

EVALUATING THE IMPACT OF DOLLAR AUCTION POLICY ON EXCHANGE RATE STABILITY IN AFGHANISTAN: AN ARDL APPROACH

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Mohammad Anisseh

Imam Khomeini International University, Department of Industrial Management, Qazvin, Iran

E-mail: manisseh@soc.ikiu.ac.ir

Rohullah Sajed

Takhar University, Faculty of Economics, Department of Management and Business Administration,
Takhar, Afghanistan

ABSTRACT

This study evaluates the efficacy of the Central Bank of Afghanistan's dollar auction policy in stabilizing the Afghani exchange rate, utilizing an autoregressive distributed lag (ARDL) model. Based on 17 years of annual data, it quantifies the relationship between dollar supply (exogenous variable) and nominal exchange rate volatility (endogenous variable). Quantitative analysis employed secondary data, with descriptive statistics via Excel and ARDL bounds testing/estimation in EViews. Results reveal a significant negative correlation: a one-million-unit increase in dollar supply yields a 0.003% exchange rate depreciation. The adjusted R^2 (0.5273) indicates dollar supply explains over 52% of Afghani-dollar fluctuations. Findings illuminate monetary transmission in emerging economies, highlighting the Central Bank's role in exchange rate management. By calibrating auction impacts, this research informs targeted interventions for macroeconomic stability and currency preservation, with implications for policymakers and econometric modeling of central bank strategies.

Key words: Central Bank of Afghanistan, Dollar auction policy, Exchange rate stability, Afghani currency, ARDL model

INTRODUCTION

Monetary policy is a central tool of macroeconomic governance, with central banks responsible for its formulation and implementation to achieve objectives such as price stability, economic growth, and exchange rate stability. This study evaluates the efficacy of the Central Bank of Afghanistan's (CBA) dollar auction mechanism in maintaining exchange rate stability and preserving the Afghani's value.

The CBA employs various monetary tools—including open market operations and foreign exchange policies—to regulate inflation and sustain currency valuation (Gohary, 2016). The deployment of monetary policy instruments, particularly open market operations and dollar auction mechanisms, has assumed considerable significance in inflation management and currency value preservation in recent years (Noor abad, 2014). However, Afghanistan's underdeveloped domestic securities market (due to fiscal deficits financed primarily through external assistance) has made foreign exchange intervention, particularly dollar auctions, the predominant monetary policy instrument.

Afghanistan faces severe currency instability, with the Afghani experiencing its most significant depreciation since the introduction of new currency denominations in 2002. The country has adopted a monetary policy framework premised on liquidity management, grounded in the quantity theory of money—which posits a direct proportional relationship between monetary aggregates and the general price level (Massoud, 2018). This depreciation affects both imported and domestically produced goods, undermining civilian welfare. While exogenous factors contribute, suboptimal monetary policy implementation by monetary authorities also plays a role. This research examines whether the CBA's

dollar auction mechanism has effectively stabilized the Afghani against the US dollar and whether it offers sustainable long-term benefits or if alternative policies should be considered given Afghanistan's socioeconomic context (Ghafari, 2018). Specifically, it addresses:

- How the dollar auction policy has affected Afghan currency stability,
- Whether alternative tools exist to prevent currency fluctuations,
- The policy's effectiveness in stabilizing the Afghani's value.

THEORETICAL FRAMEWORK, AND RESEARCH BACKGROUND

Monetary policies are measures employed by central banks to control economic activity, divided into expansionary (increasing money supply) and contractionary (decreasing money supply) policies (Nikjou, 2018). Key objectives include price stability, economic growth, full employment, trade balance equilibrium, and interest rate stability. Under Article 2 of the Central Bank of Afghanistan law, the primary goal is domestic price stability, which requires maintaining exchange rate stability given Afghanistan's open economy with a trade deficit. The CBA operates under a managed floating exchange rate system, intervening to prevent sharp exchange rate fluctuations that would affect price levels (Kakar, 2017). Currency value depends on supply-demand factors, with government expenditures being the primary demand driver. Monetary policy formulation considers fiscal policy, seasonal changes, and real sector conditions to achieve price stability and reduce exchange rate fluctuations (Kakar, 2017).

