Monetary Policy in Developing Economies: 
Lessons Learned from Afghanistan’s Central Bank

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Monetary Policy in Developing Economies
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Abstract
The study and conduct of monetary policy is well established for developed market central banks. The literature is less comprehensive for smaller developing economies. This paper hopes to contribute to such literature. In particular, I use the case study of Afghanistan’s central bank (DAB) during 2021-2022 to show that the optimal conduct of monetary policy in developing economies differs from advanced and larger developing economies in three fundamental ways.

The main conclusion is that small countries with underdeveloped debt markets and high dollarization will find it difficult to use interest rates at their primary monetary policy tool. This is due to a weak monetary policy transmission mechanism to the real economy and to inflation. Therefore, in such a constrained environment, the next best monetary tool is to target monetary aggregates. I then provide a framework that can be used to manage monetary aggregate levels.

The paper is structured to review three areas of monetary policy:

- **Monetary Policy**: I argue that monetary policy reaction functions differ in fundamental ways from advanced economies. This is due to the fact that the reaction function is dependent on the choice of a central bank’s primary targeting regime, e.g. inflation-targeting, monetary aggregate targeting, or a multiple targeting regime. This choice also dictates the type of framework that should be used to describe a central bank’s reaction function.

  Although most advanced economies have adopted an inflation-targeting regime, many smaller developing economies still target monetary aggregates. For such countries, I provide a stylized McCallum framework that takes into account eight variables across four factors – including priors, external factors, market factors, and risk factors.

- **Monetary Policy Tools**: Second, in terms of monetary policy tools, I review the effectiveness of DAB’s foreign exchange auctions, debt auctions, and use of policy rates. In an environment of high dollarization and low outstanding debt, foreign exchange and debt auctions should be the primary tools to manage monetary aggregates.

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1 See for example IMF Staff Paper (2015) “Evolving Monetary Policy Frameworks in Low-Income and Other Developing Countries”
Transmission Mechanism Efficacy: Third, I look at monetary policy transmission mechanisms. Policy rates can become more effective if central banks take steps to increase independence, decrease dollarization, and increase local-currency debt stocks. I provide a three-step framework to move from targeting monetary aggregates, to an interest rate corridor, to finally an interest rate point regime.

In addition to the general conclusion, for each section I also provide recommendations that may be of use for Afghanistan moving forward, as well as for other developing economies.

INTRODUCTION

Afghanistan is currently facing an economic and humanitarian crisis. The country had high levels of poverty, even before the Taliban takeover on August 15, 2021. The country now has almost universal poverty levels, with 24.4 million people projected to be in humanitarian need. The country context, with existing sanctions on the Taliban regime, makes the provision of economic and humanitarian assistance challenging.

During the past decade in Afghanistan, I worked in senior economic positions in the Government of Afghanistan – as Economic Advisor to the President, Minister of Industry and Commerce, and Central Bank Governor. I returned to the country to serve in these positions after more than a decade working in economic development and as an emerging markets investor.

As Central Bank Governor of Afghanistan, I was able to keep inflation at close to 2%, improve the reserves management function, and introduce a modern payments system, among other achievements. DAB itself was by law an independent institution with close to 1,500 staff. The organization was overseen by a board of directors and managed by a management committee (see full organizational structure in annex), and had a single mandate of price stability. Leading in Afghanistan had its own unique challenges - including dealing with significant amounts of misinformation.

I hope to write about these central bank achievements in a series of papers to provide accurate information of what happened and to draw lessons that could be applied to Afghanistan now and to similar developing countries. This first paper will review the performance of monetary policy in Afghanistan. The primary conclusion is that small countries with underdeveloped debt markets and high dollarization will find it difficult to use interest rates at their primary monetary policy tool. Therefore, in such a constrained environment, the best monetary tool is to target monetary aggregates. I then provide a framework for managing such monetary aggregates.

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2 UNDP (January 2022) “United Nations Transitional Engagement Framework (TEF) for Afghanistan”
LITERATURE REVIEW

The IMF has acknowledged that monetary policy in less developed economies can differ significantly from those in emerging markets or advanced economies.\(^3\) In particular, they state that a majority of such countries rely on traditional reserve money targeting regime, but frequently deviate from money targets to intervene in foreign exchange markets.\(^4\) They argue that reserve money targeting could be utilized under various conditions, including fiscal dominance, limited independence, or for monitoring under fund programs. Nonetheless, reserve money targeting has a number of challenges.

Driven partly by growing dissatisfaction with existing regimes, many low-income developing countries have been striving to reform their monetary policy regimes. As such, the IMF recommends seven key monetary policy principles for central banks in such states, including (1) a clear mandate, (2) a primary mandate of price stability, (3) a medium-term inflation objective, (4) consideration of macroeconomic activity and financial decision, (5) a clear operational target, (6) a forward-looking monetary policy strategy, and (7) a clear communication strategy.

Longer term, the IMF views that the monetary policy modernization process typically involves moving away from quantity-based operating targets to interest-rate based frameworks. To do so, increasing the efficacy of the operational framework with reduced interest rate volatility should therefore be a central focus of the modernization process.\(^5\)

There is also some literature regarding Afghanistan’s monetary policy in particular. This includes a description by the IMF how they supported Afghanistan’s monetary policy post-2001.\(^6\) One paper tries to assess DAB’s monetary policy by conducting regressions between inflation and narrow and broad money and found a statistically significant relationship.\(^7\) A second paper reviews international monetary policy frameworks and their applicability in Afghanistan.\(^8\)

This paper builds upon this existing IMF and DAB monetary policy literature to posit how a developing economy central bank should better manage monetary aggregates as a standalone objective and as they begin their transition towards an inflation-targeting regime.

