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Estimating Equilibrium Exchange Rates for Bangladesh

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Background

- Until recently, Bangladesh's external sector encountered substantial stress, characterized by persistent deficits in both the current account and the overall balance of payments, alongside a significant build-up of external payment arrears.
- These imbalances placed acute pressure on foreign exchange reserves and intensified depreciation pressures on the Bangladeshi Taka (BDT).
- In response, the authorities implemented a series of policy measures aimed at strengthening external sector stability.
- These measures have begun to deliver encouraging results: the exchange rate is exhibiting signs of stabilization, and foreign reserve levels are showing early signs of recovery.
- This progress reflects improved balance-of-payments management, a gradual easing of external pressures, and a renewed sense of confidence in the market.

Introduction

- In this context, understanding the equilibrium exchange rate is of critical importance for assessing external sector sustainability, competitiveness, and macroeconomic stability.
- While the exact value of the equilibrium exchange rate cannot be observed directly, economists have developed several empirical and theoretical approaches to estimate it.
- These methodologies, despite their limitations and data requirements, provide valuable benchmarks for policymakers to assess whether the domestic currency is overvalued or undervalued relative to its long-run sustainable level.
- Accordingly, this study will attempt to estimate an equilibrium exchange rate for Bangladesh and analyze the degree of misalignment by comparing it with observed market exchange rates. The findings will help inform policy discussions on exchange rate management and external sector adjustment.

Approaches for Measuring Equilibrium Exchange rate

- The concept of **real exchange rate misalignment** is subjective. Because there is no general consensus on equilibrium exchange rate (Rajin and Collins, 1997). This is often very **sensitive to data, methodology and country characteristics**.
- There are several approaches for measuring equilibrium exchange rate, of which the following are widely used:
  - Purchasing Power Parity (PPP) Approach (relative price based),
  - Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) based Exchange Rates (relative price and international trade weight based)
  - Behavioural Equilibrium Exchange Rates (BEER) Approach (Economic fundamentals based) (Clark & MacDonald, 1999) and
  - Natural Real Exchange Rate (NATREX) – its a combination of FEER and BEER
- This study uses one of the popular approaches named **BEER approach** which gives an equilibrium exchange rate determined by estimating the relationship between real exchange rate and a set of fundamental economic variables.

Approaches for Measuring Equilibrium Exchange rate

NEER : Weighted geometric average of the bilateral nominal exchange rate index of the home currency relative to foreign currencies.

$$NEER = \frac{ERI_{BDT}}{\prod_{i=1}^{15} (ERI_{PC})^{w_i}} \times 100$$

$$ERI = \frac{ER_{current}}{ER_{base}} \times 100$$

According to the theory of PPP, the real exchange rate will be constant overtime.

PPP based Real Exchange Rate =

$$ER\left(\frac{CPI_{PC}}{CPI_{BD}}\right)$$

REER : Adjusted NEER by the ratio of domestic prices to foreign prices.

$$REER = NEER \times \frac{CPI_{BD}}{\prod_{i=1}^{15} (CPI_{PC})^{w_i}}$$

$$weight\,(w_i) = \frac{M_i(\text{Import from } i) + X_i(\text{Export to } i)}{\sum_{i=1}^{n}(M_i + X_i)}$$

Here,

- ✓ ERI indicates the bilateral nominal exchange rate index.
- ✓ PC stands for partner country's currency and w_i stands for trade weight; i.e., the share of partner country in total trade (export plus import) of Bangladesh.
- ✓ ER indicates bilateral nominal exchange rate, defined as the value of domestic currency in terms of USD.

BEER APPROACH: THEORETICAL FRAMEWORK

- In BEER approach, equilibrium exchange rate is determined by estimating the relationship between the **REER and a set of fundamental determinants**.