- **Liquidity (Monetary Base and Money in Circulation):** The monetary base (reserve money) includes money in circulation, current accounts, and required reserves. Larger monetary base ratios indicate higher liquidity, inflation, and lower currency value. The CBA uses the quantity theory of money to set monetary base targets based on expected growth and inflation. Fiscal year targets included: 7% (2015, actual ~9 billion Afghanis below ceiling), 10% → 10.97% (2016, +3.16% vs. 2015), and 12% → 10.07% (2017, -0.96% vs. 2016), demonstrating relative management success. Money in circulation (all issued money except CBA vault cash) is the secondary operational target. Targets were: 7% (2015, actual below ceiling), 10% → 11% (2016, exceeded target), and 12% → showing 2.4% growth (demonstrating good management).
- **Monetary Policy Tools:** The CBA employs three main tools: exchange rate policy, legal reserves, and market operations policy.
- **Exchange Rate Policy:** This stabilizes domestic currency value against foreign currencies. Afghanistan faces challenges including insufficient foreign currency and negative trade balance, creating high foreign currency demand. Foreign currency auctions (twice weekly: Saturdays and Tuesdays) balance supply-demand, control liquidity, and prevent inflation. This is effective short-term but may negatively impact exchange reserves long-term; the CBA is expanding capital note sales (Masoud, 2018). Foreign reserves increased from \$245 million (2002) to \$5 billion (2010), now covering 13–14 months of imports. Gold reserves rose from 244 million dollars (2002, \$350/oz) to 955 million dollars (2010, \$1,402/oz).
- **Exchange rate policy includes:** Qualitative Policy: Distinguishes "good" (freely convertible, high credibility) currencies. Interest Rate Spread Policy: When balance of payments is negative and foreign interest rates exceed domestic rates, the CBA pays the difference to lenders, encouraging domestic investment and maintaining money market liquidity (Masoud, 2018)
- **Legal Reserves:** Legal reserves include gold, precious metals, convertible foreign currencies, foreign bank accounts, IMF Special Drawing Rights (SDRs), and forward purchase/swaps. The CBA maintains adequate reserves for monetary/exchange rate policies and international transactions. If reserves decrease to insufficient levels, the CBA implements corrective measures and reports to the Council of Ministers (Masoud, 2014).
- **Market Operations Policy (Securities Policy):** The CBA buys/sells securities to control money supply, pursue liquidity goals, finance government, and activate money/capital markets. During inflation, it sells securities; during money shortages, it purchases them. Capital Notes (28-day and 182-day maturities, introduced 2014 at 50 million Afghanis each) are sold weekly to commercial banks. By 2008, commercial bank investment reached ~20 billion Afghanis with

average interest rates of 9.39% (28-day) and 10.57% (182-day). In 2008, 52.947 billion Afghanis (28-day) and 12.98 billion Afghanis (182-day) were auctioned, with 1.539 billion Afghanis paid to winning banks (Masoud, 2018).

- **Central Bank as Financing Agent:** For Economic Entities: Purchases debt securities/bills from various sectors. For Government: Short/long-term financing through current accounts or purchasing government debt securities. Both government and CBA must align policies and avoid monetary inflation (Masoud, 2018). This research focuses on the market operation policy component pertaining to dollar supply policy.

Theoretical Framework of the Research

Generally, there are two different theories regarding monetary policies, which are as follows:

- **Keynesian View:** Keynes and his supporters believe that monetary policies do not have the necessary effectiveness in developing economic activities and investment. Instead, fiscal policies within the framework of government expenditure and taxation can play a more significant role during recessionary and inflationary conditions.
- **Monetarist View:** Monetarists do not consider government intervention in the economy to be beneficial beyond maintaining public order and security. They believe that the best way to combat fluctuations such as inflation and economic recession is through monetary policy. Proponents of monetary policies do not place much value on fiscal policies (Pazhouyan, 2002).

Research Background

Previous studies on monetary policy and exchange rates demonstrate significant relationships between these variables. Mahmoud Hossemand et al. (2012) found that short-term and long-term monetary policy variables exert positive, statistically significant effects on exchange rates in Iran. Similarly, Sharifi Renai et al. (2011) reported that increased money supply raises GDP in the short run but has negative long-term effects, while increasing prices in both periods through the lending channel. Trust in monetary authorities also matters: Keshavarz and Parsa (2019) concluded that greater trust enhances investment, employment, and economic growth in Iran. Regarding Afghanistan specifically, Shaghayegh (2018) argued that the dollar auction policy benefits only a limited segment of society while causing broader purchasing power decline through rising commodity prices. Kakar (2017) examined factors affecting Afghan currency instability (2010–2014) using library and field research. Findings showed nominal GDP had no significant effect on depreciation, though declining investment and economic activity contributed to value loss. Inflation also had no direct effect during the study period. Critically, Kakar (2017) identified the dollar auction mechanism as a contributing factor to currency depreciation, primarily because insufficient market demand created unmet foreign exchange demand and currency supply shortages. Additional factors included political/economic instability, global US dollar appreciation, inadequate monetary backing, widespread foreign currency use in domestic transactions, and the free-floating exchange rate regime. Expert interviews revealed structural weaknesses: supply-demand imbalances, consumption-oriented economy, low production/exports, and limited foreign currency inflows significantly contributed to the currency's decline.

