



SAMOA

SELECTED ISSUES

September 2026

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Approved By
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THE MONETARY POLICY OPERATIONAL FRAMEWORK IN SAMOA: MOVING TO AN INTEREST-RATE-BASED TARGET¹

A. Introduction

1. **The Central Bank of Samoa (CBS) has recently considered modernizing its monetary policy framework, including a potential transition from a monetary aggregate as operational target to an interest-rate-based target.** Given Samoa's currency peg to a basket of currencies of Samoa's major trading partners, and a relatively closed capital account, the CBS retains some scope to pursue an independent monetary policy strategy to achieve its inflation, growth and financial stability objectives.
2. **This paper aims to support the CBS's efforts by outlining the potential advantages of moving to an interest-rate-based operational target and the key preconditions for a successful transition.** The paper begins by describing the current monetary policy framework and emerging challenges faced by the CBS, followed by an analysis of the evolution of Samoa's monetary aggregates and the stability of money demand in recent years. The results indicate that money demand has been largely unstable across different methodologies, suggesting that targeting a monetary aggregate is quite challenging. This, in turn, underscores the appropriateness of transitioning to an interest-rate-based operational target to reduce excessive volatility in short-term interest rates. The paper concludes by discussing the merits of this framework and the necessary steps for a successful transition.

B. Samoa's Current Monetary Policy Framework

3. **The 2015 CBS Act affirms the autonomy and independence of the CBS and stipulates its mandate with three hierarchical objectives.** The primary objective is to formulate and implement monetary policy aimed at achieving and maintaining domestic price stability. The second objective is to promote and safeguard financial stability without compromising the primary goal. The third objective is to support the government's general economic policies, insofar as doing so is consistent with maintaining price and financial stability.
4. **The CBS's monetary policy statements—published annually since 2001—emphasize the primacy of the inflation objective, targeting a medium-term inflation rate of around 3 percent.** With the Samoan Tala pegged to a basket of the currencies of its major trading partners, the exchange rate serves as the nominal anchor. Broad money (M2) growth is used as an intermediate target, while operational targets remain undefined. Although the CBS often signals

¹ Prepared by Diaa Noureldin, with thanks to Carlos F. de Barros Serrao (MCM), Harald Finger, Siddharth Kothari and SeokHyun Yoon (all APD) for their comments and suggestions. I also thank Tommy Lee and Shikha Rao for research and administrative support.

desired levels for official interest rates, a well-developed operational framework to guide short-term interest rates is yet to be established.

5. The CBS maintains a conventional peg arrangement linked to a composite basket. The basket comprises the currencies of Samoa's major trading partners: Australia, New Zealand, the United States, and the euro area. The composition and weights of the basket are reviewed quarterly to reflect changes in Samoa's trade patterns, including imports, exports, and tourism revenues. The CBS does not disclose the specific currency weights or the methodology used in determining them.

6. The post-pandemic economic recovery has been strong and inflation has moderated substantially, although the recent global energy shock has renewed near-term inflationary pressures. The post-pandemic output recovery was strong, supported by the reopening of borders and a surge in tourism, especially in FY2022/23, followed by some moderation, with growth at 4.2 percent in FY2024/25. Inflation spiked in FY2021/22-FY2022/23 in line with the global surge in inflation, but has since moderated, with headline and core inflation averaging around 1.4 percent and 1.9 percent, respectively, in FY2025/26. The inflation outlook is challenged however by the global energy shock which pushed year-end inflation to 5.8 percent (June 2026), although it is expected that inflation will return closer to target by FY2027/28.

7. Liquidity in the financial system has risen relative to pre-pandemic levels, driven mainly by an increase in net foreign assets (NFA). Large inflows of foreign aid following the pandemic boosted government deposits in the banking sector as well as net international reserves. The tourism recovery also supported strong FX inflows. Combined with a large fiscal surplus in FY2022/23 and FY2023/24—partly owing to delayed public investments—these developments contributed to a sizable current account surplus and elevated liquidity in the banking system.

