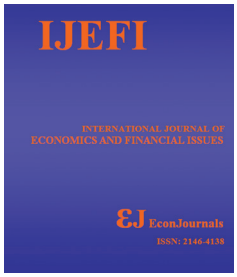

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The Effects of Exchange Rate Fluctuation on Bangladeshi Exports: An ARDL Bound Testing Technique

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ABSTRACT

The objective of this paper is to investigate the influence of fluctuations in exchange rates on the export performance of Bangladesh. The analysis is based on annual data obtained from reputable sources such as the World Development Indicators for the period spanning from 1981 to 2022. Autoregressive Distributive Lag bound testing approach is used to estimate the long-term as well as short-term relationship between the independent variables and dependent variable. The exports serve as the dependent variable, while the real exchange rate, gross capital formation (as a proxy for investment), inflation, and real interest rate are considered as the independent factors. The study's findings suggest that Bangladesh's exports are negatively impacted by exchange rates over the long and short terms. However, it is noteworthy that the magnitude of this negative effect is much greater in the long run as compared to the short run. Other controlled variables such as gross capital formation and real interest rate also have negative impact on exports in Bangladesh at lag one. Finally, this study suggests the implementation of policies that will foster better exchange rate stability as well as the pursuit of a stable and sustainable exchange rate policy.

Keywords: Exchange Rate Volatility, Autoregressive Distributive Lag, Controlled Variables, Exchange Rate Stability, Sustainable Exchange Rate Policy
JEL Classifications: C32, F31, F32

1. INTRODUCTION

Researchers were interested in the impacts of currency rate volatility on export after the Bretton Woods System collapsed in the first half of the 1970s and major trade currencies adopted free floating exchange rates in place of fixed exchange rates. Over the years, there has been a lot of debate over the evidence regarding both the positive and negative impacts of currency rate fluctuation on a country's exports. Significant amounts of previous studies suggested that currency rate fluctuation have negative impacts on a country's export (Muinelo-Gallo et al., 2020; Jyoti, 2021; Thorbecke, 2012; Tarasenko, 2021) while some of the research have shown positive impacts of currency rate fluctuation on a country's exports (Hasan et al., 2015; Umaru et al., 2018; Pun, 2020; Qabhobho, 2023; Shabbir et al., 2023; Habanabakize and Dickason-Koekemoer, 2023; Lezar, 2023) as well as few study founds that currency rate fluctuation has no impact on a country's export (Nyeadi, 2014). Hooper and Kohlhagen (1978) claimed that increased currency rate fluctuation has a detrimental impact on business because people do not wants to take risk. In a research, De Grauwe (1988) illustrated that since the volatility of trade is depends on the risk aversion behavior of people, volatility in exchange rate can therefore have positive impacts on export. Dincer and Kandil (2011) used the goods and money markets to conceptually explain how the exchange rate impacts export. They have mentioned it in the following two ways:

1. Imports will become less expensive due to the robust market, while exports will become more expensive as a consequence of an unanticipated rise in the local currency relative to its trading partners. Given the possibility of lowering the productivity of local businesses, this situation is not promising for nations that depend on export markets for their produced goods and services or for their mined resources.

2. If the local currency experiences a positive shock, such as a sharp appreciation or overvaluation, agents will maintain less local currency, which lowers interest rates. A favorable shock to the local currency might therefore lower local manufacturing output through the money market.

Despite the existence of a substantial corpus of literature pertaining to this topic, economists have a persistent interest in doing research on the management of exchange rates, specifically concentrating on developing nations. The main reason is that, regardless of how it is conceptualized, the currency rate functions as a vital link between the internal and rest of the world's market for goods and assets as well as a barometer of how competitive a nation's exchange power is on the global stage. Additionally, over the medium to long term, it acts as an anchor to preserve stable domestic and foreign macroeconomic balances. However, there is no easy way to calculate the equilibrium exchange rate, and Williamson (1994) cited that among the most difficult empirical problems in open-economy macroeconomics is estimating equilibrium currency rates and the extent of exchange rate disequilibrium. The primary issue is that the equilibrium currency rate cannot be seen in real world. A state of exchange rate disequilibrium direct to a situation when the actual exchange rate of a country deviates from its unnoticeable equilibrium. The term "undervalued" refers to an exchange rate that depreciates more than the equilibrium level while "overvalued" refers to an exchange rate that appreciates more than the equilibrium level. As equilibrium currency rate is not noticeable, this issue remains subjective.

