

2

Exchange Rate Management: A Case Study of Pakistan 2013-2023

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Abstract

Pakistan's most recent economic crisis as witnessed in the 2019-2023 period (high inflation, low growth, low foreign exchange reserves) has also seen the longest period of implementation of a market determined exchange rate regime as part of the IMF conditionalities under its three-year program starting March 2019. This paper analyses this shift away from a managed exchange rate regime towards a market determined regime, over a period of ten years i.e. 2013-2023. We find that between July 2019 and February 2023, the nominal exchange rate depreciated by 114.5 percent against the US Dollar, while the REER index showed a depreciation of 17.4 percent, it has not resulted in a significant increase in exports and imports have remained persistently high. Our analysis shows that even large depreciations do not override the inelastic response of exports to changes in the value of the Pakistani Rupee. We further find that demand for imports is driven by our domestic growth which is stimulated by large fiscal deficit. We also find that compared to other key macroeconomic variables, fiscal deficit contributes the most to building exchange rate depreciation pressures. In the light of these findings we argue that while a market driven exchange rate is a better means of ensuring competitiveness, it still requires prudent degree of management to ensure short-medium term stability in the exchange rate. However, the reserve levels can override any attempt at exchange rate stabilisation.

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Introduction

Exchange rate management in Pakistan has been criticized for its arbitrary nature, lack of clear policy objectives and narrow focus on stabilizing nominal rates rather than maintaining the effective real rate at equilibrium levels. Although equilibrium is difficult to measure, the prevailing view is that the Pakistani Rupee has been overvalued for decades. The overvaluation has discouraged exports, incentivized imports, contributed to the widening of the current account deficit, and the buildup of exchange rate pressures in Pakistan. Interventions by the State Bank of Pakistan have depleted foreign exchange reserves and prolonged the overvaluation. Repeated balance-of-payments crises have led Pakistan to seek IMF financing. Pakistan has entered into as many as twelve agreements with the IMF since 1990, with a key conditionality of these programs being the adoption of a market-determined exchange rate. The most recent experience (2019-2023) of a market driven exchange rate is Pakistan's longest period of implementation.

The aim of this paper is two-fold: First, to analyse the shift in exchange rate management from a managed (2013-18)¹ to a market-determined regime (2019-2023). The study explores the impact of this shift on Pakistan's trade competitiveness, including export performance and import compression, and revisits the relationship between exchange rate and key macroeconomic variables. An attempt has also been made to assess the relative magnitude of the impact of macroeconomic variables on the exchange rate. Second, drawing on the findings of this experience, the paper proposes policy measures for managing the current market-driven exchange rate going forward. These measures aim to ensure export competitiveness and absorb external and internal shocks in order to smooth out recurring balance of payment crisis.

¹ These refer to fiscal years, i.e. FY 2013 till FY 2018 and FY 2019 till FY 2023. However, FY 2023 is not complete, instead covers the period from July 2022 – February 2023. The same applicable throughout the text, unless stated otherwise.

Key Concepts

Nominal exchange rate is the price of foreign currency (\$) expressed in terms of domestic currency (PKR). A decrease in the value represents appreciation of the domestic currency, and an increase indicates depreciation. Comparatively, the real effective exchange rate (REER) is a measure of the value of a currency against a weighted average of its trading partners' currencies, adjusted for relative price levels. REER is an index benchmarked to a base year, the choice of which is arbitrary. The current base year for REER in Pakistan is 2010. The base year value is equated to 100. Although, literature supports that time series patterns in REER series can signal currency over/under valuation, it is better suited to assess the trade competitiveness of an economy. An increase in REER indicates an appreciated domestic currency implying that exports are more expensive and imports cheaper; therefore, loss in trade competitiveness, and vice versa. Higher relative domestic prices create pressure on the nominal exchange rate to depreciate. Yet between 2013 and 2018, the nominal exchange rate depreciated only marginally as it was under a managed regime, leading the REER to indicate appreciation of the rupee, or broadly an overvaluation against the dollar. From 2019 till February 2023 exchange rate was allowed to depreciate, which was reflected in the REER index as a decline. However, data suggests that the rupee may have depreciated more than the change in relative prices between Pakistan and its trading partners.