MONETARY POLICY AT AFGHANISTAN’S CENTRAL BANK

Afghanistan is a land-locked economy with a 2020 GDP of approximately $20 billion. Until the Taliban takeover in 2021, the country ran large twin deficits that were largely financed by aid flows. Foreign aid flows financed the $7 billion trade deficit (35% of GDP) as well as a significant portion of the government’s $5 billion budget.\(^9\)

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\(^3\) IMF Staff Report (2015) “Evolving Monetary Policy Frameworks in Low-Income and Other Developing Countries”

\(^4\) Ibid p. 13

\(^5\) Ibid, p. 30

\(^6\) https://www.elibrary.imf.org/view/book/9781589063242/ch05.xml

\(^7\) Azizi (2019)

\(^8\) Shuaibi (2019)

In the financial sector, Afghanistan had a high rate of dollarization in its bank accounts (65%) and a very low outstanding debt stock (3% of GDP). The country maintained a flexible and fully convertible exchange rate. This economic structure influenced how DAB ran its monetary operations.

DAB’s primary mandate was to maintain price stability, as codified in the second article of the Afghanistan Bank Law, which stipulated that “the primary objective of Da Afghanistan Bank shall be to achieve and to maintain domestic price stability.” DAB fulfilled this mandate until the Taliban takeover, with the last official inflation print (in June 2021, just before the Taliban takeover) at only 2.6% (graph below right). In contrast, since the August 2021 takeover, inflation has surged to more than 40% year-on-year.

This inflation stability under the previous regime was achieved while at the same time DAB was able to build up its gross international reserves to almost $10 billion – representing almost 50% of GDP and 17 months import coverage. Both of these indicators were among the highest levels in the world. Furthermore, even currency volatility remained low during this period. Let’s examine at some factors that led to this positive set of monetary outcomes in an extremely challenging environment.

To keep inflation low and stable, DAB ran a monetary aggregate targeting framework, with a particular focus on reserve money. Reserve money is the sum of currency in circulation and smaller amounts of currency held within the banking sector and central bank. The volume of monetary aggregates have a modest correlation to levels of inflation in the short-term, but it is generally acknowledged that if monetary aggregate growth is high, inflation is unlikely to remain low (and vice versa). Monetary aggregate targeting regimes are typically utilized in economies where the use of interest rates are not effective.

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10 DAB internal
The IMF states that in countries with a high degree of financial dollarization the effectiveness of monetary policy may be partly limited because a sizeable part of the domestic financial system may not be sensitive to domestic monetary policy.12 This was the case in Afghanistan due to the country’s high dollarization rate and low debt stock, both of which reduce the effectiveness of the monetary policy transmission mechanism.

To implement monetary policy, DAB auctioned dollars three times a week to market participants. I will cover the rationale and details of this dollar auction process in later parts of this paper, but just as a summary, DAB had a monetary policy department that provided economic analysis. It had a monetary policy committee that consisted of the governor, monetary policy director, and market operations director - which jointly decided on the amount of daily dollar auctions. To support technical operations of DAB monetary programs, DAB had ongoing partnership programs with the IMF, the World Bank, the U.S. Treasury Department, and the Federal Reserve Bank of New York (FRBNY), among others.

DAB did not use a quantitative model to drive monetary policy. DAB’s monetary policy framework considered a variety of indicators when deciding on the amount for each dollar auction (which in turn would influence the level of monetary aggregates in the economy). In making the decision of how many dollars to auction, DAB considered many variables: the existing currency in circulation and reserve money, inflation rate, amount of international reserves, fiscal balance, amount of dollars demanded, political risk, currently volatility, as well as the international economic climate. Using such indicators, DAB was able to maintain low inflation during the period in which I was governor.

In mathematical terms, DAB’s reaction function/framework could loosely be considered a form of the McCallum rule, a rule devised by Professor McCallum in series of papers between 1987 and 1990 that stipulates that money supply growth not be fixed, but rather that it be set formulaically (which itself followed the fixed growth model of Friedman’s k-percent rule).

The original McCallum rule employed a four-year moving average of past growth in base velocity to forecast its growth in the coming quarter. Based on this forecast, the rule then specifies the percentage of the gap between target and actual levels of nominal GOP that policymakers should try to close in the coming quarter. McCallum’s rule takes the following form (where $MB$ is the monetary instrument, $V$ is the income velocity of the monetary instrument, and $GDP$ is the target level of nominal GDP - with $GDP^*$ the target GDP level):

$$\Delta \ln MB_t = \lambda_0 - \left( \frac{1}{16} \right) (\ln V_{t-1} - \ln V_{t-17}) + \lambda_1 (\ln GDP^* - \ln GDP_{t-1})$$

However, this McCallum rule is no longer in much use. First, most major central banks have moved to inflation-targeting (IT) regimes where the primary policy variable are interest rates. Second, it is difficult to measure the velocity of money, and harder still to influence the variable. Third, for a central bank, such indicators are not provided in real time. Therefore the rule may be helpful for an ex-post analysis to describe how monetary policy was conducted but less effective in helping central bankers in making their decisions in real time.

To overcome these criticisms, I argue for a modified stylized McCallum framework to describe the monetary policy reaction function of developing economies that still target monetary aggregates. According to the annual IMF report “Exchange Arrangements and Exchange Restrictions,” there are at least still twenty-two such countries, including Bolivia, Tanzania, Yemen, Algeria, Bangladesh, Algeria, Afghanistan, Sierra Leone, Zimbabwe, Belarus, and Madagascar.

The number of monetary aggregate targeting countries is likely even higher due to the fact that countries with multiple mandates are classified as ‘other’ countries in the IMF report, but many such countries largely target monetary aggregates as their primary target. As such, such a revised McCallum rule/framework would benefit perhaps thirty or more countries around the world.

For such countries (including Afghanistan) which are under an IMF program, the IMF typically provides a ceiling on monetary aggregates based on real growth rates, inflation rates, and money velocity. However, no framework currently exists regarding the path dependency of monetary aggregates, i.e. how to reach a target monetary aggregate level (e.g. straight line growth, counter-cyclical growth, etc).