- For this study, the major fundamentals behind long-run movements of the real exchange rate (BEER) identified are: **productivity differential (+), the terms of trade(+/-), the net foreign asset position (+), Govt exp (+/-), openness (-), and money growth (+).**

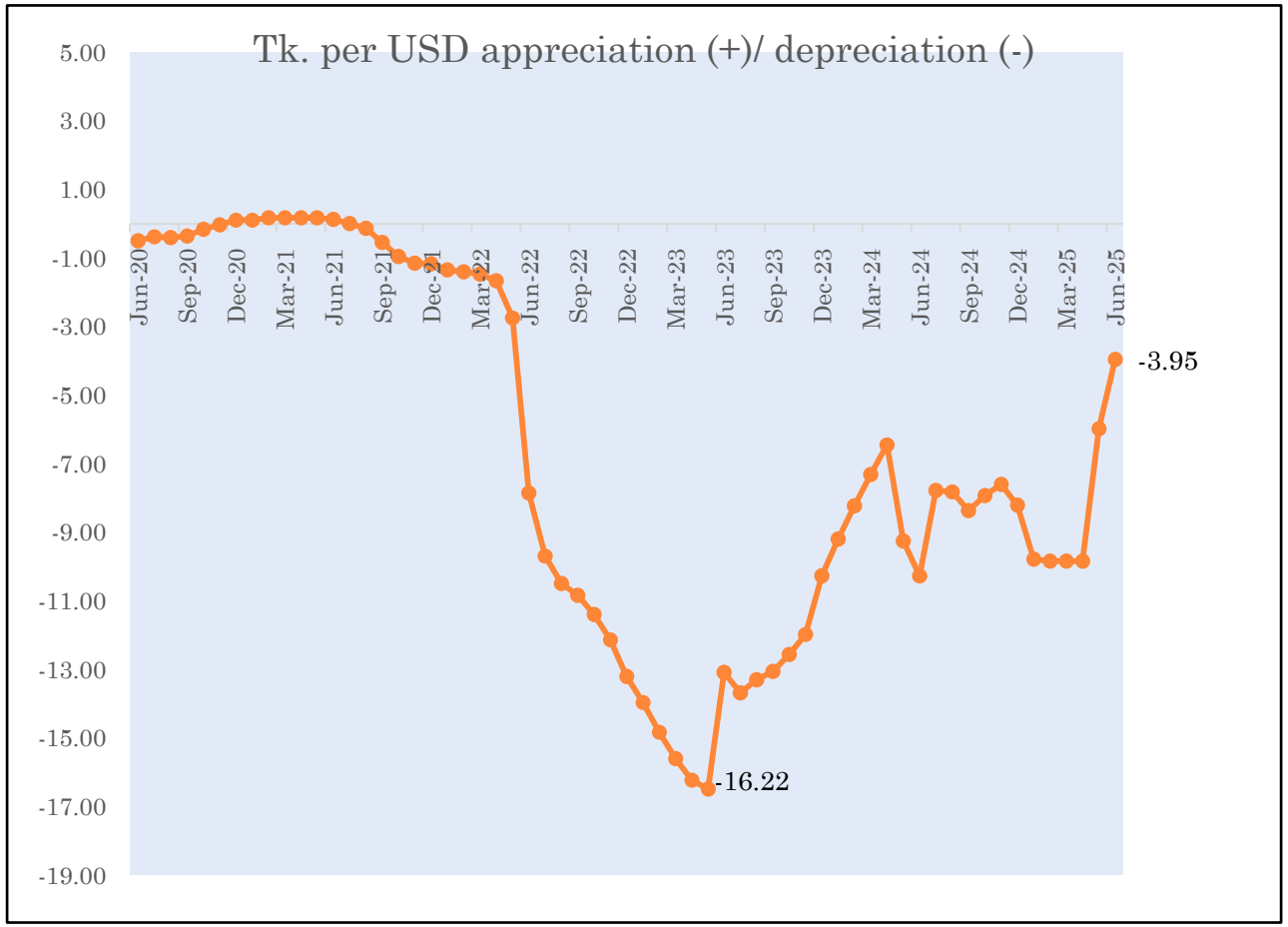
- **BEER => E(REER) = f{productivity differential (+), the terms of trade(+/-), the net foreign asset position (+), Govt exp (+/-), openness (-), and money growth (+)}.**