Since gaining independence in 1971, the economy of Bangladesh has seen several significant policy changes. In the late 1970s, after being ruled by socialist ideals, it transitioned to a market economy as its policies were rebuilt in line with suggestions from the International Monetary Fund and the World Bank. Progressive modifications also occurred to the exchange rate management policy. Historically, Bangladesh has implemented various pegged exchange rate regimes. These include a regime from 1972 to 1979, where the exchange rate was tied to the British pound sterling. Another regime, from 1980 to 1982, involved tying the exchange rate to a basket of main trading nations' currencies, with the pound sterling serving as the intermediary currency. From 1983 to 1999, Bangladesh adopted a regime that linked the exchange rate to a basket of the same trading nations' currencies, with the US Dollar (USD) acting as the intermediary currency. Lastly, from 2000 to 2003, Bangladesh implemented an adjustable exchange rate regime. As of May 31, 2003 Bangladesh entered into floating rate regime meaning that the exchange rate of Bangladeshi Taka (BDT) will be determined by the market forces (FEPD circular Number 01 Dated, 29 may 2003). The exchange rate of BDT is now determined by a market-driven floating system, which applies the laws of currency supply and demand.

Exchange rate is the eminent determinant of world trade that is why it gains significant amount of concentration in the recent past. In post COVID era exchange rate became the hot cake in the world as the FED raised its policy rate consistently to curb the inflation and in result all the currency including Euro, GBP, Yen and Yuan have depreciated in a considerable amount. The exchange rate of BDT is not out of the depreciation trend and it also has depreciated a considerable amount in recent times. This volatility in exchange rate of BDT made Bangladesh's international trade complicated. Historically, Bangladesh always have negative net trade this means that import always more than export. So it is important for Bangladesh to explore the possible factors that have significant impact on exports. The purpose of this research is to examine the impact of currency rates fluctuations on the export performance of Bangladesh.

The rest of the article is structured in the following way; review of previous literature is provided in section 2, data and analytical model is illustrated in section 3 while results and discussion are shown in section 4, and finally conclusion and policy implications are depicted in section 5.

2. REVIEW OF PERVIOUS LITERATURE

Within the realm of scholarly writing, there have been various theories that proposed to clarify the consequences of fluctuations in exchange rates on the attitudes of exporters. Although some research has shown a favorable correlation between higher currency rate fluctuation and exports, others have found the opposite to be true. Some related literatures are reviewed below.

The co-integration of the currency rate on Nepal's exports throughout the short- and long-terms was studied by Joshi et al. (2023). The study's findings verify the existence of long-term co-integration and the short-term dynamic link between the regressor and regresand variables, indicating the dual effects of exchange rates on Nepal's exports over the long and short terms.

Pun, 2023 examines the association between currency rate and exports in Nepal from 1974 to 2011, using annual data and controlling variables like real interest rate, investment, and inflation rate. The findings derived from the research indicate that there exists a statistically notable favorable association between the currency rate and the level of exports in Nepal.

Brun et al., 2020 investigates the feedback of Pakistan's exports to reductions in the real currency rate over the period from 2003 to 2017. The findings indicate a deceleration in the development of differentiated products and a reduced level of responsiveness from industries that face more stringent supply constraints. The research also revealed that there is a tendency for Pakistani export prices to decline subsequent to nominal devaluation of the national currency.

Sugiharti et al. (2020) investigate how Indonesia's main export commodities to China, India, Japan, South Korea, and the United States are affected by fluctuations in exchange rates. The results point to a substantial effects of currency rate fluctuation on exports.

In a report released in 2020, Muinelo-Gallo et al., analyzed the effects of currency rate volatility on export flows for a group of 27 countries from 1994 to 2014. Negative effects were felt in nations that export manufactured goods but not in nations that export raw materials. National economic characteristics, such as the adaptability or stiffness of export adjustment due to

exchange rate uncertainty, seemed to be the driving force behind this conclusion.

Thuy and Thuy, 2019 explore the impact of fluctuations in currency rates on the export performance of Vietnam. The study is relied on quarterly data spanning from 2000 to 2014. Using Autoregressive Distributive Lag (ARDL) bound testing technique they showed that there is an adverse long-term effect of currency rate fluctuation on export volume, although gains in foreign income have a diminishing effect on export volume.

In a research, Hasan et al., (2015) uses monthly data from the years 1991 to 2012 to analyze how fluctuations in currency rate affect the amount of Bangladeshi exports to the American market. According to Granger causality analysis, export and exchange rate are causally related in a single direction.