I therefore propose a modified McCallum framework would be of the following form in four areas and consisting of eight independent variables, where $MB$ = monetary base, $II$ = inflation, $IR$ = amount of international reserves, $FX$ = currency valuation and volatility, $FF$ = fiscal flows, $BID$ = amount of dollars demanded at auction, $PER$ = political/economic risks, and $IC$ = international risks.

$$\Delta MB_t = Priors + External Factors + Market factors + Risk Factors$$
\[ \Delta MB_t = (MB_{t-1} + I_t - 1) + (IR + FXV + FF) + (BID) + (PER + IC) \]

Let me make clear that although I have expressed this formula as a mathematical formula, it is a framework and not a formula. Intuitively, one can think of the framework as describing the factors that DAB considered when deviating from a steady-state monetary growth model (e.g. a Friedman fixed growth model). It is intended to portray only a stylized model of the key variables that DAB considered when deciding on monetary aggregate levels and the corresponding amount of the dollars that DAB would sell at auction to reach a target monetary aggregate level. Please also note that there are no variables for economic growth, as our mandate was purely an inflation (instead of a dual or multiple) mandate. Let us now explore each of these variables and how they were utilized in Afghanistan.

(1) Monetary Base
All else equal, an increase in the monetary base increases inflation. There were two primary monetary aggregates that DAB monitored: (1) the currency in circulation, and (2) reserve money. Afghanistan’s reserve money was close to 330 billion afghanis, or slightly more than $4 billion (as of August 21, 2021, just prior to the Taliban takeover). This is comprised of currency in circulation (CiC) of 300 billion afghanis and deposits of approximately 30 billion afghanis.\(^{13}\)

Although the relationship between monetary aggregates and inflation is relatively low in advanced economies,\(^{14}\) I found that there is a general relationship in Afghanistan. To come to this conclusion, I downloaded quarterly inflation and currency in circulation (CiC) data for Afghanistan since 2013. The regression output is show below, and that CiC is statistically significant at the 95% level and that the overall regression has an adjusted r-squared of close to 21%. This indicates that in Afghanistan’s case there is a reasonably strong relationship between inflation and CiC.

**MONETARY BASE GROWTH VERSUS INFLATION (2013 - 2021)**

<table>
<thead>
<tr>
<th>Regression Statistics</th>
</tr>
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<tbody>
<tr>
<td>Multiple R</td>
</tr>
<tr>
<td>R Square</td>
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<tr>
<td>Adjusted R Square</td>
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<tr>
<td>Standard Err</td>
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<tr>
<td>Observations</td>
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<th>ANOVA</th>
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<tr>
<td>df</td>
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<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>SE</th>
<th>t Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.01613983</td>
<td>0.00611757</td>
<td>2.6382747</td>
</tr>
<tr>
<td>X Variable 1</td>
<td>0.18080474</td>
<td>0.06659795</td>
<td>2.71486901</td>
</tr>
</tbody>
</table>

Source: DAB data (as of 8/2/21)

\(^{13}\) DAB internal
I will state again that while it is generally recognized that inflation targeting is a better system than money aggregate targeting, in countries with weak monetary policy transmission, monetary aggregate targeting is a next best indicator used for managing inflation. DAB therefore monitored the level of the monetary base closely. The IMF program stipulated a ceiling for the monetary base (330 billion afghanis for CiC and 400 billion afghanis for the monetary base). DAB was in compliance with such monetary base targets in every review.

(2) Inflation Trends
In early 2020 inflation in Afghanistan rose significantly to double digits. This was due to the Covid crisis, a severe drought, and continued conflict in the country. This was exacerbated when all of Afghanistan’s neighbors completely closed their borders in March 2020, which then led to a shortage of goods in the country.

As a result, prices for some items - especially those in the food basket - increased by twenty percent or more. Moreover, the food basket held fifty percent weight in our inflation basket due to high expenditures on food items from Afghan citizens. As such, DAB sought to bring inflation under control to ensure that poverty - especially food insecurity – would not increase in a context of high political and military uncertainty.

(3) International Reserves
The level of international reserves is an important factor to consider to determine the level of dollar auctions, which affects the monetary base and therefore inflation dynamics. All else equal, lower international reserves would limit DAB’s ability to conduct dollar sales, creating larger afghani depreciation pressure, and therefore higher inflation. Higher reserves would have the opposite effect.

However, as mentioned earlier, DAB had high international reserves of $9.3 billion. This amount was set to increase on August 24, 2021 by another $400 million due to an allocation of IMF Special Drawing Rights (SDR), which would have brought DAB’s total international reserves to almost $9.7 billion. There are many criteria to measure the adequacy of international reserves, but by any measure DAB’s international reserves were at extremely high levels.

Let us examine DAB’s international reserves adequacy utilizing two commonly used metrics: (1) as a percentage of GDP and (2) in terms of import coverage. DAB’s reserves as of August 2021 represented close to 50% of GDP and 17.7 months of import coverage - both among the highest levels in the world. Given this extremely high level of international reserves, DAB felt comfortable with higher dollar sales during the last few months when political and security risks increased dollar demand. Please note that DAB’s reaction function/framework would clearly have been different if international reserves had been at much lower adequacy levels.

DAB INTERNATIONAL RESERVES (2012-2021)  RESERVES AS % OF GDP (2012-2021)

DAB also monitored the liquidity of our reserves. In particular, due to our trade deficit, DAB required physical dollars and had an agreement with the U.S. Treasury Department and Federal Reserve Bank of New York (FRBNY) for the supply of physical dollar banknotes. Such banknotes were sent to Kabul, as needed, when the amount of physical dollars in DAB vaults declined. DAB typically requested additional dollars when our physical dollars declined to $300 million. All such physical dollars were deducted from and formed a part of DAB’s international reserves.

