

The exchange rate volatility and the effects of exchange rate on the price level and international trade of Bangladesh: A review

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Abstract:

This paper mainly examines the effect of exchange rate on the price level and international trade of Bangladesh. Along with this, it also has studied how exchange rate is related to 12 economic and non-economic factors. This gives an in-depth idea about how the exchange rate of a country changes. This helps to infer to the conclusions in the paper. The discussions were made after carefully reading various publications written about Bangladesh and other nations. It was found in the study that despite Bangladesh's economy being based on the US dollar, exchange rate fluctuation does not significantly affect Bangladesh's export or import. Imports become more expensive after depreciation, which could result in price increases in the economy. The exchange rate and the rate of inflation were found to be indirectly correlated.

Keywords: Inflation, stock of money, depreciation, trade balance, floating exchange rate, exchange rate risk

Date of Submission: 11-09-2022

Date of Acceptance: 28-09-2022

I. Introduction:

The Taka and the Pound Sterling were connected before 1983. The U.S. Dollar was used as its intervention currency starting from January 1983. Bangladesh Taka (Tk), which was established in January 1972 to replace the Pakistan Rupee, is the national currency of Bangladesh. Up until 1979, Bangladesh used a "fixed exchange rate" system. Following that, it used a managed floating exchange rate regime from 1979 to the middle of 2003. Bangladesh previously maintained a number of pegged exchange rate regimes, including one that was tied to the British pound sterling (1972-1979), another that was tied to a basket of major trading partners' currencies with the pound sterling acting as the intermediary currency (1980-1982), another that was tied to a basket of major trading partners' currencies with the US dollar acting as the intermediary currency (1983-1999), and a third that was adjustable (2000-2003). By establishing a fully convertible current account, Bangladesh adopted a nearly new exchange rate strategy known as "clean floating" from May 2003. Now Bangladesh is mostly a US dollar-based economy. Recent fluctuations in the US dollar-Tk exchange rate raise scope to study about the exchange rate volatility and effects in different macro factors.

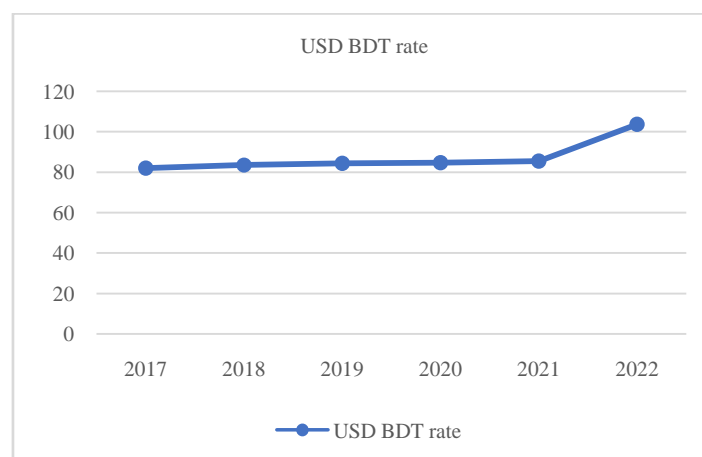


Figure 1: USD BDT exchange rate from September, 2017-September, 2022

The above table shows the fluctuations about USD BDT exchange rate for the time period of September 2017 to September 2022. It can be noticed there is a significant increase in the exchange rate

recently. This has raised a question if the volatility of the exchange rate brings any changes in international trade. The aim of this paper is to understand the relationship between exchange rate and price level, exchange rate and international trade from studying different literature available. This paper will also address relationship of exchange rate with important indicators of economy to grasp the volatility effect of exchange rate. The research questions for the paper are as follows-

1. What are the economic and non-economic factors that are associated with exchange rate?
2. How are the indicators are related with the exchange rate movements?
3. What is trend of the exchange rate, export, import and trade balance over the past five years?
4. How does the exchange rate affect the price level of Bangladesh?
5. How is the international trade affected by the exchange rate?

As this is a review paper the study focuses only on secondary data. To find the answers to the questions above we have reviewed 22 papers thoroughly.