Literature Review

The debate among economists on whether Pakistan's exchange rate is overvalued remains unsettled. Khalid (2015) examined the claim of PKR overvaluation during the period of March 2014 to January 2015 and argued that not only is the concept of overvaluation not robust—as different measures (PPP, REER, BEER, others) show different results—but with market sentiments strongly driving the exchange rate, targeting a desired PKR would have been “delusional”.

However, Hamid & Mir (2017) argue that a consistently overvalued exchange rate has had an adverse impact on Pakistan's exports and manufacturing, with serious negative consequences for the long-term growth of the economy and accentuated short-term risks of recurring balance-of-payment crises.

The International Monetary Fund (IMF) (2022) asserts that commitment to maintaining a market-determined exchange rate is essential for reducing external imbalances and rebuilding foreign exchange reserves. It emphasizes the role of exchange rate as a key shock-absorber against external terms-of-trade shocks and low reserve buffers.

The shift from Managed to Market Determined Exchange Rate Regime

Under a flexible exchange rate, an increase in foreign exchange reserves strengthens the domestic currency, leading to an appreciation of the exchange rate, while

reserve depletion weakens the currency, leading to its depreciation. Under a managed regime, this relationship does not hold. Regardless of its reserve levels, the government aims to target a specific exchange rate value. However, this policy becomes unsustainable in practice when reserves fall too rapidly. We calculated the correlation coefficient between exchange rate and foreign exchange reserves during the two periods for which a shift in the exchange rate regime was observed. Between 2013 and 2018, the coefficient had a counterintuitive value of 0.69, indicating a managed exchange rate. From 2019 to 2023, the coefficient was -0.22, which—although a weaker relationship—suggests that changes in reserve levels were being reflected in the exchange rate. Figure 1 shows the trends in the two series over the period.

For the most part of 2013 and 2018, the government was able to maintain a stable exchange rate, while the REER showed an appreciating trend (see Figure 2). Over the entire duration, the exchange rate depreciated by 25.9 percent, whereas the REER appreciated by 2.1 percent. This indicates that the value of the PKR compared to its trading partners was higher than in 2010 (base year)—despite the depreciation—necessitating further depreciation of the PKR. It also indicates an overvalued currency. Given an expensive PKR, demand for Pakistan's exports is expected to be low, and foreign goods are likely to be relatively cheaper, creating demand for imports.

Under the market-determined exchange rate, the PKR depreciated by 114.5 percent against the Dollar. Unlike in the managed exchange rate regime, the REER index mirrored the direction of exchange rate change, depreciating by 17.4 percent. The figure implies that the value of PKR compared to its trading partners has lowered than in 2010. This raises an important question: will the adoption of market-determined exchange rate improve Pakistan's competitiveness, increasing exports and lowering imports?

Impact of the Shift on Pakistan's Trade Competitiveness

Figure 3 shows that as expected, exports remained stagnant during the managed exchange rate regime but increased marginally on average by 4.36 percent annually. During this market-determined exchange rate regime, import trends continued to increase, contrary to expectations of a decline due to the Dollar being expensive relative to the Rupee. Two exceptions to this trend occurred: One—between 2019 and 2020, a decrease in global demand and supply disruptions caused by the pandemic, coupled with weakening consumer and business sentiments led to a 15.9 percent decline in imports, as compared to 2018-19. Two—in August 2022, the government imposed import restrictions to curb the outflow of Dollars, resulting in a 33.9 percent decline until February 2023.

To probe further into the reasons for the trend, we estimate export and import elasticities using a simple linear regression model. We estimate the following:

Export Elasticity Equation:

$$X = \alpha + \beta_1 REER + \beta_2 Y_W + \varepsilon_1$$

Import Elasticity Equation:

$$M = \alpha + \beta_1 REER + \beta_2 Y_P + \varepsilon_2$$

Where X is the total value of exports, M is the total value of imports, REER is the real effective exchange rate index value, Y_W is World Income and Y_P is the domestic income. Variables are used in log form to show changes.

Data on exports, imports and REER was taken from the State Bank of Pakistan. Following Brun et al. (2020), *World Income* was estimated as the sum of the GDP of the United States, European Union, China and Japan in billion current USD. Domestic income is Pakistan's GDP in billion current USD terms. All GDP data is obtained from the World Development Indicators database. The results are given in the table 1.