RESEARCH METHODOLOGY

This research is applied in purpose, descriptive-survey in methodology, and utilizes quantitative data collected from secondary sources.

- **Variables:** Independent variable: Dollar supply (SUD), Dependent variable: Exchange rate of the dollar against the Afghan currency (EX-rate)
- **Research Tools:** For descriptive analysis in this research, Excel is used, and EViews software is employed for model testing.

- **Research Model:** The study employs the following regression model: $EX\text{-rate} = \beta_1 + \beta_2 \times (SUD) + u^i$, $EX\text{-rate} = \beta_1 + \beta_2 \times (SUD) + u^i$, where $EX\text{-rate}$ = Exchange rate of the dollar, β_1 = Constant, β_2 = Coefficient of the variable, SUD = Dollar supply, u^i = Residual error components in the model. This model examines the relationship between dollar supply and exchange rate stability to evaluate the effectiveness of the Central Bank of Afghanistan's dollar auction mechanism.

RESEARCH FINDINGS

This study examines the impact of the Central Bank of Afghanistan's dollar auction policy on Afghan currency stability using the ARDL model and annual data (17 years) from the Central Bank. This section provides descriptive analysis of the variables across years. As shown in Figure 1, the Central Bank of Afghanistan's dollar supply for currency stability increased from \$445 million (2004) to a peak of \$3.41 billion (2013), then fluctuated between \$1.92–2.79 billion (2014–2020), ending at \$2.12 billion (2020). Key movements include steady growth (2004–2009: \$445M→\$2.05B), a peak in 2013, and relative stabilization at \$2–2.8 billion thereafter.

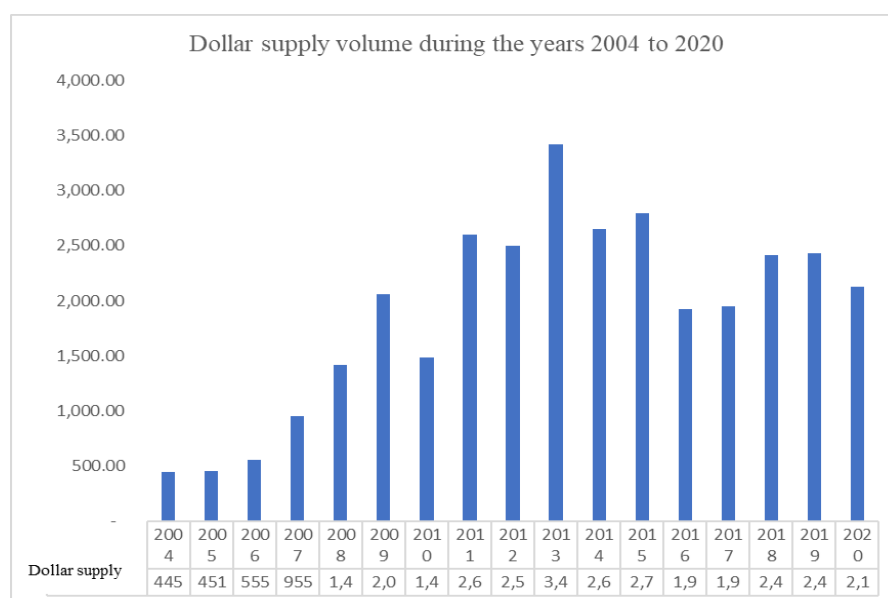


Figure 1: Dollar supply volume during the years 2004 to 2020

As shown in Figure 2, the exchange rate (Afghanis per dollar) rose from 44 (2004) to 77.1 (2020), indicating gradual currency depreciation. The rate remained relatively stable (44–51 Afghanis) during 2004–2012, then increasingly depreciated from 56.4 (2013) to 78.4 (2019), with a slight improvement to 77.1 (2020). The exchange rate continued rising until 2023, but with improved central bank policies, the Afghan currency has since achieved near-stability.