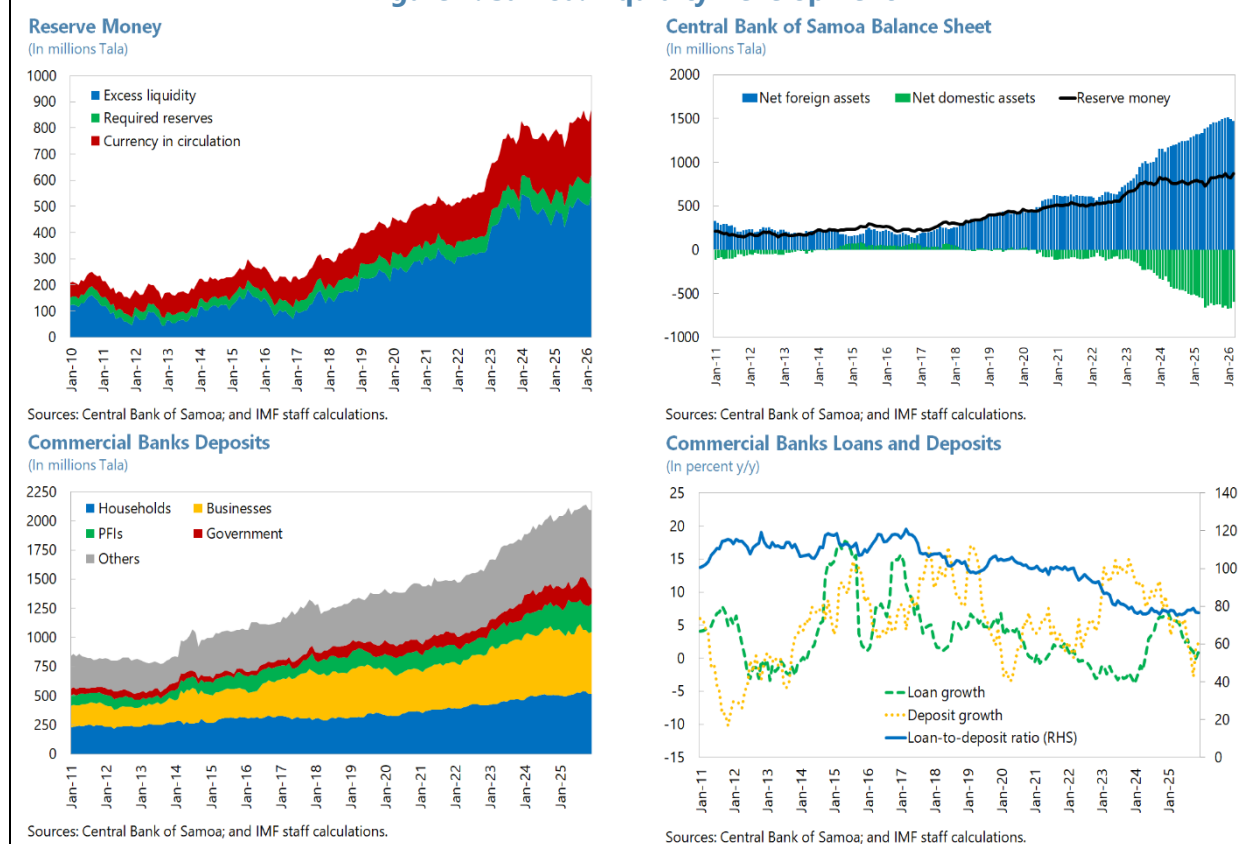
8. The excess liquidity problem has been compounded by a pullback in public investment and banks' limited lending opportunities. Given Samoa's limited absorptive capacity, the reduction in public investment—which could have otherwise crowded in private investment and supported the economy's supply-side capacity expansion—has further constrained credit growth. The shortage of bankable projects has led banks to curb lending despite strong growth in deposits. The resulting buildup of excess reserves at the CBS and the sharp decline in the loan-to-deposit ratio underscore a persistent problem of excess liquidity (Figure 1).

9. The current state of excess liquidity complicates the conduct of monetary policy and weakens transmission mechanisms. Elevated excess reserves can push short-term interest rates below levels consistent with the monetary policy stance the CBS wishes to pursue.² While the currency peg naturally links Samoa's policy rate to those of its trading partners in the currency basket, the relatively closed capital account provides some scope for independent monetary policy

² The CBS increased the daily size of its open market operations to absorb excess liquidity from commercial banks. In March 2024, it resumed the issuance of longer-term securities (182- and 364-day securities), which enabled it to raise the official interest rate (weighted average yield on CBS securities) from 0.23 percent in June 2024 to 3.61 percent in March 2026, which currently hovers above the desired target rate of 2-3 percent over the medium term.

to respond to domestic output and inflation developments. In addition, excess liquidity in commercial banks pose potential risks to financial stability if credit standards are loosened to encourage additional lending. In extreme circumstances, it could also undermine the currency peg arrangement if liquid reserves are used to exert sudden pressure on the exchange rate.

Figure 1. Samoa: Liquidity Development



10. More broadly, beyond the excess liquidity problem, the absence of a well-developed and clearly communicated strategy and operational framework hampers the effectiveness of policy implementation. A sound monetary policy framework requires a clear mandate, well-defined objectives, a coherent strategy and operational framework, and transparent communication to effectively guide market expectations.³ While the CBS's mandate and objectives are well established, further progress is needed in developing a coherent monetary policy strategy and operational framework—the central focus of this paper—supported by an effective communication strategy. Moreover, as a small island economy heavily dependent on foreign aid, tourism, and remittances, Samoa remains highly vulnerable to external and climate-related shocks. Preserving some degree of

³ An operational framework is a set of guiding principles for the day-to-day management of the central banks' operational targets (e.g. reserve money or short-term interest rates) and the instruments (e.g. open market operations, reserve requirements, and standing facilities) used to achieve those targets.

monetary policy independence, given the relatively closed capital account, would help Samoa cope with potential shocks in the future.