Table 1: Pakistan's Export and Import Elasticities (using value in USD)

Export Elasticity	
REER	-0.189
World Income	0.454
R-Squared = 0.358	
constant values have not been reported	
Import Elasticity	
REER	-0.592
Domestic Income	0.857***
R-Squared = 0.772	
***significant at 1% level	
constant values have not been reported	

Results indicate that a 10 percent decrease in REER (depreciation) is associated with 1.9 percent increase in exports. The direction of the relationship is consistent with the expectation and what we observed in the data above. World income also appears to have a positive relationship with exports, with a 10 percent growth in *World Income* is positively associated with 4.5 percent increase in exports. However, both variables are statistically insignificant.

In terms of imports, a 10 percent decrease in REER (depreciation) is associated with 5.9 percent increase in imports, even though imports are

expensive as the PKR compares lower in value than its trading partners. This finding is also in line with the partner observed in the data above, however, his variable is statistically insignificant. Growth in domestic income by 10 percent is positively associated with an 8.6 percent increase in imports. This variable is statistically significant at 1 percent level.

We also estimated an alternative model using the same specification with the total volume of exports and imports rather than their value. The data was obtained from the Pakistan Bureau of Statistics, and the Quantum of Exports and Quantum of Imports indices were used in log form. The results presented in Table 2 show that the magnitude of the response appears to differ, although the findings in terms of the direction of the variables in response to a decrease in REER remains unchanged. There appears to be a significant positive relationship between *World Income* and our exports.

Table 2: Pakistan's Export and Import Elasticities (using volume)

Export Elasticity	
REER	-0.494
World Income	0.577**
R-Squared = 0.811	
***significant at 5% level constant values have not been reported	
Import Elasticity	
REER	-0.125
Domestic Income	1.365***
R-Squared = 0.950	
***significant at 1% level constant values have not been reported	

Overall, our estimates suggest that Pakistan's exports and imports are inelastic, meaning they are less responsive to changes in the value of the PKR compared to its trading partners. This raises the question of what drives the demand for our exports and imports. While our empirical assessment remains inconclusive for exports, we can conclude that the demand for imports is driven by domestic growth.

To further understand why exports did not increase in response to REER depreciation—even though the Rupee was valued lower compared to its trading partners' currencies—we compared changes in the value of REER index with the Nominal Effective Exchange Rate (NEER) Index². This analysis highlighted that

² The NEER index is a measure of the nominal exchange rate of a currency against the weighted average of its trading partners' currencies. The REER index is a product of NEER and the Relative

relative price levels between Pakistan and its trading partners have been increasing. Therefore, regardless of the apparent lowering of our currency's value, our tradable commodities are expensive in the international market compared to our partners', depressing their demand. Our findings are in line with Brun et al.'s (2020) analysis of disaggregated export product-level data from 2003 to 2017, which sought to explain Pakistan's low export response to REER depreciation. They found that Dollar prices of Pakistani exports tend to fall after nominal devaluation, but not to the full extent of the devaluation, thus dampening the impact of devaluation on total export earnings.

Key Macroeconomic Variables and Exchange Rate

We revisit the question explored in the literature on how key macroeconomic variables affect Pakistan's exchange rate, and additionally attempt to assess the relative magnitude of the impact of these variables on the exchange rate. The objective was to contextualize the relative importance of macroeconomic variables in creating exchange rate pressures from a policy perspective, which the government aims to resist by pursuing a managed exchange rate regime.

For this purpose, a simple linear regression model, using monthly data is estimated with the following specification:

$$ER = \alpha + \beta_1 SBPR + \beta_2 TD + \beta_3 ERP + \beta_4 GB + \beta_5 FI$$

Where ER is the average nominal exchange rate (PKR/USD), SBPR is the SBP reserves, TD is the trade deficit, ERP is a dummy variable of exchange rate policy, with 0 for managed regime and 1 for market determined. GB is government borrowing and FI is foreign investment. All variables are in billion PKR.

The results are presented in table 3.

Table 3: Impact of Key Macroeconomic Variables on Nominal Exchange Rate

	Beta Coefficient	Standardised Beta Coefficient
SBP Reserves	-0.012***	-0.175***
Trade Deficit	0.011	0.045
ER Policy	-4.132	-0.053
Government Borrowing	6.580***	1.132***
Foreign Investment	-0.0140	-0.028
Constant	34.249***	-

***significant at 1% level
of observation: 104

Price Index (RPI). RPI is an estimate of the relative price levels between the country and its trading partners.