Statistical Explanation of Variables

Model estimation results show that the Central Bank's dollar supply significantly impacts the stability of the Afghan currency (Afghani). **Coefficient (Impact):** For every 1 million unit increase in the dollar supply, the exchange rate decreases by 0.003%. **Explanatory Power (R^2):** The coefficient of determination (0.5273) indicates that the dollar supply variable accounts for 52.73% of the Afghani's value stability against the US dollar (Tables 1 and 2).

Model estimation results indicate that the Central Bank's dollar supply significantly impacts the stability of the Afghan currency (Afghani):

- **Marginal Effect:** Every 1 million unit increase in the dollar supply corresponds to a 0.003% decrease in the exchange rate.

- **Goodness of Fit (R^2):** The coefficient of determination (0.5273) shows that the dollar supply variable accounts for 52.73% of the Afghani's value stability against the US dollar

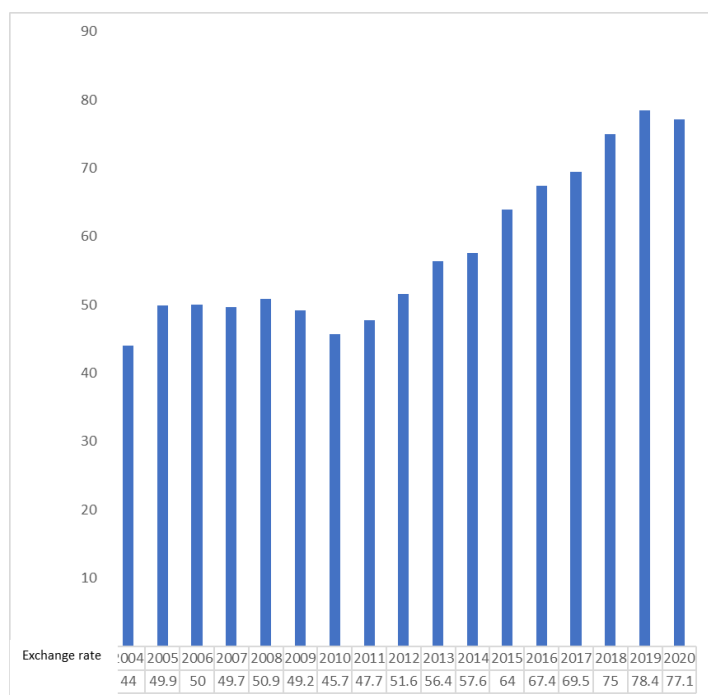


Figure 2: Exchange rate of the dollar against the Afghan Afghani during the years 2004 to 2020

Table 1: Results of the Stationarity Test (Augmented Dickey-Fuller Unit Root Test)

Variables and Hypotheses			At Level			At First Difference			At Second Difference		
Variables	Hypothesis		T-statistic	P-value	Result	T-statistic	P-value	Result	T-statistic	P-value	Result
			Critical Value			Critical Value			Critical Value		
Exchange Rate of the Dollar	Null hypothesis	The exchange rate of the dollar is non-stationary	0.247	0.9668	Accepted	-2.8018	0.0815	Accepted	-3.8693	0.0138	Rejected
	Alternative hypothesis	The exchange rate of the dollar is stationary	-3.03		Rejected	-3.081		Rejected	-3.1199		Accepted
Dollar Supply Amount	Null hypothesis	The dollar supply amount is non-stationary	-1.88	0.3297	Accepted	-5.4483	0.0007	Rejected			
	Alternative hypothesis	The dollar supply amount is stationary	-3.06		Rejected	-3.081		Accepted			

As shown in Figure 3, at the 95 percent confidence level and 5 percent error rate, the dollar auction trend and the stability of the Afghan currency exhibit both positive and negative changes from 2012 to 2020. The CUSUM method is particularly effective in detecting small shifts in the mean that may not be identified by conventional control charts. By cumulatively measuring deviations from the target mean, it enables rapid detection of changes in a process. Positive CUSUM indicates increases in the

mean, whereas negative CUSUM indicates decreases; when the cumulative value exceeds a specified threshold, it signals a significant structural change. Figure 4 presents the CUSUM of squares test, a statistical technique used to detect changes in the variance or dispersion of a process. Overall, the chart indicates that this method is effective for identifying and monitoring variability in data and processes. It can therefore assist Central Bank analysts in responding promptly to unexpected fluctuations in monetary policy outcomes.