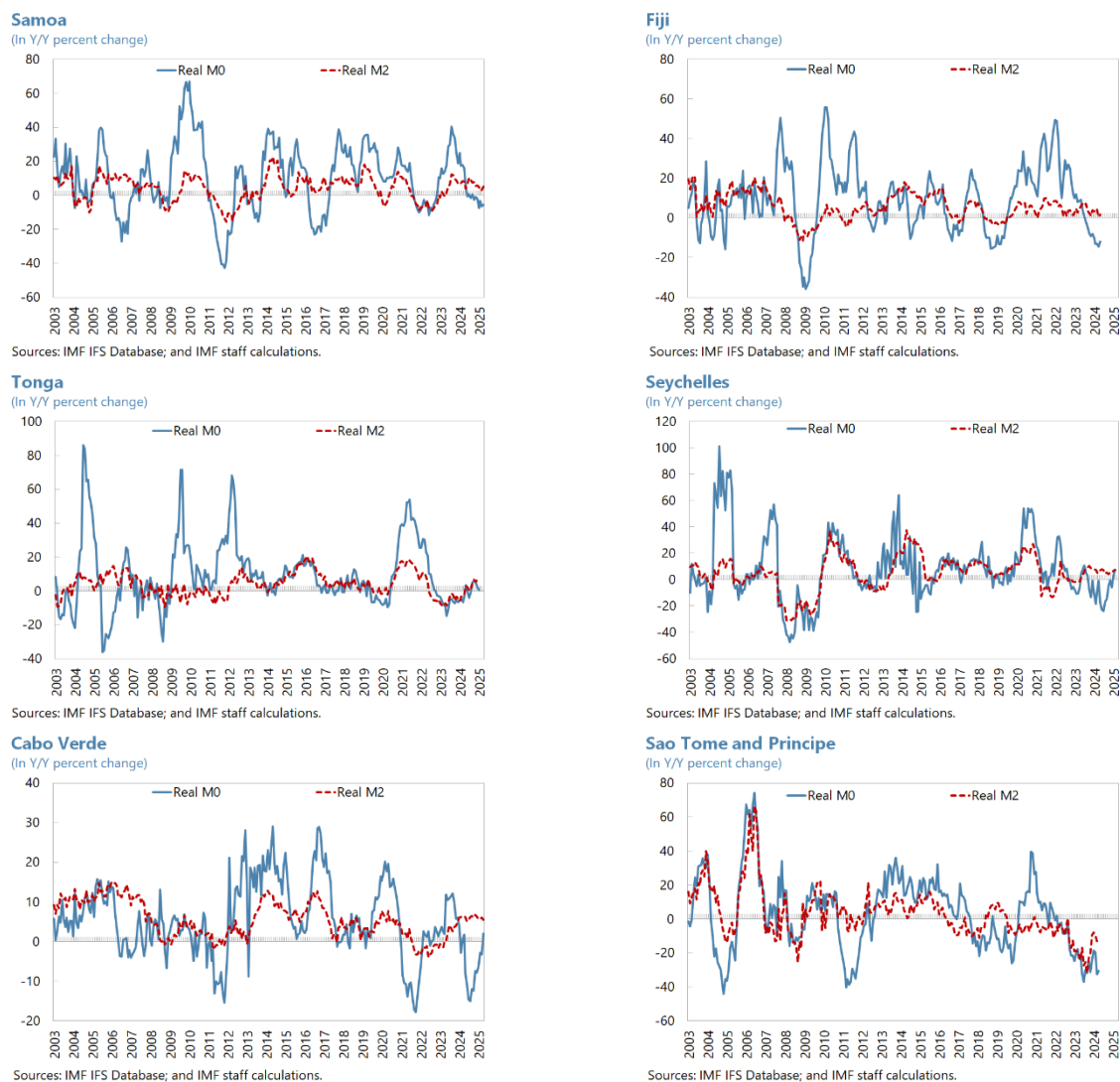
11. Under the current operational framework, M2 serves as the CBS's intermediate target, although deviations between actual outcomes and targets have been large. Despite preparing M2 forecasts, the CBS does not closely monitor their performance, given the persistent discrepancies between the forecast and actual outcomes. Instead, policy discussions tend to emphasize inflation and growth, where outturns have aligned more closely with forecasts. In day-to-day operations, the CBS does not target specific levels of monetary aggregates or the short-term interest rate.⁴ A prerequisite for successful money targeting is a stable money demand function: an issue explored in the next section, following a brief review of monetary aggregate trends in Samoa and comparator island economies.

C. Evolution of Monetary Aggregates in Samoa and Comparators

12. This section discusses the evolution in monetary aggregates, as well as the money multiplier and velocity, in Samoa and selected comparator countries: Fiji, Tonga, Cabo Verde, São Tomé and Príncipe, and Seychelles. The choice of comparators rests on two main considerations. The first is structural similarities: these countries are all small island economies, heavily reliant on tourism and remittances inflows, and vulnerable to adverse climate-related shocks. The second relates to their exchange rate regimes and monetary policy frameworks. In this regard, Fiji and Tonga are most comparable to Samoa, both maintaining pegs to broadly similar baskets of currencies, with the exchange rate serving as the nominal anchor. Cabo Verde and São Tomé and Príncipe share some similarities but peg their currencies to the euro rather than to a basket. Their geographic distance from the Pacific Islands also introduces potential differences in the nature of shocks they face. Seychelles is the least similar in this respect, having adopted a floating exchange rate in 2008. However, it provides an interesting case study, as its monetary policy strategy evolved from a currency peg to reserve money targeting, and more recently—since 2019—to an interest-rate-based framework.