This narrative counters inaccurate media stories that DAB reserves were drained. First, it should be unassailably clear that DAB’s international reserves were at extremely high levels - using any internationally accepted metric. Reserves were close to 50% of GDP and the import coverage ratio rose to above 20 months as imports collapsed and reserves remained high.

IMPORT COVERAGE RATIO (MONTHS)  RESERVES AS % OF GDP ACROSS COUNTRIES

Second, media reports that DAB’s cash reserves were drained prior to the fall of the government were also inaccurate. Due to Afghanistan’s large trade deficit, physical cash outflows were always larger than physical cash inflows, and therefore required periodic replenishments from DAB reserves via the FRBNY shipments. DAB’s dollar sales were higher during the last few months, but this was expected given the deterioration in the political and security environment.
In fact - as has been accurately reported by the media - DAB was set to receive another package of $250 million in physical dollars on August 15, 2021 - the day that the government fell to the Taliban. However, the preceding Friday I received a call from the Federal Reserve that the scheduled dollar shipment would not be sent. DAB therefore limited dollar sales on August 14th to preserve DAB’s remaining cash holdings, but allocated most of the remaining amounts to Afghan banks on these last two days as customers began withdrawing from their accounts in large amounts. Just for reference, bank demand for dollars was greater than $100 million on August 14th – larger than DAB’s entire holdings of physical dollars.

This should make clear that if the Taliban had not taken over on August 15, 2021, the scheduled FRBNY dollar shipment would indeed have arrived in DAB’s Kabul vault and sufficient dollars would have been available. In fact, I was working with U.S. Treasury officials even during the afternoon of August 15th to schedule another shipment until I realized the government was going to collapse. However, if successful, such a scenario would have meant that large dollars would have become immediately available to the Taliban government to use at their discretion.

To ensure that such a situation – or any misallocation of dollar reserves - did not occur, DAB maintained a compliance program with the FRBNY. The image below shows the summary page of the last completed report (provided on August 2, 2021), which shows DAB’s full compliance with the FRBNY program (i.e. 14/14 actions fully implemented). I also personally met with representatives of the U.S. Treasury and Federal Reserve in Dubai in July 2021 to discuss DAB risk and cash management issues.

At that meeting, I provided an overview of DAB’s risk framework to provide confidence to U.S. authorities regarding DAB’s compliance framework. It was a strong partnership and the reason why a low amount of physical dollars remained at DAB just as the Taliban took over the country – not because cash reserves were drained as inaccurately reported by some media outlets.

**DAB/FRBNY PROGRAM IMPLEMENTATION STATUS (Q2-2021)**

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillar I: DAB Oversight &amp; Financial Sector Compliance</td>
<td>6</td>
</tr>
<tr>
<td>Pillar II: DAB Operations</td>
<td>6</td>
</tr>
<tr>
<td>Pillar III: Training &amp; Awareness</td>
<td>2</td>
</tr>
</tbody>
</table>

The opposite graph represents the implementation status of each action point included in the validation process of actions.

*Source: KPMG status report for FRBNY (as of 8/2/21)*
The conclusion – DAB had sufficient reserves to continue supplying dollars to the local market in order to limit expansion of the monetary base, keep currency volatility low, and maintain low inflation.

(4) Currency Value and Volatility
Currency values are important factor given the high inflation pass through of the currency. A depreciating or volatile currency raises pass through inflation and inflation expectations. As a result, DAB closely monitored the exchange rate. Before my term as central bank governor, the national currency – the afghani – had been on a slow depreciating trend for the previous two decades. From a high of fifty afghanis to the dollar in 2003, the currency had depreciated approximately sixty percent to eighty afghanis by 2020.

**AFGHANI CURRENCY MOVEMENTS (2012-2021)**

The importance of the afghani currency level on inflation was due to the inflation pass through. I estimated the passthrough to be 0.5 or higher, much higher than for other countries. The reason is that Afghanistan ran a very large trade deficit of close to 40% of GDP. The trade deficit was almost exclusively financed by international aid flows. Perhaps partially as a result, the economy was also heavily dollarized, with close to 65% of banking sector assets held in dollars.

Although the currency was on a depreciating trend, it had *appreciated* significantly on a trade-weighted basis - as the currencies of neighboring countries, including Iran, Pakistan, Uzbekistan, and India depreciated to larger extents. I believe that this partially contributed to creating an uncompetitive local manufacturing sector.

Currency volatility was also relatively low given that international aid flows were sufficient to cover the trade deficit and provide for buildup of international reserves. In fact, currency volatility declined during my tenure to only 0.35 afghanis in 2020 (the lowest level going back at least one decade) and only 1.10 afghanis in 2021 (even in the lead up and during the collapse of the Afghan government).
In conclusion, the afghani and associated currency volatility remained low, contributing to stable and low inflation over 2020-2021 time period.

(5) Fiscal Flows
DAB did not face the problem of fiscal dominance, but it did consider fiscal flows in making monetary policy decisions - as such flows would affect both currency in circulation and reserve money. In general, Afghanistan had a high level of aid dependency and aid flows would oftentimes arrive in large amounts and be conditional (i.e. only released after meeting certain benchmarks). As such, monetary aggregates increased or declined as such aid flows were disbursed, especially towards the end of each fiscal year. This led to a spike in monetary aggregates at every year end, and DAB would factor the impact of such flows during our dollar auctions and would sometimes decide to sterilize such inflows.

This can be clearly seen in the graphs above, which show the afghani and dollar amounts in the Ministry of Finance (MoF) primary accounts. Large tax collections and donor inflows at year end swelled the afghani accounts, expanding monetary aggregates. Monetary aggregates then typically contracted during the first quarter of every year until the national budget was passed and spending could resume.

The impact of large dollar inflows can also be seen in the MoF dollar account (graph above right), where large inflows from an IMF ECF loan disbursement and disbursements for development projects can be seen. DAB monitored such inflows and outflows to gauge their potential impact on monetary aggregates, and sterilized such flows as required.

