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# **Exchange Rate Volatility and Exports of Pakistan**

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**Key words: Exchange rate, Exports, correlation**

## **Executive Summary**

The objective of this note is to examine volatility during the last two decades of four political regimes under flexible exchange rate policy in Pakistan and its relationship with the exports of the country. It examines the exports variability during four core periods of political governments. The volatility in exchange rate has been calculated by using standard deviation. Monthly data has been used and it spans from 2000:1 to 2020:8. The dataset has been obtained from State Bank of Pakistan. The overall volatility in exchange rate during the period of study showed 1.37 and mean value was 0.49. Results reveal that flexible exchange rate (2018:8 -2020:8) has shown highest exchange rate volatility in era four of current government whereas lowest volatility is found during era one of PMLQ regime. However, Overall variability in export was 11.52 and highest variability has been found during the first era of PTI and lowest in PPP government. The correlation results show that exchange rate and export are positively associated during PMLQ and PTI regimes time periods. The study suggests that considering exchange rate policy, it is essential for the political governments to adjust implementation solutions, handle the bottlenecks and create association between exchange rate policy and exports.

## **Overview**

Exchange rate role in shaping macroeconomic policies in global economies is unique. It is one of the policy variables and its regimes (fixed or floating) are decided by central banks or governments keeping in view the economic situation of the country. Exchange rate is “the price of one currency in terms of another currency”. Various discussions among policymakers, academics and researchers since 1970s throughout

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the world has helped economies in building strong economic structures. What kind of exchange rate policy a country may opt? Is debated; to determine whether a fixed, pegged or floating exchange rate regime is optimal. With the collapse of Bretton-Woods in 1973, the era of fixed exchange rate regime ended. Countries started following flexible exchange rate policies. This brought some progress in the economy but it also increased the risk of international trade. Many countries adopted the flexible exchange rate system which in turn created uncertainty and volatility in exchange rates. Researchers and policy makers have started studying the impact of exchange rate volatility on international trade. Volatility can be defined as unobservable or stochastic variable. There are however studies which have tried to make the exchange rate volatility variable as an observable variable. As many countries started following flexible exchange rate, economists started examining the relationship between currencies and volume of trade. Numerous studies both theoretical as well as empirical reveal unclear impacts of exchange rate volatility on exports. However, no consensus is available in theoretical or empirical literature on the effect of exchange rate on international trade flows.

It is argued in literature that volatility in exchange rate hinders trade. Because trade contracts are mostly signed for delivery of goods in future and in terms of currency, these are denominated either from buyer or seller; therefore, the risk involved in international transactions increases from unanticipated fluctuations in exchange rate and it may lead to reduced trade for those who are risk averse traders. However, both empirical and theoretical literature does not support this viewpoint conclusively. There are a few theoretical studies of Baron, 1976; Clark 1973 support a negative hypothesis relating to exchange rate volatility which reduces exports. Other studies like Franke (1991; Viaene (1992) favor positive hypothesis exchange rate volatility fostered trade. Empirical studies of Doganlar (2002) and Chit (2010) showed that volatility of exchange rate depresses exports (volatility of exchange rate has negative relationship). On the contrary, Kasman (2005) and Serenis (2014) argue positive impact of volatile exchange rate on exports. Furthermore, studies like Lee (2005) find insignificant, weak or no effect. The reason of mixed results in empirical

literature may be because of different time period covered, model specifications, proxies used for volatility of exchange rate and the countries included for study.

This mixed trend in empirical literature has motivated to conduct a study with reference to Pakistan. Since independence in 1947, Pakistan has adopted different exchange rate systems at different points of time. A Fixed Exchange Rate system has been upheld from 1947 to 1982. The Managed Floating Exchange Rate system was adopted on January 8, 1982 with the particular objective to keep up the intensity of exports in international markets as the dollar showed appreciation against other currencies. The Managed Floating Exchange Rate system was replaced on July 22, 1998, as a procedure to face economic sanctions imposed by international financial institutions and donors after Pakistan conducted atomic tests in May 28, 1998. The reason of the dual exchange rate was to transfer the benefits of currency devaluation to exporters, Overseas Pakistanis who remit money, and to reduce import of unnecessary goods. It was thought to limit the cost of devaluation as far as containing cost of key imports, repayments of foreign debt by limiting the effect of inflation and overall government's budget deficit are concerned. Pakistan adopted the policy of free float on July 20, 2000.