13. Growth in reserve money (M0) has been quite volatile in Samoa, frequently expanding or contracting by more than 20 percent year-on-year (Figure 2). The summary indicators in Table 1 shows that reserve money growth has been historically volatile, although not consistently higher than in other Pacific Islands comparators (Fiji and Tonga) or other benchmark countries (Cabo Verde, São Tomé and Príncipe and Seychelles). In the post-GFC sample (since early 2013), volatility in reserve money growth in Samoa has been slightly higher than in comparators, while in the post-pandemic-shock sample (since early 2021), it has been somewhat lower.

⁴ The IMF's technical assistance report (2025) "Modernizing the Monetary Policy Framework and Operations of the CBS" provides additional details on the current monetary policy operational framework in Samoa.

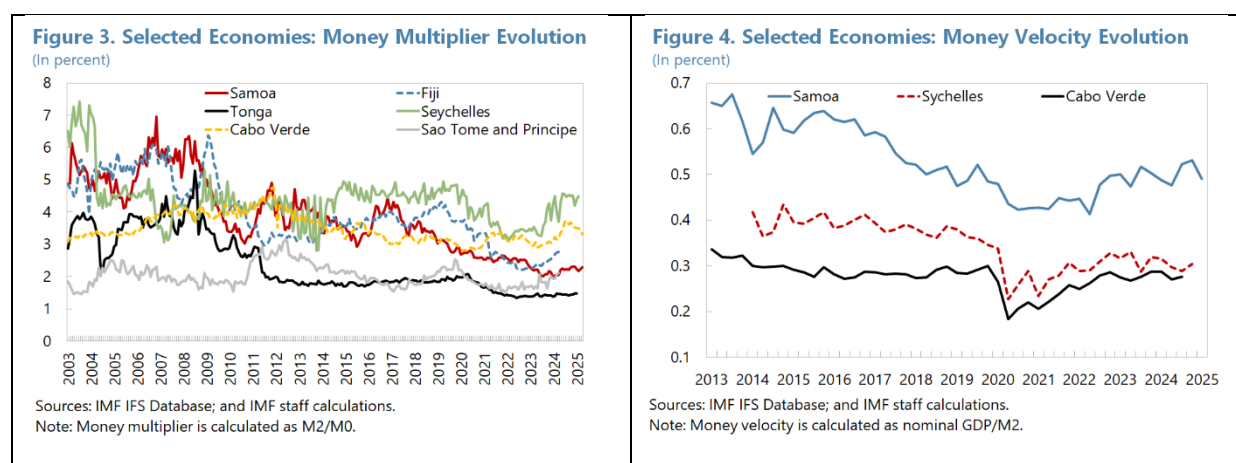
Figure 2. Samoa: Selected Economies: Growth in Monetary Aggregates**Table 1. Samoa: Selected Economies: Historical Volatility in M0 Growth**

	2003M1 - 2025M4	2013M1 - 2025M4	2021M1 - 2025M4
Samoa	19.7	16.2	13.6
Fiji	16.9	14.9	18.9
Tonga	19.8	13.9	20.4
Seychelles	24.6	16.9	13.1
Cabo Verde	9.4	10.7	8.3
Sao Tome and Principe	22.0	18.2	16.3

Sources: IMF IFS Database; and IMF staff calculations.

Note: Volatility is measured using the sample standard deviation.

14. The money multiplier has declined more sharply in Samoa than in comparators, falling from an average of 5.3 in 2002-2007 to stabilizing in the range 2-2.3 since early 2023 (Figure 3). Money velocity in Samoa, while on a declining trend since 2013, has shown some increase since the pandemic shock. This pattern is similar to that observed in comparators, although velocity remains higher in Samoa (Figure 4). The relatively high velocity is potentially explained by underdeveloped domestic financial markets—particularly shallow secondary markets for central bank paper—and the absence of markets for government and corporate bonds. [Yang and others \(2011\)](#) show that the ratio of broad money (M2) to GDP (the reciprocal of money velocity) in Samoa is low compared with other Pacific Island countries (PICs). For PICs in general, this ratio is also lower than the average for Caribbean countries and for emerging market and developing economies (EMDEs) more broadly (see Figure 11 in [Yang and others \(2011\)](#)). Underdeveloped financial markets remain a clear impediment to effective monetary policy transmission, a point previously emphasized by [Jayaraman and Dahalan \(2008\)](#).



D. Assessing the Stability of Money Demand in Samoa

15. A money demand function explains how aggregate economic variables—particularly real output and the interest rate—affect the quantity of money people wish to hold. As economic activity (real output) increases, individuals and firms demand more money for transactions to buy goods and services. Conversely, the interest rate represents the opportunity cost of holding money: higher nominal interest rate on alternative assets, such as deposits or government bonds, makes holding money less attractive, thereby reducing money demand. For money demand to be considered stable, a consistent and predictable relationship must exist between real money balances, real GDP, and the nominal interest rate. Such stability is crucial for the effectiveness of monetary policy under a money-targeting framework, as it allows central banks to assess how changes in the money supply impact economic activity and inflation.

16. The estimation of the money demand function has been the subject of extensive research, with considerable evidence that it has been unstable over time.⁵ The literature highlights several factors contributing to the instability, including financial innovation and changes in agents' portfolio preferences. In small island economies like Samoa, additional challenges further weaken the relationship between money supply and money demand, disrupting the long-run equilibrium that would otherwise hold under a stable money demand function. These economies are highly vulnerable to external shocks, such as fluctuations in global commodity prices or downturns in tourism, which cause volatility in national income and large swings in money demand. Their reliance on foreign capital flows, including remittances and official aid, adds further instability to domestic liquidity conditions. In addition, financial markets tend to be shallow and underdeveloped, with limited interbank activity and an absence of secondary markets for government or central bank securities. This constrains the central banks' ability to manage liquidity and control monetary aggregates through conventional instruments like open market operations.