(6) Foreign Exchange Auction Demand
DAB considered the demand for foreign exchange during our weekly auctions. High amounts of dollars bids provide an immediate signal that dollar demand has increased, signaling potential depreciation and inflation pressures. Over the previous twelve years, DAB sold an average of $2.4 billion dollars per annum. The dollar sales increased when growth and imports were high (as occurred during the military surge), and peaked at almost $3.5 billion almost a decade ago.

During the past five years, annual average sales declined to $2.2 billion, and during my two years as governor $2.1 billion and $1.6 billion were sold to the market. We then forecast 2021 total sales to reach $2.5 billion based on heightened dollar demand as the security environment worsened. This can be seen in the above right graph, where the red line representing auction dollar bids reached $100 million per auction, but where sales peaked at $35.5 million on July 10, 2021 and then declined thereafter to only $20.25 million on August 9, 2021.

In other words, DAB did not sell the entire amount bid, but sold based on a variety of factors, including the level of international reserves. The amount sold would also send a signal to market participants and could be used to anchor currency expectations (and hence inflation expectations). During this period, my team and I called for one extraordinary auction on July 4,
2021 to compensate for increased dollar demand. The rest of the auctions proceeded as scheduled, up to the last week before Kabul fell.

In terms of process, the auctions were run on a long-standing electronic platform where auction amounts and prices were provided by market participants. The DAB monetary policy committee would then evaluate the bids and decide on an amount cutoff, at which point the relevant departments would credit participant dollar accounts and debit afghani accounts. In sum, we were able to maintain stable dollar sales in a state of political and security uncertainty, and thereby stabilized inflation and inflation expectations.

(7) Political/Economic Risk
An increase in political and economic risk typically drives an increase in higher dollar demand, which would decrease the demand for local currency, creating depreciation and inflation pressures to build. As such, DAB considered upcoming political and economic risks in our decision-making process. For example, during the last month of the government, provinces began to fall to the Taliban.

Given the already deteriorating political and military context, DAB’s reaction framework increased the importance of providing macroeconomic stability to ensure that inflation remained low and economic instability did not add to the already unstable political/military situation.

(8) International Context
A deteriorating international context typically leads to higher demand for dollars and decreased demand for local currency, as well as depreciation and inflation pressures. The signing of the Doha deal signaled less political support for the Afghan government, including reducing aid inflows. However, at the same time, Afghanistan continued to retain support from large multilateral partners. The IMF approved a $220 million Rapid Credit Facility (RCF) disbursement in April 2020 and a $370 million Extended Credit Facility (EFC) program in November 2020. DAB considered such external factors when making monetary policy decisions.

For other lower-income countries that are less dependent on donor aid flows and more dependent on international markets, it is important to consider the actions of larger central banks. For example, during the 2021-2022 period, both the Federal Reserve and European Central Bank (ECB) began to tighten monetary conditions, causing the dollar and euro to strengthen against many developing country currencies, increasing developing country inflation levels and impairing the ability of many such countries to pay debt denominated in external currencies.

Putting It All Together
Putting all the factors together, let us use the proposed stylized McCallum framework to evaluate the conduct of monetary policy at DAB during my period as governor in 2020-2021, especially during the last few months. Let us again consider the stylized model provided earlier:

\[ \Delta MB_t = MB_{t-1} + \Pi_{t-1} + IR + FXV + FF + BID + PER + IC \]

We then consider each of the variables in turn, and review DAB’s monetary policy actions during the period 2020-2021. The status column specifies whether that particular factor contributed to a stable monetary base and inflation or led to greater volatility of the monetary base and inflation. For example, the positive status for international reserves indicates that reserves contributed to a stable monetary base and thus lower levels of inflation.

### MONETARY POLICY FRAMEWORK: 8 KEY COMPONENTS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Status</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary Base</td>
<td>Positive</td>
<td>Currency in circulation (CiC) and reserve money (RM) were at approximately 300 billion afghanis (CiC) and 330 billion afghanis (both as of August 2021), much lower than the year-end IMF ceiling for CiC (330 billion afghanis) and RM (400 billion afghanis).</td>
</tr>
<tr>
<td>Inflation</td>
<td>Positive</td>
<td>Inflation spiked in early 2020 due to the Covid crisis, but declined over the next year as monetary policy contributed to stabilization of the currency and food prices were reduced</td>
</tr>
<tr>
<td>International Reserves</td>
<td>Positive</td>
<td>International reserves of $9.7 billion (including the IMF SDR allocation expected to arrive on August 23, 2021) represented 46% of GDP and almost 18 months import coverage ratio – both among the highest levels in the world. This gave DAB confidence that reserves were sufficient to meet rising dollar demand, even as such demand increased significantly during July and August 2021</td>
</tr>
<tr>
<td>Currency Valuation &amp; Volatility</td>
<td>Positive</td>
<td>Currency volatility declined to the lowest level in the past decade in 2020 and remained low even in 2021. It picked up again just in August 2021. Looking at currency valuations, some international partners suggested that the afghani was correctly valued. However, I argued that because the flows were not market driven that our currency was overvalued. This could also be seen in the services sector, where services as percentage of GDP and high services-sector salaries indicated an overvaluation of the currency.</td>
</tr>
<tr>
<td>Fiscal Flows</td>
<td>Neutral</td>
<td>Fiscal flows were sporadic &amp; oftentimes in large amounts. This was problematic during a few months 2021, but DAB compensated by withdrawing, and providing, liquidity so that changes in monetary aggregates were smoothed relative to the inflows/outflows</td>
</tr>
<tr>
<td>Auction bid amounts</td>
<td>Negative</td>
<td>Auction bid amounts increased during 2020-2021, but DAB was able to match the increased demand with increased sales. In addition, I sent clear signals regarding the sufficiency of DAB reserves in order to provide confidence to market participants</td>
</tr>
</tbody>
</table>
Political/Economic Risks

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic security and political dynamics continued to deteriorate during my term as governor. As such, overall dollar demand continued to rise, and there were spikes in dollar demand corresponding to significant military and/or political events.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

International Context

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Doha Agreement of 2020 sent a clear negative message regarding international political support for the Afghan government. However, the IMF and other international aid agencies continued to financially support the government.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Improving Monetary Policy**

To improve monetary policy decision-making in the country, I took a few additional steps. First, I created a Monetary Policy Committee (MPC) and released the first ever MPC statement in DAB’s history. As any central banker or investor knows, these MPC statements are the key mechanism by which a central bank communicates its priorities and where stakeholders can better understand a central bank’s reaction function.