II. Relationship of Exchange Rate with Different Economic and Non-economic Factors

The macroeconomic or monetary fundamentals of the individual countries have a substantial impact on exchange rate behavior. Exchange rate fluctuations can be caused by economic, political, psychological, and short- or long-term factors. Macro and/or micro variables may be more useful for studying the behavior of the exchange rate. Below some of the factors or causes are presented that were studied in different studies.

1. **Inflation:**Hossain (2002) asserts that during the fixed exchange rate regime, there was little impact of depreciation on inflation. The sample's (1973-1999) results were deemed to be reliable.
2. **Foreign Capital-foreign aid and overseas worker's remittances:** According to Hossain (1997), the ongoing inflows of foreign capital, foreign aid, and remittances from abroad workers have appreciated the real exchange rate by raising the relative demand for non-tradables.
3. **Interest rate:** Papadopoulos and Zis (2000) estimated the Drachma/ECU rate using co-integration technique, impulse response, and variance decomposition analysis with monthly data from 1980 to 1991 and discovered that exchange rate fluctuation appears to be primarily driven by money and interest rate innovations.
4. **Stock of money:**(Karfakis, 2003)tests the monetary model using the exchange rates for the Romanian Lei and the US Dollar and comes to the conclusion that money has a favorable relationship with exchange rates. Depreciation in the home currency is caused by an increase in money. In the study of (Uddin, K. M. K et al., 2013) relative stock of money positively and significantly affect the exchange rate.
5. **Foreign exchange behavior:**Results show a strong correlation between the relative foreign exchange reserve balance and exchange rate value. According to empirical findings from (Uddin, K. M. K. et al., 2013), a 1% rise in the relative balance of foreign exchange reserves (measured in terms of US Dollars) results in a 0.0975 percent decline in the bilateral nominal exchange rate between Bangladeshi taka (BDT) and US Dollar (USD)
6. **Export-import:**Depreciation and the export-import gap as a percentage of reserves have a strong negative association (-0.40); the more L/C openings there are, the more volatile the exchange rate is. One of the causes of the increase in money market interest rates and the decline in the nominal exchange rate is the high seasonal demand for foreign currency due to rising import expenses. (Rahman and Barua, 2006)
7. **Debt:**The government borrows money to pay for development projects, budget deficits, and payment balance imbalances. One of the main factors contributing to the depreciation of the Bangladesh Taka against the US Dollar is government borrowing from both domestic and international sources. Therefore, debt has a positive and substantial impact on the exchange rate. (Uddin, K. M. K et al., 2013)
8. **Political instability:** In the case of Bangladesh, political unrest has a detrimental impact on currency values. According to the study by (Uddin, K. M. K et al., 2013), political unrest has increased the exchange rate by 25% when compared to the benchmark category. This demonstrates how closely tied the political unrest is to the foreign currency markets. For a developing nation like Bangladesh in particular.
9. **Other factors:**Using data from January 2001 to July 2007, Egert (2010) analyzes the behavior of the South African Rand against the US Dollar and discovers four factors that have an impact on the exchange rate returns in South Africa, including the nonlinear monetary equilibrium mean reversion property, changes in gold prices, market perceptions of risk generally, and innovations in the exchange rates of the Dollar and Euro.

III. Effects of Exchange Rate on the Price Level:

Exchange rates might alter the level of prices, which would alter how the economy's income is distributed (Agenor 1991, Montiel 1997). There are two important views about price level- 1. Structuralist's view and 2. Monetarist's view. While structuralists believe that prices of non-tradable items may also increase depending on the state of the labor market and institutional arrangements during depreciation, monetarists believe that prices of tradable items rise directly, and that monetary stability is a source of inflation for sustained economic growth. (Agenor 1991, Montiel 1997, Aghevli B.B. et al, 1991, Krugman and Taylor 1987) mentions

the overall price level or growth rate may increase as a result of devaluation.(Hossain 2002)also states by decreasing the demand for domestic currency, a predicted currency devaluation may raise the excess money supply and consequently inflation.

In general, there are two types of exchange rate systems:

- I. Fixed exchange rate system
- II. Floating exchange rate system.