17. In the case of Samoa, the evidence points to unstable money demand during the period 2013Q1-2025Q1. This paper assesses the stability of money demand in Samoa using a range of empirical methods and estimation techniques—the details of these methods and a full discussion of results are presented in Appendix A. The findings consistently suggest that Samoa's money demand relationship has been unstable during the period 2013Q1-2025Q1. During most quarters from 2013Q1 to 2017Q2, real money balances were below their implied long-run equilibrium level, while from 2017Q3 to 2022Q2, they were above it (see Appendix Figure A.2 and its discussion). This pattern points to a prolonged disconnect between real money balances and its fundamental determinants—real output and interest rates—contrary to what the theory stipulates. The onset of the overshooting period in 2017Q3 coincides with evidence that excess liquidity began accumulating well before the pandemic.⁶ Liquidity pressures intensified further during 2020Q2-2021Q2. During this period, the surge in money supply was mostly due to a significant rise in foreign aid flow and remittances, which constrained the ability of the CBS to manage liquidity effectively.

18. The evidence from this analysis broadly aligns with the CBS's operational experience, where money targeting has proven challenging and target deviations have been frequent. This is, in part, due to the instability of money demand. External factors, such as volatility in capital flows, tourism receipts, and remittance inflows, may have amplified the divergence between actual real money balances and the levels implied by a stable money demand relationship.

⁵ Early seminal contributions include Goldfeld (1973, 1976) and Judd and Scadding (1982). Sriram (2001) surveys empirical studies from the 1990s across a wide range of industrial and developing countries, while Teles and Zhou (2005) discuss the role of appropriate measures of monetary aggregates in money demand estimation.

⁶ See also Annex V in Samoa's 2024 Article IV staff report.

E. Benefits and Challenges of Moving to an Interest-Rate-Based Framework

19. There are circumstances in which traditional reserve money targeting may be desirable. It can, for instance, signal a break from fiscal dominance and help insulate monetary policy from government pressure to finance fiscal deficits. In some cases, it may also serve to re-anchor inflation expectations. For the case of Samoa, these considerations are less relevant given the country's record of fiscal discipline and well-anchored inflation expectations aided by the currency peg.

20. For a small open economy, like Samoa—where monetary developments are heavily influenced by FX flows (tourism receipts, remittances and foreign aid)—reserve money targeting poses particular challenges. Changes in reserve money in recent years have largely been driven by external factors beyond the direct control of the CBS, leading to persistent and unpredictable deviations of monetary aggregates from their targets. Such liquidity shocks may lead to excessive volatility in short-term interest rates. Consequently, central banks often accommodate large deviations from targets to stabilize short-term market rates. However, this practice makes it difficult for the public and markets to interpret these deviations, thereby complicating the signaling of the central bank's policy stance (IMF 2015).

21. Transitioning to an interest-rate-based operational target could provide several advantages over the existing reserve money targeting framework. First, this framework would sidestep the issue of money demand instability, recognizing that domestic liquidity in Samoa is often influenced by factors beyond the control of the CBS. Second, it would enable the CBS to clearly signal its monetary policy stance by aligning short-term rates (e.g., the interest rate on CBS securities, the CBS lending facilities rate, and interbank rate) and by reducing their volatility, especially in the interbank rate. Third, greater control over short-term interest rates and reduced volatility would help improve the transmission of monetary policy to deposit and lending rates. Fourth, an interest-rate-based operational framework would be more consistent with the currency peg; should the peg come under pressure, the ability to manage interest rates effectively would be essential for the CBS.

22. Adopting an interest-rate operational target would also strengthen two important pillars of Samoa's monetary policy framework. First, it would establish a well-defined operational framework to guide the CBS's daily liquidity management. Second, it would increase the transparency of the monetary policy stance and would improve the CBS communication, thereby helping effectively guide market expectations.

23. Adopting an interest-rate-based framework would help the CBS retain stronger control over short-term interest rates. Establishing an interest rate corridor is an essential first step. For this purpose, operationalizing such a framework could involve applying uncovered interest rate parity (UIP) condition that links short-term interest rates in Samoa to those of its trading partners in the currency basket under Samoa's currency peg arrangement. However, given Samoa's

relatively closed capital account, this UIP-type rule should allow some scope for deviation from the parity condition to accommodate domestic output and inflation developments.