R-Squared = 0.967

As expected, SBP reserves have a significant impact on the nominal exchange rate, emphasizing the need to maintain a stable level of reserves to ensure long-term exchange rate stability. Running down reserves to manage the exchange rate has led to recurring currency and balance-of-payment crises in Pakistan, every three to four years.

Persistently high imports relative to exports have created a foreign exchange demand-supply imbalance, increasing depreciation pressures on the exchange rate. Under a managed regime, this equates to a greater reserve losses. Foreign investment, by increasing foreign exchange reserves, can mitigate unexpected external shocks and contribute to exchange rate stability. However, our results suggest that the exchange rate regime, whether market-determined or managed, has no significant impact on nominal exchange rate. Both variables are insignificant.

Government borrowing, a proxy for fiscal deficit, significantly affects the nominal exchange rate. Standardized beta coefficients indicate that it has the highest impact on the exchange rate. Increasing borrowing by one billion from the average level depreciates the exchange rate by PRK 1.13 from the average rate. Expansionary fiscal, while intended to stimulate economic growth, has led to high demand, primarily consumption-led, which is import-oriented. This has widened the trade deficit, reduced foreign reserves, and increased depreciation pressures. Amjad & Shahzad (2017) found evidence that fiscal deficits feed into the current account deficit in Pakistan.

Policy Measures: How Best to Manage Market-Driven Exchange Rate Regime

Our analysis suggests that the expected benefits of the shift to a market-driven exchange rate have not been fully realized in Pakistan. Despite a substantial depreciation of the PKR, both nominally and in real terms, the currency has not stabilized at a level that restore competitiveness. The reasons are threefold. First, the forex market is imperfect; second, exports are inelastic; and third, wider inflation has kept tradeable goods expensive relative to competitors.

Pakistan's trade competitiveness hinges on the relative prices of our tradeable goods compared to those of our trading partners, rather than on the value of our exchange rates. Both exports and imports are relatively inelastic to exchange rate fluctuations. A market-driven exchange rate can serve as a regulator, influencing investment, production, and consumption decisions. It has the potential to improve macroeconomic discipline, but a crucial pre-requisite is the government's credible commitment to allowing the exchange rate to be

market-driven. While the State Bank can play a role, it should focus on “managing market sentiments and not going against the market” (Khalid, 2015). This requires safeguards, such as (i) strict measures against smuggling, hoarding and other illegal transfers, as recent measures³ have successfully narrowed the gap between the exchange rates in open market and the interbank market (ii) stricter controls on operating accounts and foreign exchange transfers by resident Pakistanis (iii) a build-up of foreign exchange reserves to stabilize large, sudden changes in the exchange rate and provide more room for the State Bank to intervene, unlike the current IMF program’s quarterly net zero restriction; (iv) an industrial policy to promote exports; and (v) more effective demand management to reduce economy-wide inflationary pressures.

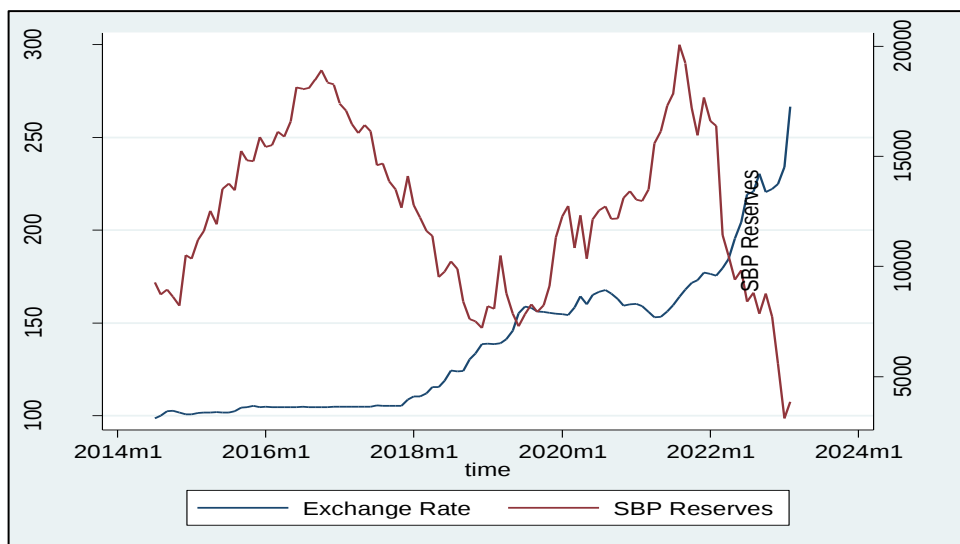
³ Introduced by the interim government in September 2023