Behavior of Exchange Rates: Taka-Dollar

Source: https://www.xe.com/currencycharts/?from=USD&to=BDT&view=10Y

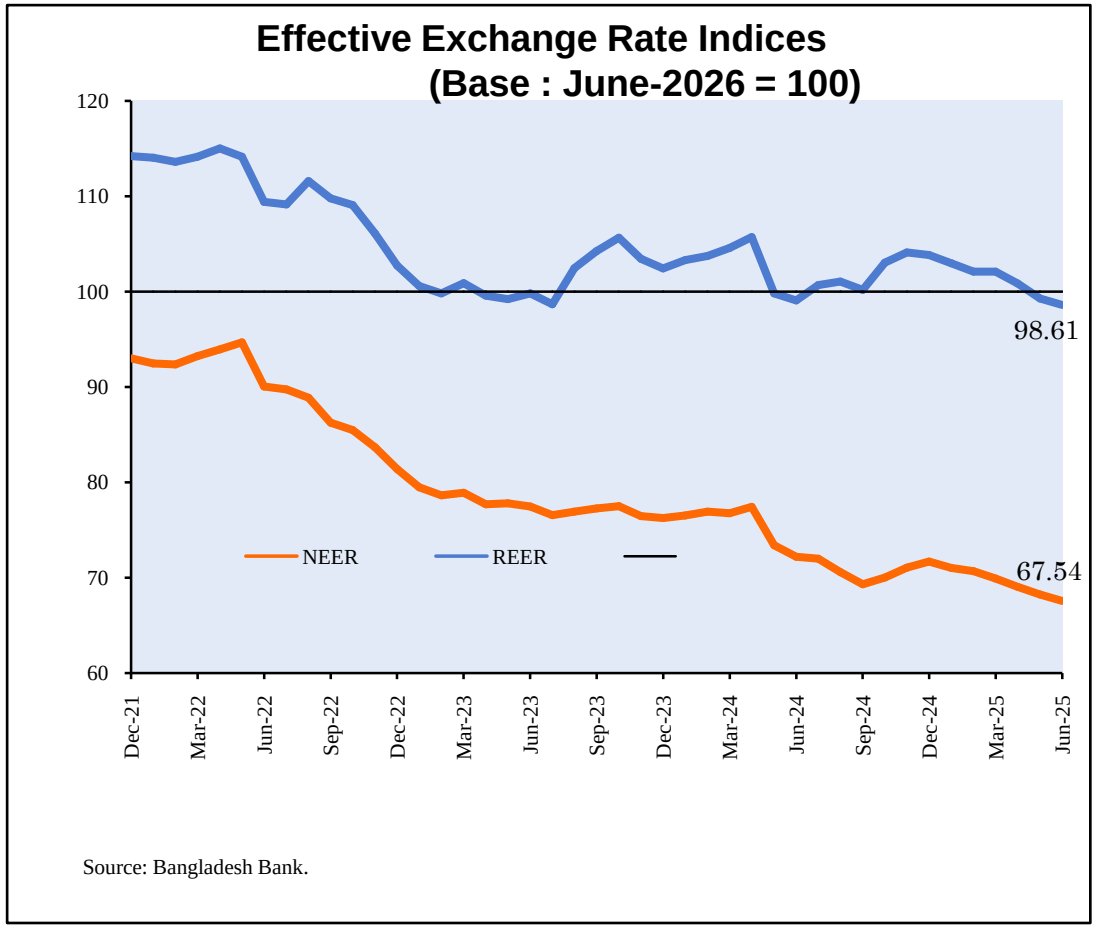
Behavior of Exchange Rates-Taka-Dollar

Based on Average Exchange Rate



- The exchange rate of Taka to Dollar witnessed a sharp depreciation pressure in 2023.
- Thereafter, the levels of depreciation rate of Taka-USD exchange were lower, particularly in the second half of 2024.
- After introducing fully market based exchange rate system in May 2025, the depreciation pressure was almost diminished at the end of June 2025.