24. Moving to an interest-rate-based operational framework may also present several challenges. These include the following:

- **Aligning short-term interest rates with the monetary policy stance the CBS wishes to pursue is likely to raise the current yield on CBS securities.** Since 2024, the CBS began providing forward guidance on interest rates through its monetary policy statement, aiming to bring the average yield on CBS securities within the 2-3 percent range, considered consistent with the neutral rate.⁷ This adjustment implies the CBS is likely to incur income losses in the short term. At the current weighted average yield, and outstanding excess liquidity at around SAT 565 million in May 2026, the annual cost of mopping up excess liquidity would cost the CBS about SAT 15.6 million annually, roughly 0.4 percent of projected nominal GDP for FY2026/27. While material, the cost can still be covered by the CBS's annual income on its sizable net international reserves.
- **Financial markets in Samoa remain underdeveloped with no treasury and government bond market, and no secondary market for CBS securities.** This presents a challenge for an effective transmission of monetary policy.
- **The transmission from the policy rate to market interest rates may be further constrained by limited interbank participation and infrequent use of CBS lending facilities.**⁸ Improving interbank market functioning—through active use of CBS facilities and by introducing eligible financial collateral such as CBS securities—would enable banks to meet their short-term liquidity needs through the market rather than by holding excess reserves. Developing a secondary market for CBS securities would further support this objective.
- **Public financial institutions (PFIs) account for nearly 45 percent of outstanding credit to the private sector.** Some of the PFIs, such as the Samoa National Provident Fund (SNPF), lend to similar clients as commercial banks, and their lending rates may be influenced by non-market factors, weakening the transmission of policy rate changes to credit conditions.

⁷ Most recently, the CBS securities weighted average yield (WAY) was at 2.77 percent in May 2026, a notable increase since September 2024.

⁸ The low participation of banks in the interbank market is mostly attributed to the absence of collateral and limits on foreign banks' exposure when lending to local banks. Also, banks typically regard the use of CBS lending facilities as an option reserved for extreme conditions—with the CBS acting as the lender-of-last-resort—rather than as a tool for daily liquidity management. Their infrequent use is likewise influenced by the current state of excess liquidity, which could change if the CBS succeeds in absorbing this excess liquidity in the future.

F. Preconditions for a Successful Transition to an Interest-Rate-Based Operational Framework and Near-Term Measures

25. Several preconditions are necessary to ensure that an interest-rate-based operational framework effectively communicates and manages the monetary policy stance. In some of these areas, the CBS is already receiving IMF technical assistance and capacity building support.

- **Macroeconomic stability.** The transition is best undertaken when the macroeconomic environment is broadly stable. In the case of Samoa, low and stable inflation, as well as stable external balances with adequate buffers, offer a good window of opportunity to introduce the new framework.
- **Analytical capacity.** The CBS should continue to enhance its analytical capacity for high-frequency liquidity forecasting and for estimating the output gap and the neutral rate—key tools for assessing the monetary policy stance more accurately.
- **Operational capacity.** Enhancing the framework for short-term liquidity management, including liquidity forecasting and policy rate setting, will be critical to the effective operation of the new framework.
- **Data requirements.** Successful implementation also hinges on the availability of high-frequency data to support liquidity forecasting. While weekly data on currency in circulation and net foreign assets are available, higher frequency monitoring and reporting of government flows are needed.

26. Several near-term measures could be adopted to address excess liquidity during the transition to the new operational framework:

- **Establishing an interest rate corridor.** The corridor centered around the policy rate would help steer short-term market rates and absorb excess liquidity, thereby enhancing the clarity and effectiveness of monetary policy signals. The mid-point of the corridor can be determined using a UIP-type condition that links short-term interest rates in Samoa to those of its trading partners in the currency basket, while allowing some flexibility—given the closed capital account—to adjust the mid-point to domestic conditions and the monetary policy stance the CBS wishes to pursue.
- **Using CBS securities to absorb excess liquidity.** Issuing a short-term instrument (7-day) at a fixed rate (policy rate) with full allotment would help steer short-term market rates and align them more closely with the mid-point of the corridor. In parallel, existing CBS securities should continue to be issued through a fixed-quantity, variable-rate format, but at a reduced frequency (biweekly or monthly). The issuance calendar for these instruments, including the 7-day CBS Bills, should be structured to better align with the CBS objectives—particularly by prioritizing the absorption of surplus liquidity through longer-term instruments to provide a more durable

liquidity drain. Over time, this approach would also support the development of a yield curve for CBS securities.

- **Revising the setup of the CBS lending facility and the emergency liquidity assistance (ELA) framework.** The CBS should revise the framework for its lending facilities to ensure that banks can automatically access them upon demand, provided adequate collateral is available. The lending rate should be pre-announced rather than set on ad hoc basis, which would strengthen banks' confidence in access to liquidity when needed and help reduce precautionary excess reserves. The maturity should be limited to overnight lending to encourage banks to rely more on the interbank market in their liquidity management. In addition, adjustments to the recently-established ELA framework—particularly regarding eligibility criteria, solvency requirements, and collateral valuation—are also needed.
- **Adjusting statutory reserve deposit (SRD) framework.** Adjustments should aim to address structural excess liquidity conditions by (i) remunerating reserves—ideally close to the policy rate—to support interest rate transmission; (ii) allowing banks to meet SRD requirements on an average basis over the maintenance period; and (iii) linking SRD non-compliance penalties to the policy rate, setting them above the marginal lending facility to encourage compliance without incentivizing excessive liquidity hoarding.⁹
- **Developing a weekly short-term liquidity monitoring and forecasting framework.** The CBS should enhance its capacity to analyze and forecast autonomous liquidity factors, enabling more precise calibration of open market operations. This remains a key focus of ongoing IMF technical assistance to the CBS.