With this background, this study is to look at the volatility of exchange rate witnessed during different political regimes and variability exhibited by exports in Pakistan. In case of Pakistan, the study observes fluctuations in exports resulting from the exchange rate volatility. It uses monthly time series data from 2000:1 to 2020:8. The study empirically investigates the effect of volatility of exchange rate on the exports in Pakistan. As the exchange rate is economic policy variable sufficiently controlled by the central bank or the government, the novelty of this present study is that it calculates volatility of exchange rate during four different political regimes in Pakistan and examines the relationship with exports. In many empirical studies, the moving average of the exchange rate variance, moving average of the exchange rate standard deviation, and the absolute value of volatility of exchange rate have been used. Other empirical studies have used GARCH type models, using the conditional mean and conditional variance instead. The measure

utilized in the present study is the standard deviation as measure of volatility using month on month growth to observe the variability in data.

## Results and Discussion

Exchange rate volatility has been calculated during four core eras (2000:1 2020:8). Era one consists of 2000-1 to 2008-2 which is PMLQ regime, Era two starts from 2008-3 to 2013-5 PPP government , Era three continue from 2013-6 to 2018-7 and Era four 2018-8 to 2020-8 (continued)PTI regime. Table (1) below depicts the volatility during these regimes.

Period	Observation	Mean Value	Volatility in MOM growth
2000-1 to 2008-2	98	0.20	0.93
2008-3 to 2013-5	63	0.32	2.63
2013-6 to 2018-7	62	0.32	1.25
2018-8 to 2020-8	25	1.30	2.12
Overall	248	0.49	1.37

Standard deviation obtained through month on month growth shows the variability in data. A large value of standard deviation shows that data points in data - set are widely dispersed and they are at a distance from the mean, while a small value of the standard deviation points out that the data-points are grouped nearly around the mean. The results of standard deviations reveal that exchange rate during PPP government has shown higher volatility with 2.63 which is even higher than overall period volatility.

The graphs for variability in exchange rate during the period of analysis is in Annexure. During first era (2000-1-2008-2), variability in exchange rate is observed as beginning of free float exchange rate. The period starts with depreciation and then appreciation in the next year and remained stable rest of the period. Similarly the second era (2008-3 2013-5) faced financial crisis and variability in exchange rate was

observed. The third era (2013-6 2018-7), the PKR depreciated by 6.0 percent against the US Dollar and to a larger external deficit and SBP's FX purchases from the interbank market put pressures on PKR also came from adverse market sentiments. This level of PKR depreciation was partially responsible for the increase in inflationary pressures in the country during the period. From 2017-10 to 2018-4, variability in exchange rate was observed due to depreciation of PKR and which pushed imports costly and raised the inflation expectations. The fourth era (2018 to date) exhibit series of depreciation in PKR before and after Covid-19. The recent trajectory showed half-yearly surplus in the primary budget balance—the first since 2016—stemmed from fiscal consolidation measures and proactive conduct of monetary policy; led to a softening in core inflation; and the policy shift to a market-determined exchange rate policy in building a robust FX reserves buffer during the COVID-19 environment.

Period	Observation	Mean Value	Volatility in MOM growth
2000-1 to 2008-2	98	1.80	12.70
2008-3 to 2013-5	63	0.78	9.61
2013-6 to 2018-7	62	0.52	10.28
2018-8 to 2020-8	25	-0.25	14.23
Overall	248	1.02	11.52

The variability in exports of Pakistan during four political regimes has been obtained. The values of standard deviation, a measure of variability, during different regimes are 12.70, 9.61 and 910.28 and 14.23 respectively. Export growth has shown highest variability during the recent PTI regime.