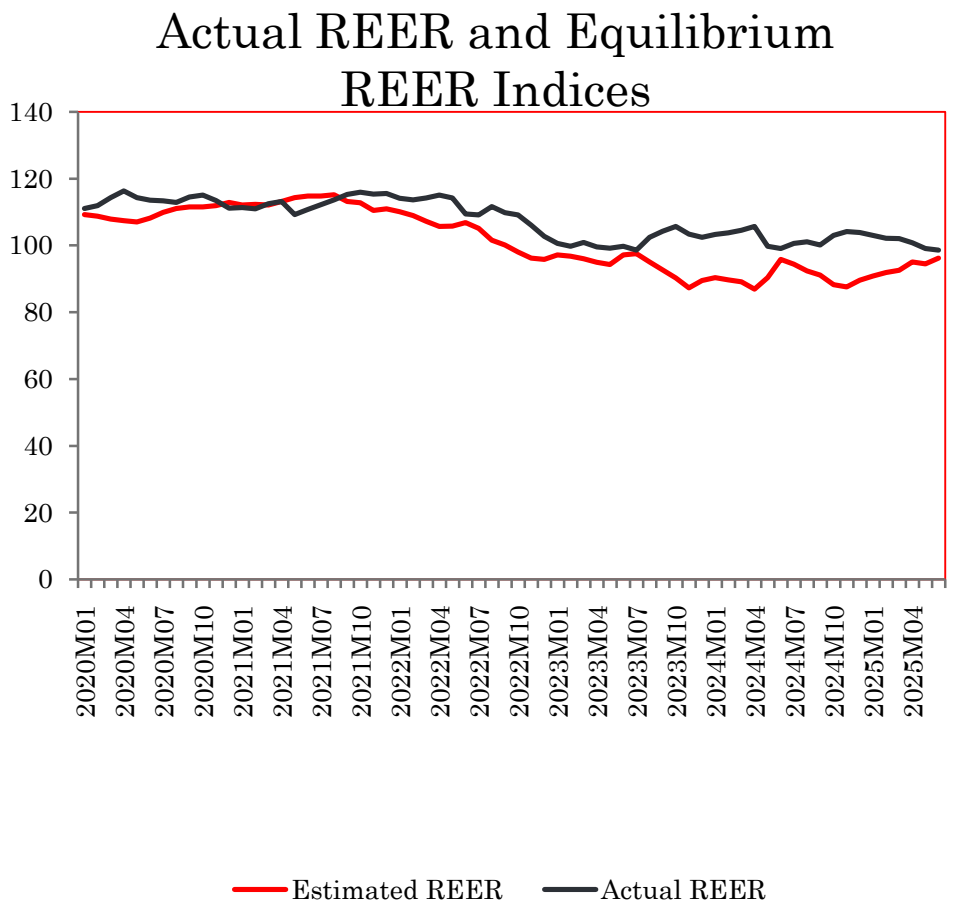
BEHAVIOR OF NEER AND REER

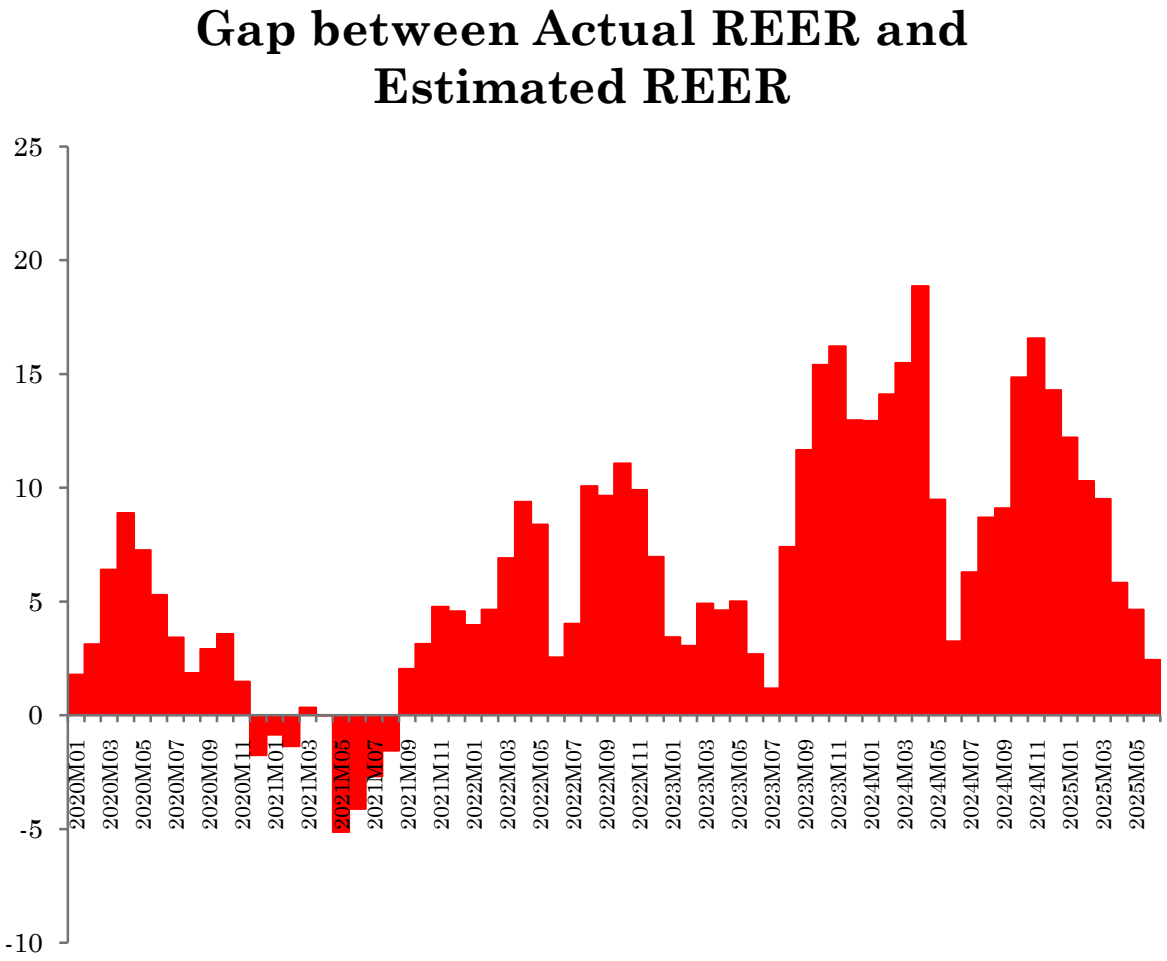


Source: Bangladesh Bank.

- An increase in NEER/REER means appreciation of domestic currency and vice versa.
- REER and NEER may not move in tandem due to cross country price differential.
- The recent decline in NEER was caused by the depreciation of the nominal exchange rate and while the recent drop in REER Index caused by currency price depreciation as well as fall in relative prices.

REER AND ESTIMATED REER
(CONSIDERING ECONOMIC FUNDAMENTALS)





Note: If (REER-BEER) is positive (+), it means REER based exchange rate is undervalued relative to estimated equilibrium exchange rate, and vice versa.