Second, I sought to increase the capabilities of the monetary policy department. I therefore had the monetary policy department draft and sign memorandum of understandings (MOUs) with academic institutions in the country to improve the quality of local economic research.

**Conclusion: Monetary Policy**

DAB faced a unique situation where both the international political and domestic security situation significantly deteriorated over the 2020-2021 period. As a result, demand for dollars increased, especially after June 2021. Although DAB allowed for some depreciation of the afghani, we also increased dollar sales. However, throughout this time overall depreciation and currency volatility remained low—both in absolute terms and relative to neighboring countries.

Larger dollar sales over this period were justified given the high level of international reserves, which we showed were among the highest levels in the world as a percentage of GDP and as months of import coverage. Dollar sales decreased reduced DAB physical dollar holdings, but DAB’s program with the Federal Reserve Bank of New York (FRBNY) ensured that dollar shipments would replenish DAB vaults on time.

To minimize misuse of such funds, DAB along with the FRBNY required a stringent compliance program. DAB shared monetary aggregate data on a daily basis, sent the names of auction participants to the FRBNY for compliance checks, audited auction participants, and were subject to a compliance audit from a local FRBNY partner.

As such, DAB was able to maintain a stable macroeconomic environment with low inflation—up to the last day of the Republic on August 15, 2021 when I had to suddenly depart the country. All international reserves were frozen the next day by the U.S. government, and no reserve assets were ever compromised. In fact, even the new Taliban DAB management themselves sent the author a thank you voice message confirming that all vault assets were in place—a remarkable achievement in such a crisis environment.
MONETARY POLICY TOOLS
Next, let us turn to monetary policy tools. To manage our monetary policy, DAB utilized three monetary policy tools. This included: (1) foreign exchange auctions three times a week, (2) DAB bond note auctions once per week, and (3) the use of interest rates. DAB would utilize each tool based on a variety of factors, including the level of inflation, the level and volatility of the currency, the number and value of the bids from market participants, and market risk. Let me now provide an overview of each of these monetary policy tools.

(1) Foreign Exchange Auctions
Foreign Exchange Auctions are used as the primary monetary policy tool to mop-up excess liquidity from the market. In other words, DAB sold dollars and collected afghanis from the market, thereby reducing the currency in circulation and contracting the monetary base, or vice-versa. DAB sold foreign exchange to eligible participants, including local banks, licensed Money Service Provider (MSPs), and licensed Foreign Exchange Dealer (FXDs).

For each foreign exchange auction, eligible market participants would fund their afghani accounts to ensure sufficient capital. Such market participants would then submit their bids that included dollar amount demanded and price bid via an electronic platform that DAB had created and that had been in use for many years.

AUCTION DEMAND AND SALES (2021)

The bids were then evaluated by a committee that included the governor, director of the monetary policy department, and director of the market operations department. The bids were coded so that the committee members did not know which entity placed the bids. Once a decision was made, the auction results were announced and the winning bidder accounts would be credited with dollars and their afghani accounts debited for an identical amount.

DAB also attempted to improve the process by requiring MSPs and FXDs to obtain corporate licenses to participate in the foreign exchange auctions. Despite considerable resistance from such MSPs/FXDs, DAB was able to corporatize a significant percentage of such participants during the course of late 2020 to August 2021.
(2) DAB Note Auctions
A secondary tool was the sale of DAB debt instruments/notes to eligible market participants, which also drained excess liquidity from the market. DAB sold notes of various maturities, from 7-day to 1-year notes, one time per week.

Given the structure of banking deposits, with a high dollarization rate and a risky lending environment, such instruments were oftentimes the only investment that banks made with their afghani deposits. This can be seen in the graph below, which shows the amount of DAB notes held by each local bank, and shows that the highest amounts were held by the state banks NKB, BMA, and PB. The total outstanding stock of such notes fluctuated between 20 and 40 billion afghanis (USD$300-600 million) during the previous decade.

DAB NOTE AMOUNTS HELD BY EACH BANK

Source: DAB internal

(3) Policy Rates
For most central banks, the policy rate is the primary policy lever. However, DAB did not utilize policy rates often, and in fact DAB’s policy rate was not being used at all as a monetary instrument. Previous DAB management came primary from retail banking backgrounds and focused on central bank profitability. They therefore reduced the key policy rate from approximately 7.0% to only 0.1% (from 2015 to 2018) to increase DAB profitability and to try to
stimulate lending to the real economy. The policy did increase DAB profitability but did not stimulate lending.

I entered my term as governor during the Covid crisis and therefore sought a tool to provide support for the economy. I naturally turned to this underutilized tool, and did so by increasing the policy rate from initially from 0.1% to 3.0%, and to 6.0% a few months later in order to provide support to the banking sector. I also began to pay interest on both DAB dollar and afghani required reserves.

As a result of this change in policy, after one year the DAB note curve shifted upwards by approximately 300 basis points and varied between 3.0% to 6.5% (graph below left). In addition, money markets began to deepen as banks began to hold greater amounts of this higher-yielding instrument (graph below right which shows that the total amount of DAB notes outstanding doubled from approximately 25 billion afghanis to 50 billion afghanis from 2020-2021).

