer.

ANNEX 4. PDMO'S PROCEDURES FOR THE DEVELOPMENT OF THE ANNUAL FUNDING PLAN (AFP)

Pursuant to Article 10 (1) of the PDM Law, the PDMO prepares an Annual Funding Plan (AFP) every fiscal year, covering the projected financing needs of the Government for the next year. For the preparation of the AFP, the PDMO devises the borrowing transactions for the upcoming year, borrowing instruments and sources to be used, along with the indicative date of each transaction. It is noted that the AFP is based on the guidelines set on the Medium-Term Debt Management Strategy (MTDS), which is approved by the Council of Ministers. Consequently, for determining the size (the share) for each of the above funding instrument, attention is paid to (i) the Objectives/Guidelines of MTDS, and (ii) the available funding capacity from each source.

The PDMO's step-by-step procedure for the preparation of the AFP is summarized below, using as an example the AFP of 2021, which is to be approved not later than the end of November of the previous year (2020):

- **Step 1: Projections of the total funding needs for the next year 2021.** The total amount depends on the annual fiscal surplus/deficit 2021 (in cash/ money terms) plus the scheduled debt redemptions 2021. The first component (fiscal surplus/deficit in cash terms) is projected by the Directorate of Economic Policy (DEP) of the Ministry of Finance, based on the macro and fiscal projections which are in line with the Stability Program and the Draft Budgetary Plan, prepared according to Regulation EU 473/2013. Fiscal projections are prepared both on an annual basis and on a monthly basis. The second component (scheduled debt redemptions or refinancing needs for the next year) are estimated by the PDMO taking into account both short-term and long-term debt (loans and debt instruments).
- **Step 2: projection of the cash balance by the end of the year 2020.** In order to estimate the necessary cash balance for 2021, the PDMO takes into consideration the current cash balance in 2020, the time series of the monthly fiscal surplus/deficit 2021 (in money terms) that are prepared by the DEP, and the monthly debt redemptions 2021, along with the scheduled remaining borrowing for the current year 2020. Then, the PDMO compares the projected cash balance by the end of the year 2020 with the total funding needs for the year 2021 and checks whether the target of the cash buffer 2020 is satisfied or not. The latter, i.e., the target of the cash buffer, is determined on the basis of the condition that the cash must be enough to cover the financing needs of the next 9-12 months on a rolling basis (i.e., by the end of each month). This implies that by the end of 2020, the PDMO needs to ensure that it has cash sufficient to cover the needs of at least the period January to September 2021, while by the end of December 2021 the cash needed is at least equal (or larger) than the financing needs of January to September 2022. To the extent there is excess cash by the end of 2020, such excess cash can be used for the partial funding of 2021.

- **Step 3: Determining the funding plan for the year 2021. This takes into consideration the guidelines set in the MTDS 2021–2023 and the cash balance target set by the end of the year 2021.** Specifically, the objective is to cover the total funding needs of the year 2021 estimated under steps 1 and 2 above, through a number of borrowing tools (mainly through the issuance of EMTNs in the international capital markets), while taking into account any excess cash buffer that can be used for funding the year 2021. This means that the PDMO can use the cash balance as one of the borrowing sources to cover the funding needs for 2021 at such level, where the projected cash balance by the end of 2021 will be sufficient to cover the financing needs of the 9-12-month period in year 2022 as explained above. Therefore, under this step, the PDMO also forecasts the total funding needs for the year 2022 on a monthly basis, taking into consideration the monthly fiscal surplus/deficit and the scheduled debt redemptions on a monthly basis.

It is noted that under step 3, the PDMO takes into consideration a number of other factors including:

- Cyprus being a small issuer is not typically sufficient to access the market many times within the same year;
 - Uncertainty of the market conditions. This is a main reason that the authorities maintain liquid funds to cover the financing needs for the next 9-12-month period;
 - The credit rating profile of the Republic of Cyprus;
 - The risk of temporarily losing market access;
 - Monitoring of the EU policies and interest variations.
- **Step 4: Finalizing the size of the cash buffer and the AFP for 2021 (Box 3).** Under the final step 4, the PDMO finalizes the results from step 3, taking into account the degree of uncertainty prevailing from time to time. For example, due to the outbreak of the pandemic and its impact on the economy, the PDMO decided to increase the prefunding period from the range of 6 – 9 months to the range of 9 months – 12 months ahead.

Box 1. Mathematical Equation Used for the Preparation of the AFP

The following equation is used for the estimation of the AFP:

$$y_{t+1} = x_{t+1} + z_{t+1} - w_t + u_{t+1}$$

where:

y = financing needs

x = refinancing needs

z = budget deficit in cash terms (if surplus it takes a negative sign)

w = Excess cash balance (cash exceeding the financing needs of the next 12 months).

u = extra (supplementary) cash buffer for precautionary purposes depending on prevailing uncertainty.

Source: PDMO

REFERENCES

Gabriele, Carmine, Aitor Erce, Marialena Athanasopoulou, and Juan Rojas, 2017, “Debt Stocks Meet Gross Financing Needs: A Flow Perspective in Sustainability,” European Stability Mechanism, ESM Working Paper Series, No. 24.

Jonasson, Thordur and Michael G. Papaioannou, 2018, “A Primer on Managing Sovereign Debt-Portfolio Risks,” IMF Working Paper WP/18/74 (Washington DC:
<https://www.imf.org/en/Publications/WP/Issues/2018/04/06/A-Primer-on-Managing-Sovereign-Debt-Portfolio-Risks-45746>