Table 2: Results of the Stationarity Test (Augmented Dickey-Fuller Unit Root Test)

Results of Model Estimation 2.1 ARDL				
Variables	Model Coefficients	P-value	R-squared	0.5273
Constant (C)	-0.2797	0.7199		
Dollar Supply	-0.003	0.0649		
Econometric Model of the Research			Y= -0.2797 - 0.0030X +	

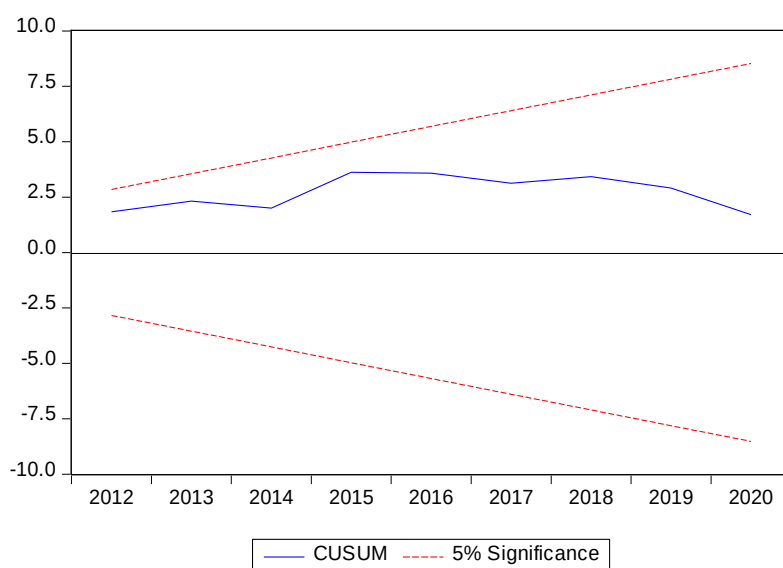


Figure 3: CUSUM Analysis of the Stability of the Afghani Currency and Dollar Auction Policy, 2012–2020

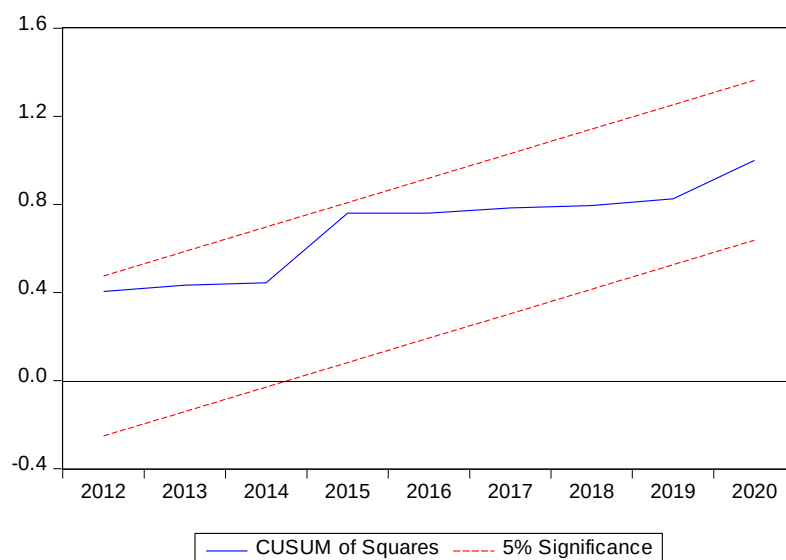


Figure 4: CUSUM of Squares Analysis of Structural Stability in the Dollar Auction Model

CONCLUSION

Central banks play a vital role in economic growth and development through the implementation of monetary policy instruments, including discount policy, open market operations, exchange rate policy, and reserve requirements. Their primary objectives include maintaining price stability, regulating money supply, achieving full employment, and ensuring financial market and currency stability.

In Afghanistan, the Central Bank is responsible for monetary policy formulation and implementation, with a primary focus on price stability alongside broader macroeconomic goals such as employment, production, and export expansion. Currency value stability is a critical issue in monetary economics, as it reflects a country's economic and political strength. However, the Afghan currency has experienced pronounced instability and volatility in recent years, particularly during the National Unity Government period, with persistent depreciation against the US dollar.

The Central Bank of Afghanistan employs instruments such as market operations and dollar supply policies to control inflation and preserve the Afghani's value. This study examines the effectiveness of these monetary policies using 17 years of time-series data. Methodologically, the research is applied, descriptive-survey in nature, and quantitative, relying on secondary data sources. Consistent with monetary theory, the findings reveal a significant relationship between monetary policy and exchange rate stability. Specifically, a one-million-unit increase in dollar supply is associated with a 0.003 percent decline in the exchange rate, with the dollar supply variable explaining over 52 percent ($R^2 = 0.5273$) of Afghani-dollar exchange rate fluctuations.

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