27. In the initial phase of the transition, the CBS should prioritize identifying the appropriate policy rate to establish the corridor. Once established, deploying a short-term instrument (7-days) at a fixed rate (policy rate) with full allotment—alongside a calibrated increase in the SRD—would help absorb excess liquidity in the short term. These measures would help bolster confidence in the CBS's ability to steer short-term interest rates effectively, and over time, strengthen monetary transmission while addressing persistent excess liquidity.

G. Concluding Remarks and Recommendations

28. The analysis presented in this paper demonstrates that Samoa's current monetary policy framework—centered on money targeting—faces significant challenges. The instability of the money demand function, as evidenced by frequent and prolonged deviations of real money balances from its fundamental determinants, undermines the effectiveness of money targeting. External factors such as volatile capital flows, and heavy reliance on tourism revenue and

⁹ The SRD ratio in Samoa is currently at around 4.5 percent of commercial banks' deposits, which is relatively low and suggests that the CBS has some room to increase the SRD ratio without impeding banks' capacity for intermediation.

remittances further complicate liquidity management for the CBS, while underdeveloped financial markets limit the transmission of monetary policy.

29. While the near-term economic outlook for inflation has deteriorated due to the global energy shock, its effects are expected to dissipate over the medium term. Given other favorable conditions, including low and stable core inflation, well-anchored inflation expectations supported by the exchange rate peg, and robust external buffers, the CBS has an opportunity to continue to modernize its operational framework by gradually transitioning to an interest-rate-based target, which would enhance policy signaling, improve transmission, and align more closely with the currency peg arrangement.

30. This paper recommends that the CBS move toward an interest-rate-based operational target, focusing on short-term interest rates (e.g. CBS securities yield, lending facility rate, interbank rate) as the main instruments for policy implementation. This shift will help the CBS sidestep the instability of money demand, maintain better control of domestic liquidity conditions, and provide clearer signals to the market regarding the monetary policy stance.

31. By adopting an interest-rate-based operational framework, the CBS can address the shortcomings of the current system, improve policy effectiveness, and better equip the economy to respond to future shocks. If implemented alongside ongoing capacity-building efforts, the recommended measures would position the CBS to achieve its mandate of price and financial stability while supporting sustainable economic growth.

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Appendix A: Estimation of the Money Demand Function for Samoa

Using the money supply as operational target requires the existence of a stable money demand function. A money demand function represents real money demand as a function of output (real GDP) and the interest rate. Formally, this can be represented as:

$$\frac{M}{P} = f(Y, i)$$

where M is the money supply, P is the price level, Y is real GDP, and i is the nominal interest rate on bank deposits.

This can be assessed using a standard specification:

$$(m - p)_t = \beta_0 + \beta_1 y_t + \beta_2 i_t + \varepsilon_t, \quad (1)$$

where m is the log of broad money (M2), p is the log of the price level (CPI), y the log of real GDP, and i is the interest rate on bank deposits.

Appendix A. Table 1. Samoa: Unit Root Tests

	<i>m-p</i>	<i>y</i>	<i>i</i>
ADF			
<i>Level</i>	-2.13	-0.94	-0.31
<i>First difference</i>	-7.23***	-13.31***	-5.11***
Philips-Perron			
<i>Level</i>	-3.02**	-1.98	-0.65
<i>First difference</i>	-7.41***	-14.44	-5.11***
KPSS			
<i>Level</i>	0.87***	0.68**	0.72**
<i>First difference</i>	0.34	0.17	0.10

Sources: IMF IFS Database; and IMF staff calculations.

Note: For the Augmented Dickey-Fuller (ADF) and Phillips-Perron tests, the null hypothesis is that the variable has a unit root. For the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test, the null hypothesis is that the variable is stationary. Asterisks (***, **, and *) respectively denote statistical significance at the 1, 5, and 10 percent significance levels.

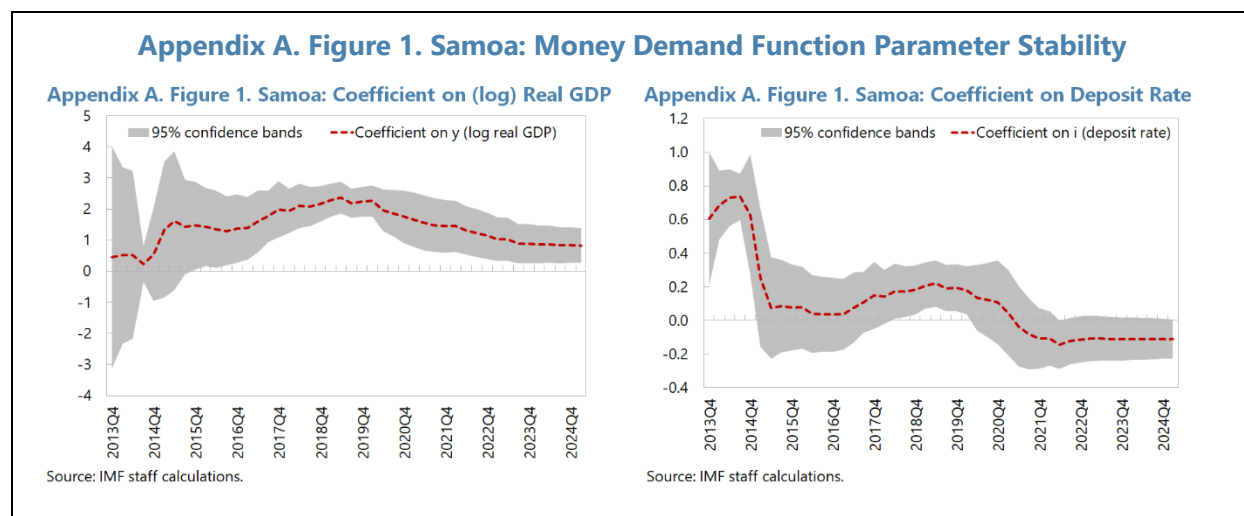
The sample for estimation is 2013Q1-2025Q1, and the time series of the three variables ($m - p$, y , and i) display evidence of a unit root in the level and stationarity in first differences. This is based on the Augmented Dickey-Fuller (ADF), Philips-Perron (PP), and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests, the results of which are reported in Table A.1.