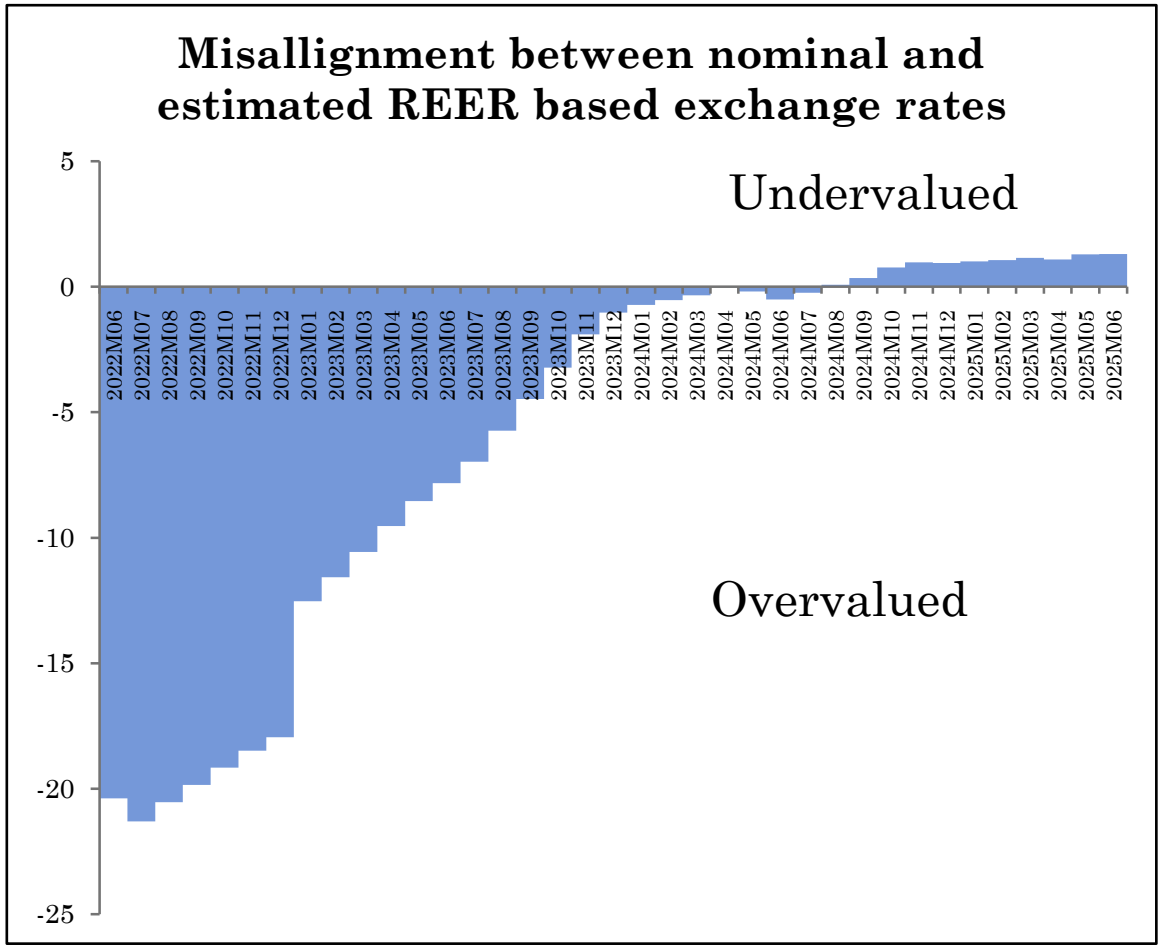
Observed and REER based Exchange Rates and Misalignment (considering economic fundamentals)