As the results of exchange rate and exports have shown variability, it was now appropriate to calculate the correlation between these two variables. The results of correlation as shown in Table (3) reveal the negative relationship between exchange rate volatility and export growth during four sample periods. The negative sign shows that export growth decreases with the increase in exchange rate volatility. PPP government

showed highest negative correlation. PMLQ regime and PTI regime showed positive correlation which means export growth increase with the increase in exchange rate.

<b>Table 3: Correlation between Exchange rate and Export of Pakistan</b>		
Period	Observation	Correlation Coefficient
2000-1 to 2008-2	98	0.02
2008-3 to 2013-5	63	-0.23
2013-6 to 2018-7	62	-0.09
2018-8 to 2020-8	25	0.07
Overall	248	-0.06

### **Concluding Remarks**

This work measure the volatility of exchange rate and exports revealed during the last two decades. The purpose was to establish a linkage between exchange rate volatility and export variability in Pakistan. Exchange rate volatility was measured during last twenty years divided into four political regimes under the flexible exchange rate system in Pakistan by using the month on month growth method. The results reveal that exchange rate during the PMLQ regime (2000:1 to 2008:2) has shown lowest volatility with .93 while it has exhibited the highest volatility with 2.63 during the PPP regime (table 1). Variability in the exports growth during the sample period of PTI regime has been found to be the highest in comparison to other time periods (table 2). As the results of exchange rate and exports have shown fluctuations, the strength of their relationship was calculated through correlation. Results reveal negative relationship between exchange rate volatility and export growth during PPP and PMLN periods. This means the export

growth decrease with the increase in exchange rate volatility. On the other, PMLQ and PTI regimes showed positive correlation between the variables concerned. This shows that export growth increase with the increase in exchange rate volatility.

It shows that exports of the country are sensitive to the volatility of the currency. The study has some limitations. It has rounded the dates of different political regimes for the sake of convenience in analysis. The association between exchange rate volatility and exports is weak as shown in the correlation analysis (table 3). Secondly, this relationship does not give the extent of variability in exports caused by the exchange rate volatility. Therefore, the subject needs further investigation. It is suggested that researchers and economists may get more robust analysis of exchange rate volatility of other currencies like Pound sterling, Euro dollar and/ or Yen and explore association with exports by applying appropriate econometric regression models.