However, there were critics of this policy. The two primary criticisms of this policy at the time were that the higher policy rate and rates across the yield curve would (1) decrease DAB profitability and (2) would raise consumer and corporate borrowing costs. Let us evaluate these criticisms.

First, central bank profitability should be a low central bank concern relative to the primary inflation mandate and secondary economic growth mandate. The Afghanistan Bank Law clearly defines the primary DAB mandate as its inflation mandate, and “the other objectives of Da Afghanistan Bank, which shall be subordinated to the primary objective of Da Afghanistan Bank, shall be to foster the liquidity, solvency and effective functioning of a stable market based financial system, and to promote a safe, sound and efficient national payment system.”

In addition, the same article states that “without prejudice to its primary objectives, Da Afghanistan Bank shall support the general economic policies of the State, and promote
sustainable economic growth.” Increasing policy rates as specified above achieves the objective of increasing the liquidity and functions of a market-based financial system. Meanwhile, fiscal objectives do not fall anywhere in the central bank’s mandate.

In regards to the second criticism, I argue that local bank lending rates were completely detached from DAB rates given the high dollarization rates and low outstanding debt stock. I therefore saw no impact or increases on average bank lending rate due to this new policy.

Conclusion: Monetary Policy Tools
Afghanistan had three primary monetary policy tools to achieve its objectives: dollar auctions, DAB note auctions, and interest rates. Given the high level of dollarization and low outstanding debt stock, the effectiveness of monetary policy was low. As such, as its primary monetary policy tool DAB utilized DAB foreign currency auctions and DAB note auctions to withdraw excess liquidity from the markets.

DAB attempted to increase the transmission effectiveness of interest rates and stimulating the economy by more actively utilizing its policy rates. We began to see some improvement in bank profitability due to such actions, and this policy action began to deepen local currency markets and improve the monetary transmission mechanism. In the next session, I will go into greater detail regarding how DAB sought to improve its monetary policy transmission mechanisms.

MONETARY POLICY TRANSMISSION MECHANISMS
The structure of Afghanistan’s economy and financial sector inhibited the effectiveness of the monetary policy transmission mechanism. High dollarization rates means that sixty-five percent of bank deposits were held in dollars. The low outstanding debt stock meant that interest rates did not translate into large aggregate changes to borrowing and purchasing behaviors. And the weak banking sector meant that there was no interbank lending market. The IMF states that weak credit culture and financial development may impair policy transmission.19

I considered these market failures, and therefore took a more activist position to help create incentive for the formation of such markets. In particular, I focused on creating new bank lending programs, introducing new monetary and macroprudential policy tools, and deepening local repurchase and interbank markets. I shall describe the use of bank lending programs and macroprudential policies in a separate paper on the banking sector, and here focus exclusively on policies to create repurchase markets and deepen local bond markets.

As I mentioned at the beginning of this paper, DAB operated under a monetary aggregate-targeting regime. This approach is appropriate for the country context, but we sought as a long-term strategy to move towards an inflation-targeting regime. To accomplish this task, DAB needed to create greater confidence in our policy rate effectiveness.

This requires a host of reforms, including ensuring the independence of the central bank and in reducing dollarization rates as preconditions. I argue that a full transition should be conducted in three steps, from a monetary-aggregate targeting, to an interest rate corridor, to a point interest rate target. I present all these reforms in the table below.

The table shows a series of reforms across four areas (the preconditions) as a country moves from a monetary-aggregate targeting regime to an interest rate corridor to a point interest rate target.

**FRAMEWORK FOR MOVING FROM MONETARY AGGREGATE TO INTEREST RATE TARGET**

<table>
<thead>
<tr>
<th>Preconditions</th>
<th>Monetary Aggregate</th>
<th>Interest Rate Corridor</th>
<th>Interest Rate Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure central bank independence</td>
<td>Target currency in circulation (CiC) and Reserve Money (RM)</td>
<td>Introduce a deposit rate and repo rate in addition to primary policy rate</td>
<td>Reduce volatility around point policy rate</td>
</tr>
<tr>
<td>Maintain low inflation</td>
<td>Build inflation-fighting credibility</td>
<td>Announce an inflation target range</td>
<td>Announce a inflation point target</td>
</tr>
<tr>
<td>Reduce dollarization</td>
<td>Use if dollarization rate is greater than 50%</td>
<td>Seek to reduce dollarization rate to &lt;30%</td>
<td>Seek to reduce dollarization to &lt;10%</td>
</tr>
<tr>
<td>Increase stock of debt</td>
<td>Use if stock of debt is &lt;10% of GDP</td>
<td>Seek to increase debt stock to &gt;20% of GDP</td>
<td>Increase debt stock as required</td>
</tr>
<tr>
<td>Increase interbank lending</td>
<td>Promote interbank market. Develop standard templates</td>
<td>Seek to increase interbank market volumes</td>
<td>Seek to use interbank market as primary lending market</td>
</tr>
</tbody>
</table>

DAB took actions in each area. I spoke above about DAB’s actions to maintain low inflation, reduce dollarization, and increase the stock of local currency debt. DAB also introduced repo and reverse-repo windows, and introduced a standard interbank legal agreement to encourage the development of an interbank market.

This framework has many similarities with a recent IMF recommendations. In that framework, the IMF proposes to move from monetary quantities to interest rates, the following steps should be taken: (1) reduce interest rate volatility, (2) create an interest rate corridor while retaining reserve money as the operating target, and (3) move to a fully-fledged interest rate framework with an announced point policy as the operating target.

**CONCLUSION**

Afghanistan faced severe economic challenges prior to the takeover by the Taliban on August 15, 2021. However, DAB was able to maintain macroeconomic stability in these challenging circumstances. The above case study of Afghanistan highlights the differences in monetary

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22 Ibid, p. 33
policy conduct between advanced and developing economies. In particular, we analyzed three areas of the conduct of monetary policy - including monetary policy reaction functions, monetary policy tools, and the transmission mechanisms.