Estimating (1) by OLS yields the following estimated equation:

$$(m - p)_t = -2.69 + 0.83y_t - 0.11i_t + \varepsilon_t.$$

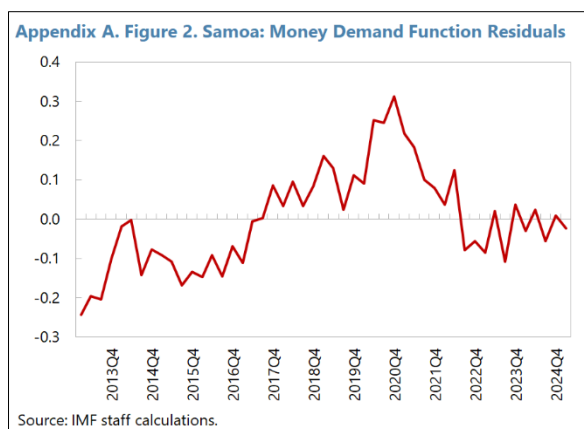
The relatively short sample period calls for an examination of the stability of parameter estimates over time. Recursive estimation—with an expanding sample size—suggests stability in both coefficient estimates only when data from 2022 onwards is included in the sample (Figure A.1). In addition, the coefficient on i shows the correct sign from around the same time.

A stable money demand function yields a stable cointegrating relationship between the variables. Both the Engle and Granger (1987) test—applied to the residuals from (1)—and the Johansen (1993) test—applied to a vector autoregression (VAR) system including the three variables—reject the presence of a cointegrating relationship. This challenges the assumption of a stable money demand function in Samoa.



The residuals from (1) show periods of prolonged deviations of broad money from the long-run equilibrium value, that would be implied by (1). Over most quarters during the period 2013Q1–2017Q2, real money balances were below their implied long-run equilibrium level, while during 2017Q3 to 2022Q2, it overshoot that level (Figure A.2).

The start of the overshooting period in 2017Q3 aligns with evidence that the buildup of excess liquidity started well before the pandemic; see also Annex V in Samoa’s 2024 AIV staff report. The sizable residuals during 2020Q2–2021Q2 are



particularly telling about the occasional disconnect that arises between real money balances and its fundamental determinants, that is economic output and interest rates.¹⁰

The Johansen cointegration test was also employed by specifying a VAR relationship between the three variables: real money balances, real GDP and the deposit rate. Lag selection criteria suggested a VAR with 4 lags. The Johansen test indicates no cointegrating relationship between the three variables at conventional significant levels using both the trace and maximum eigenvalue tests.

Given the short sample period and the low power of some of the unit root tests, there is potential for lack of conclusive evidence on the stationarity, or lack thereof, of the three variables shown in Table A.1. It could also be the case that the OLS regression in (1) involves a mix of stationary and non-stationary variables. Therefore, the approach proposed in Pesaran and Shin (1999) and Pesaran et al. (2001) is additionally employed for robustness. This approach is based on the following autoregressive distributed lag—ARDL(p, q, s)—specification:

$$(m - p)_t = \beta_0 + \sum_{j=1}^p \beta_{1j}(m - p)_{t-j} + \sum_{j=1}^q \beta_{2j}y_{t-j} + \sum_{j=1}^s \beta_{3j}i_{t-j} + \varepsilon_t, \quad (2)$$

where the lags (p, q, s) are chosen based on some optimal fit selection criteria.¹¹

Using the AIC, the selected model is ARDL(1,4,0). The cointegration Bounds test statistic (Pesaran et al. 2001) lies in the inconclusive range of critical values at the 5 percent significance level, again suggesting lack of evidence supporting the existence of a stable money demand function.

¹⁰ When introducing an intercept and slope dummy (taking a value of 1 during 2020Q1-2021Q4 and 0 otherwise) into the regression to capture the COVID-19 pandemic shock, the residuals appear better behaved during those years. However, the evidence of a prolonged disequilibrium both pre-2017, and then from 2017 to 2020, still persists. Results are not reported in the interest of brevity but are available upon request.

¹¹ Compared to a vector autoregression specification of the dynamics of money demand, the ARDL specification in the Pesaran and Shin (1999) and Pesaran et al. (2001) approach offers some advantages. It allows for a mix of stationary and non-stationary variables, as well as fractionally-integrated series. In addition, being a single-equation model and offering flexibility in the lag selection on different variables, it controls the risk of overfitting.