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# Annexure

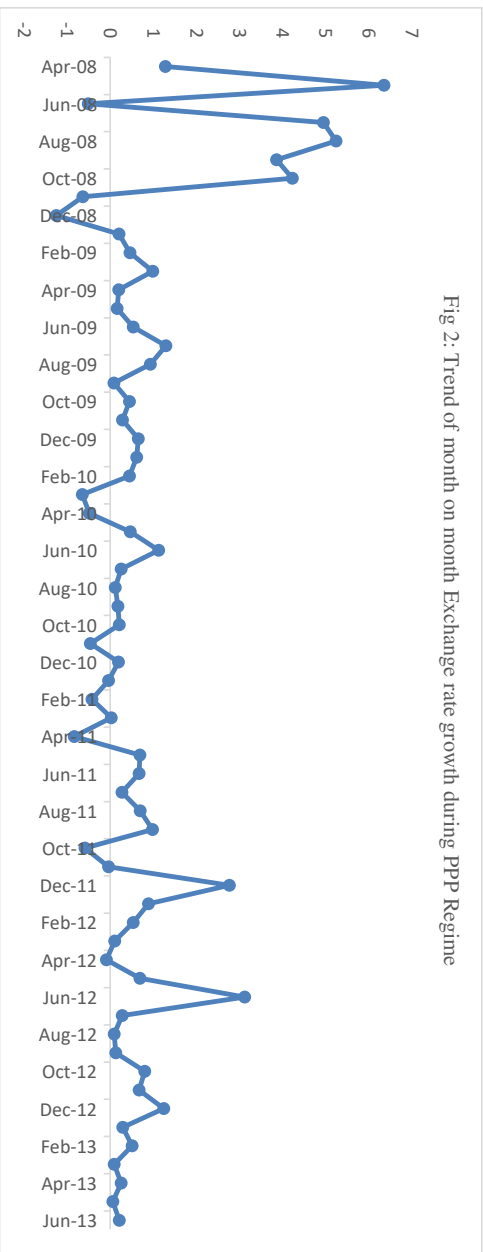
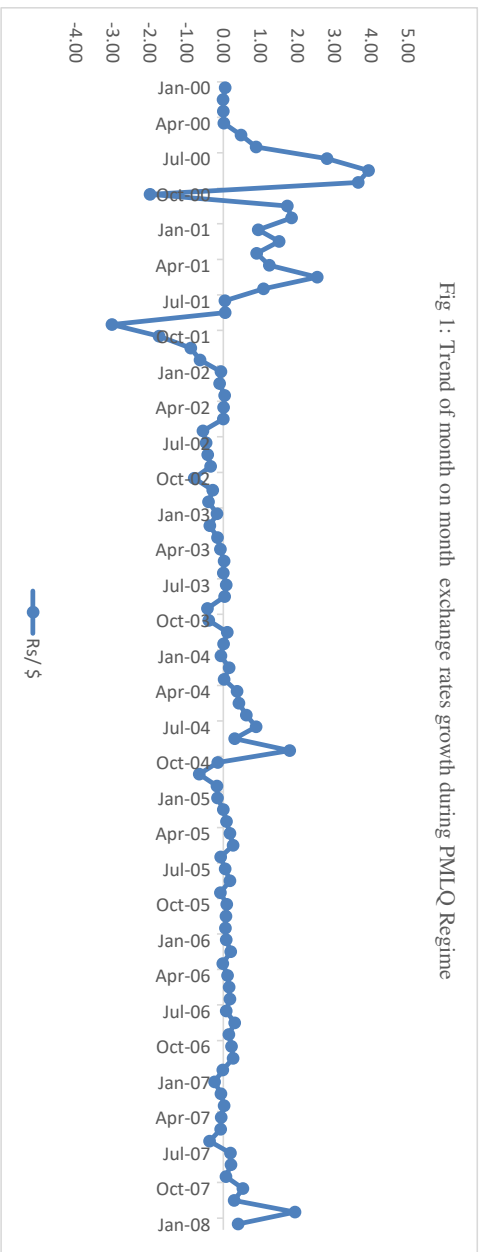


Fig 3: Trend of month on month exchange rate growth during PMLN Regime

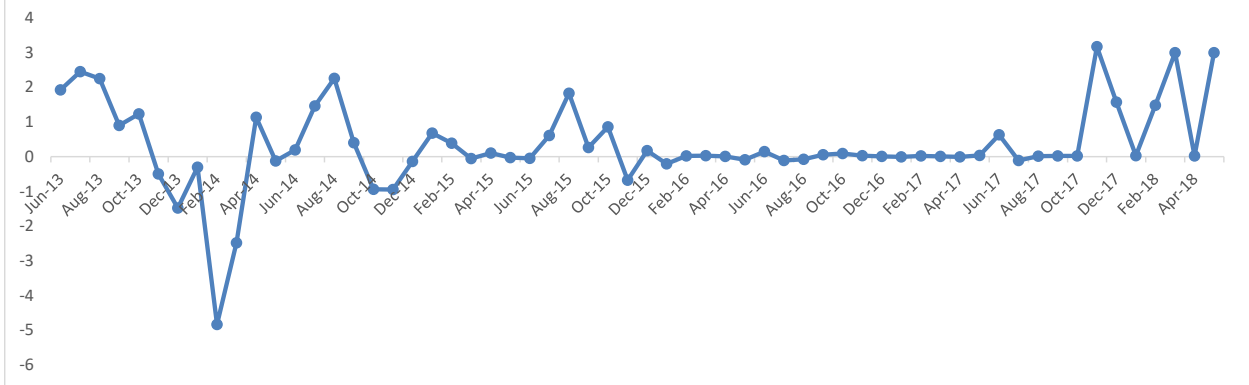


Fig 4: Trend of month on month exchange rate growth during PTI Regime