In terms of monetary policy, I provided evidence that Afghanistan was able to conduct monetary effectively and keep inflation rates at very low levels in extremely challenging circumstances. The last official inflation print was approximately 2.5% (June 2021) before rising to 40% after the Taliban takeover. International reserves of almost $10 billion represented almost 50% of GDP and more than 17 months of import coverage – both among the highest levels in the world. At the same time, Afghanistan’s monetary base remained stable, its currency volatility remained low, and increased dollar demand was met without creating any macroeconomic imbalances.

The key lesson learned is that that small countries with underdeveloped debt markets and high dollarization will find it difficult to use interest rates at their primary monetary policy tool. This is due to a weak monetary policy transmission mechanism to the real economy and to inflation. Therefore, in such a constrained environment, the next best monetary tool is to target monetary aggregates.

The lessons can be applied to many developing countries. The IMF classifies at least still twenty-two such countries that continue to use a monetary aggregate targeting framework - including Bolivia, Tanzania, Yemen, Algeria, Bangladesh, Algeria, Afghanistan, Sierra Leone, Zimbabwe, Belarus, and Madagascar.

For such countries, we proposed a monetary policy framework considered eight factors in four areas, including levels of the monetary base, previous inflation, amount of international reserves, currency valuation and volatility, fiscal flows, amount of dollars demanded at auction, political/economic risk, and international risks, as shown in the framework below.

\[
\Delta MB_t = Priors + External Factors + Market factors + Risk Factors
\]

\[
\Delta MB_t = (MB_{t-1} + I_t) + (IR + FXV + FF) + (BID) + (PER + IC)
\]

Second, in terms of monetary policy tools, and in an environment of high dollarization rates and low outstanding debt stocks where interest rates are not effective, we argue for the use of foreign currency auctions and DAB note auctions as a central bank’s primary monetary policy tools. Interest rates can be used, but the effects are likely to be larger on the banking sector relative to the real economy.

Third, we provided a framework for moving from a monetary aggregate targeting regime to an interest rate corridor regime and finally to an interest rate point regime. This built on the existing IMF literature, which recommends that a central bank should reduce interest rate volatility by introducing repo and reverse repo windows and promoting interbank liquidity.
More fundamentally, such reforms require building central bank independence and credibility, reducing dollarization, and increasing the outstanding debt stock.

Finally, let us apply this formulation to the particular case of Afghanistan post the Taliban takeover. In this case, Afghanistan’s monetary base contracted as the level of dollarization increased. International reserves went to zero as DAB’s international reserves were frozen, both domestic and international risks significantly increased, and fund flows to Afghanistan in the past year declined to approximately $2 billion. Such fund flows have helped to stabilize the currency and stabilized inflation at higher but relatively stable levels. The ability of DAB to conduct monetary policy in such circumstances has been reduced, but this has become less important as dollarization rates have further increased.

### MONETARY POLICY FRAMEWORK: 8 KEY COMPONENTS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Status</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary Base</td>
<td>Negative</td>
<td>Although no figures are available, it is highly likely that the monetary base has contracted as dollarization rates increased</td>
</tr>
<tr>
<td>Inflation</td>
<td>Negative</td>
<td>Inflation has recently increased to more than 40%. On the positive side, there are some indications that inflation has stabilized</td>
</tr>
<tr>
<td>International Reserves</td>
<td>Negative</td>
<td>International reserves were frozen and are currently zero dollars post-Taliban takeover</td>
</tr>
<tr>
<td>Currency Valuation &amp; Volatility</td>
<td>Neutral</td>
<td>The afghani initially depreciated significantly in late 2021, but has since recovered its value to approximately 80-85 afghanis per USD as humanitarian support restarted in late 2021</td>
</tr>
<tr>
<td>Fiscal Flows</td>
<td>Negative</td>
<td>There was a sudden stop to fiscal flows as no donor is willing to provide on budget support to the Taliban. Humanitarian flows have been approximately $2 billion during 2021-2022</td>
</tr>
<tr>
<td>Auction bid amounts</td>
<td>Neutral</td>
<td>The frequency and amount of auctions have declined, and most auctions are fully subscribed, indicating a high continued demand for dollars</td>
</tr>
<tr>
<td>Political/Economic Risks</td>
<td>Negative</td>
<td>While the security situation has improved, the economic situation has continued to deteriorate</td>
</tr>
<tr>
<td>International Context</td>
<td>Negative</td>
<td>International donors have decreased aid and support for Afghanistan post-Taliban takeover</td>
</tr>
</tbody>
</table>
DAB ORGANIZATIONAL STRUCTURE

Supreme Council (SC)

Executive Board (EB)

Governor

Chief of Staff

Monetary policy

Market operations

FinTRACA (FIU)

Finance

Risk & Compliance

Legal Affairs

World Bank projects

APS

International Relations

Receivership

Banking supervision

First Deputy (Financial Sector)

Non-banking supervision

Islamic banking

Financial inclusion

Credit Registry

Afghanistan deposit fund

Information Technology

Second Deputy (CDO)

Sharia Board

Financial disputes board

Institute of banking & finance

Comptroller General

Human resources

Procurement

Services

Zonal Coordination

Payments

Banking operations

Core banking system
REFERENCE LIST/BIBLIOGRAPHY

General Bibliography


Taylor Rule Key Papers


Caprio, G. Honohan, P. (1990) “Monetary policy instruments for developing countries.” World Bank

Dorrance, G. (1965) “The instruments of monetary policy in countries without highly developed capital markets.” IMF Paper


Taylor Rule: Developed Markets


**Taylor Rule: Emerging Markets**


Singh, B. (2010) “Monetary Policy Behavior in India: Evidence from Taylor-type policy frameworks.” RBI Staff Studies, Department of Economic Analysis & Policy

**Taylor Rule: Frontier Markets**