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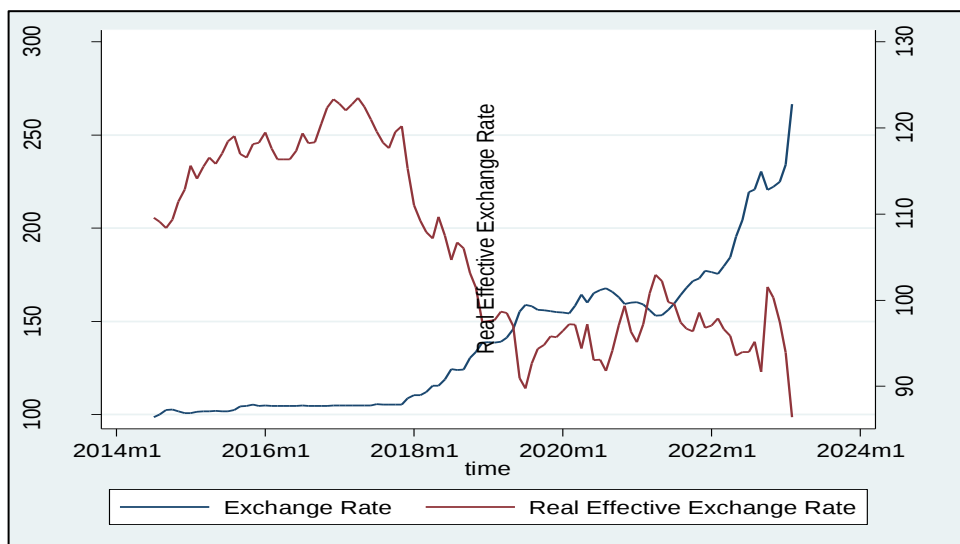
Appendix

Figure 1: Nominal Exchange Rate and SBP Foreign Exchange Reserves



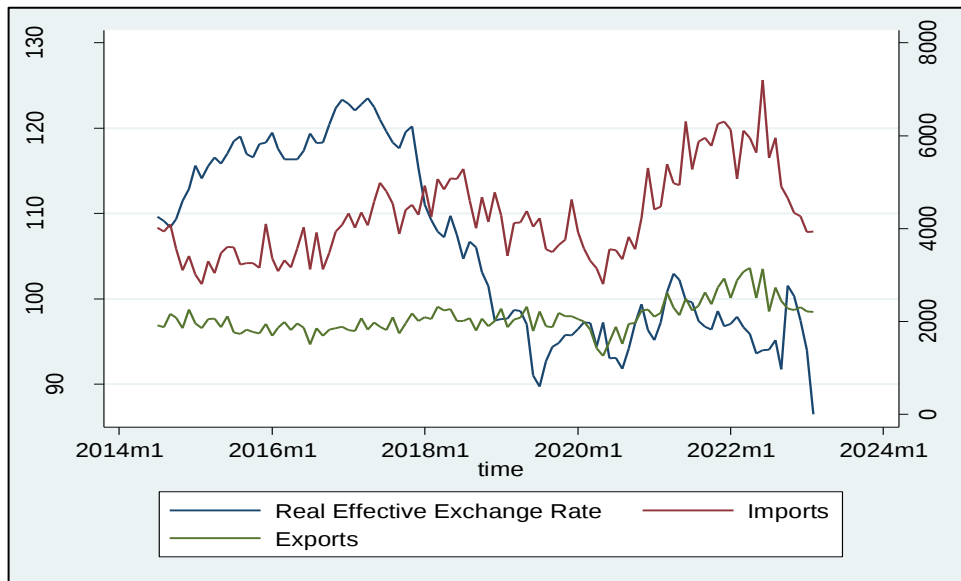
Source: State Bank of Pakistan, Economic Data

Figure 2: Nominal Exchange Rate and Real Effective Exchange Rate



Source: State Bank of Pakistan, Economic Data

Figure 3: Real Effective Exchange Rate, Imports and Exports



Source: State Bank of Pakistan, Economic Data