Proponents of free-floating exchange rate regimes contend that "a system of really set exchange rates pushes countries to maintain their pricing levels in line, and as a result, to maintain their macroeconomic policies" (Mussa, 2000).Advocates of fixed exchange rates contend that domestic goods prices exhibit a range of rigidities, both upward and downward. They do not believe that the macroeconomic system will produce an immune to shock exchange rate on its own. They think that, at least in the short and medium term, a nominal depreciation would actually have an impact.

The analysis of (Kandil and Mirzaie, 2008)clearly shows that depreciation affects price level and output growth in a single way. Real national income growth also contributed to inflation, which is a related but equally significant conclusion of this study. The overall findings support the idea that in Bangladesh, devaluation typically results in inflation, which promotes output growth.(Islam & Biswas, 2009) in their study found that there is a correlation between exchange rate and inflation. From the regression model it was concluded that 37.8% of inflation was caused by exchange rate movements.The exchange rate and the rate of inflation were found to be indirectly correlated by Pearson bivariate coefficients of correlation. According to the findings depreciation, or an increase in the exchange rate, results in a drop in inflation.

IV. Impact on International Trade:

Export and import, the two elements of our external resource balance, have significantly increased recently. The export has climbed to 4.6 BDT billion in August 2022;however, the import has dramatically increased to 720 BDT million amid persistent consequences of the unstable external economic conditions and pressures on domestic and global inflation. The total export revenue for July and August of the current fiscal year increased by 25.31% to \$8.59 billion from the \$6.85 billion revenue for the same period of the previous fiscal.

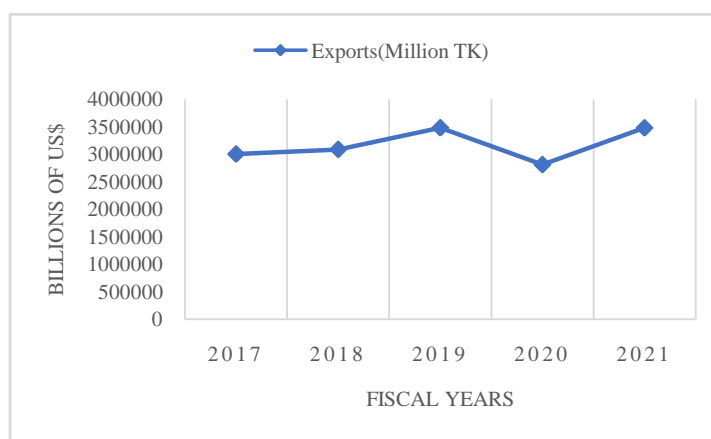


Figure 2: Total exports of Bangladesh from 2017 to 2021.

Bangladesh Total Imports grew 37.3 % YoY in Jun 2022, compared with an increase of 42.4 % YoY in the previous month.Imports in Bangladesh increased to 709.25 BDT Billion in June from 599.94 BDT Billion in May of 2022. The trend of imports by Bangladesh from 2017 to 2021 is given below-

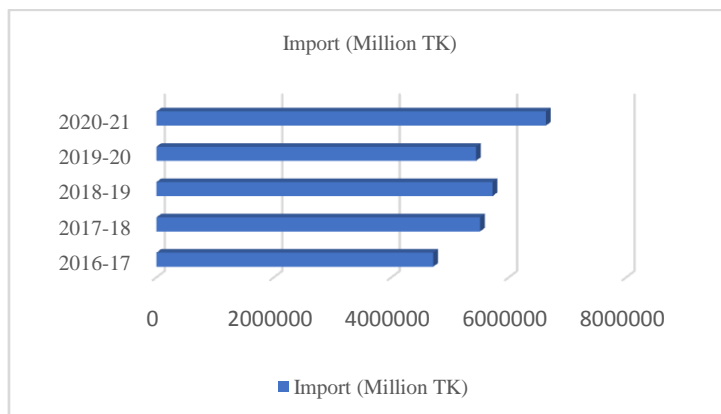


Figure 3: Total imports of Bangladesh

We might infer from the graph above that between 2017 and 2021, overall imports raised considerably.