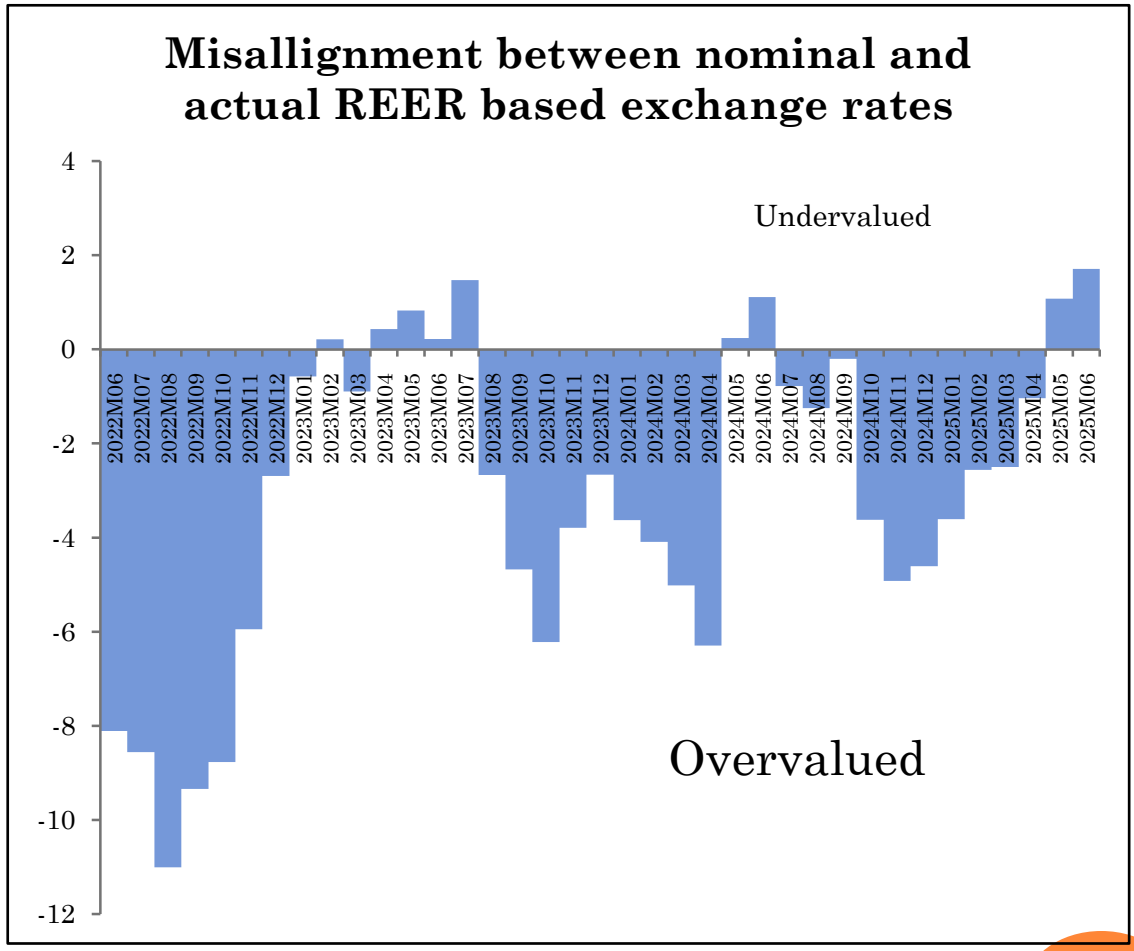
Time	Observed Exchange Rate	REER based Exchange Rate	Estimated REER based Exchange Rate	Misalignment with REER (±)	Misalignment with Estimated REER (±)
Jun-21	84.8063	93.8940	99.8682	-9.09	-15.06
Jun-22	86.3927	94.5050	106.7760	-8.11	-20.38
Jun-23	105.9167	105.6943	113.7409	0.22	-7.82
Jun-24	117.9787	116.8697	118.4879	1.11	-0.51
Jan-25	121.9091	125.5176	120.8990	-3.61	1.01
Feb-25	122.0000	124.5620	120.9345	-2.56	1.07
Mar-25	122.0000	124.5010	120.8505	-2.50	1.15
Apr-25	122.0000	123.0370	120.9148	-1.04	1.09
May-25	122.4326	121.3552	121.1448	1.08	1.29
Jun-25	122.8474	121.1398	121.5487	1.71	1.30

• A positive (+ve) misalignment means observed exchange rate is undervalued and a negative (-ve) misalignment means observed exchange rate is undervalued.

• It has been observed from the Table that both the misalignment measures based on REER and estimated REER showing an undervalued exchange rate for BDT against USD since May 2025, coinciding perfectly with BB's decision of going market based exchange on 14 May 2025.

Misalignment between Observed and REER based Exchange Rates (considering economic fundamentals)





Note: Positive (+) area refers to undervalued of nominal exchange rate, and negative area (-) refers to overvalued of nominal exchange rate.

Conclusion and Policy Recommendations

- BDT against USD reached its stability resulting in a lower misalignment of Taka-Dollar Exchange Rate from the equilibrium position, which reflects the introduction of fully market based exchange rate systems in May 2025.

- The exchange rate markets have not been distorted by the most recent directives on a market-based system; rather, they support BB's prudent policy.

- Although there is no universal method of calculating equilibrium exchange rate, this study made an attempt to calculate the exchange rate misalignment based on widely practiced REER and estimated equilibrium REER (BEER) indices.

- Based on REER and estimated equilibrium REER (BEER) indices, we find the equilibrium exchange rate to be Tk.121.14/USD and Tk.121.55/USD respectively, while observed exchange rate is Tk.122.85/USD as reported in June 2025.