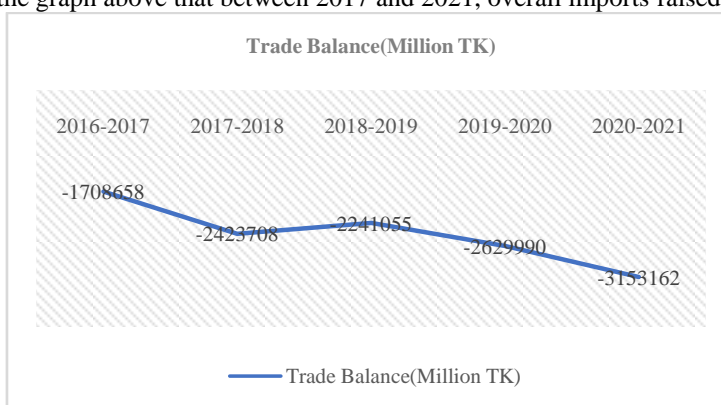


Figure 4: Trade balance of Bangladesh from 2017 to 2021.

We can notice from the above figure that trade balance has decreased over the past five years. It is also important to mention that exchange rate has substantially increased in these five years shown in figure 1. Now we will look into some literature to understand the relationship between the exchange rate and international trade.

The projected negative association between exchange rate volatility and real export has been put forth by Cushman (1983, 1986, 1988), Pere and Steiner (1986), Koray and Lastrapes (1989), and Kenen and Rodrick (1990). (1986). However, Rana (1983) study is the most thorough study in the context of developing countries. He reached the same results regarding the import volumes of a number of Southeast Asian countries. He concluded that the increase in exchange rate risk has a significant negative impact on import volumes.

The bilateral trade between West Germany and the US was analyzed by Akhter and Hilton (1984). They came to the conclusion that the imports and exports of two countries are significantly negatively impacted by exchange rate fluctuation. However, the standard deviation of effective exchange rates has been used to measure the exchange rate volatility. There's a study of Nigeria that concludes a mixed result. The effects of exchange rate depreciation on output were varied, with contractionary effects in the short term and expansionary effects in the intermediate and long term, according to a relationship between depreciation, inflation, and output. These findings appear to show that depreciation may not always result in increased output, especially in the short term (Odusola and Akinlo, 2001). Exchange rate risk is frequently cited as having a detrimental impact on global trade. The common defense is that increased exchange rate risk makes trade gains riskier and causes risk-averse traders to curtail trading. Exchange rate risk can have a positive or negative impact on trade through its impact on the forward rate (Viaene and De Vries, 1992). Researchers have a propensity to assume that the influence is negligible, or at the very least, modest, in which case it is insignificant. Due to the unexpected discrepancy between the widely held belief that there is a negative effect and the ambiguous empirical findings, (Klaassen, 2002) investigated whether the routinely employed research methodology was to blame for the lack of significance. They came to the conclusion that risk had no impact on exports. However, insignificance does not always imply the lack of an effect. Even if there is an effect in reality, it could be challenging to detect it using certain research methodologies. The empirical findings of (Ahmed, 2009) imply that the exchange rate does not significantly affect Bangladesh's long-term or short-term commerce with other trading nations. Despite the fluctuating currency rates, Bangladesh's exports are steadily rising, and a sizable portion of those exports go

to the US, which is apparent. As a conclusion it can be said that despite Bangladesh's economy being based on the US dollar, exchange rate fluctuation does not significantly affect Bangladesh's export or import. However, the findings also demonstrate that Bangladesh's imports have greatly increased despite the rise in the currency rate.

V. Conclusion:

The relative stock of money and debt are stated to be favorably and significantly affect the exchange rate, summarizing the relationship between economic and non-economic factors and the exchange rate. Exchange rate and relative foreign exchange reserve are highly and negatively connected. In the case of Bangladesh, political unrest has a detrimental impact on currency values. In the case of international trade, it can be concluded that even though Bangladesh's economy is based on the US dollar, exchange rate fluctuations have little impact on Bangladesh's export or import. After devaluation, imports become more expensive and could lead to increased prices (Kandil and Mirzaie. 2008). Due to increased aggregate demand, prices and output levels are projected to increase over time as a result of the likely depreciation of the domestic currency. As a result, theory and research indicate that depreciation affects price and output level differently throughout time.

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Noshin Anjum Chaiti, et. al. "The exchange rate volatility and the effects of exchange rate on the price level and international trade of Bangladesh: A review." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 13(5), 2022, pp. 40-44.