Cheung and Sengupta (2013) investigated the impact of the real effective exchange rate (REER) on the export share of non-financial sector companies in India between 2000 and 2010. Based on empirical evidence, the export shares of Indian enterprises were shown to have been negatively impacted by currency fluctuation and appreciation on average.

Dincer and Kandil, 2011 explore the effect of currency rate change on 21 Turkish exporting sectors, discovering that projected appreciation and fundamental movements have a considerable impact on export growth. It shows that regulating fundamentals for rational forecasting and decreasing exchange rate volatility may increase sectoral export growth.

Fountas and Aristotelous, 2005 looks at the influence of the European Monetary System on European Union (EU) exports in eight nations and discovers that Ireland grew export volume while Belgium, Denmark, and Germany decreased. According to the study, currency rate fluctuation has a negligible short-term influence.

The influence of the establishment of the European Monetary System (EMS) on the amount of intra-EU exports for eight EU nations was examined by Fountas and Aristotelous (2005) using the econometric methods of multivariate co-integration and error correction models. According to their findings, the EMS increased Ireland's intra-EU export volume while decreasing that of Belgium, Denmark, and Germany.

Bailey et al., 1987 investigates how export growth and exchange rate volatility are related in 11 OECD nations. It examines how volatility affects the growth of real exports empirically and cite evidence to support the claim that, hypothetically, commerce might be impacted by exchange-rate fluctuation either positively or negatively. Only three out of 33 regressions tested the hypothesis that exchange-rate volatility hurts export performance.

3. DATA AND ANALYTICAL MODEL

3.1. Data

Yearly data for this study is derived from published source of World Development Indicators (WDI) open data of World Bank (WB) spaning from 1981 to 2022. We have collected all data from WDI due mainly to maintain accuracy and transperrancy of our data. Duration of ths data series is selected because of the availability of all data.

3.2. Analytical Model

A classical demand function has an income and price homogeneity of zero, according to mainstream economic theory (Deaton and Muellbauer 1980). The standard export demand function also includes investment, real interest rate, and inflation, as well as a new variable—exchange rate volatility—to evaluate the effects of exchange rate volatility on exports (Pun, 2023; Thuy and Thuy, 2019; Ngondo and Khobai, 2018). The research follows the work of De Vita and Abbott, 2004 and Arize et al., 2000. As a result, the model is defined as follows:

$$Y_t = \alpha_0+\beta_1 EX_t+\beta_2 GCF_t+\beta_3 RIR_t+\beta_4 INF_t+\varepsilon_t \quad (1)$$

Where Y represents exports; EX is exchange rate of BDT against USD; GCF is the gross domestic capital formation which is taken as a proxy of investment; and RIR is the real interest rate; and INF is inflation. The error term ε is added in this model to illustrate all the excluded variables in identification of the model. To account for all measurement mistakes, parameter fluctuations, functional approximation errors, and sample variability errors, the error term is also included. In terms of operational form, (Khan and Ross, 1977; T.A. Boylan, et al., 1980) argue that there is strong theoretical and empirical support for the idea that log-linear specifications are superior to traditional linear ones. In other words, the former demonstrates interaction between elasticity and consents the dependent variable to react proportionately to changes in the repressors. The variables must be changed to logarithm in order to derive the elastic coefficients and eliminate the impact of outliers. The function is: when expressed in logarithmic form.

$$Logy_t = \alpha_0+\beta_1 LogEX_t+\beta_2 LogGCF_t+\beta_3 LogRIR_t+\beta_4 LogINF_t+\varepsilon_t \quad (2)$$

In Equation (2) we transformed both dependent and independent variables in natural logarithm for to get elasticity coefficients. The stationarity of the data must be taken into consideration while modeling the association between groups of time-series variables. Some approaches are offered to address this issue when a spurious regression issue is detected among these series that includes a unit root. One of the easiest methods is to estimate a conventional regression model using the differences between the series. The information that is important for the level connections, however, is lost as a result of this strategy. It is hard to identify a probable long-term link in levels if the first differences of the variables are employed. From here, it should be noted that the co-integration strategy related to error-correction modeling was created in the late 1980s. This permits for the analysis of both short-term and long-term relationships. Based on the assumption that there would be only one co-integrating vector present, the cointegration technique created by (Engle and Granger, 1987) is appropriate. Furthermore, via the use of the Vector Autoregressive (VAR) model, whereby all variables are considered endogenous, the approach proposed by Johansen (1988) allows researchers to examine the proposition that many co-integration vectors exist. The primary condition,

however, is that all series must not exhibit stationarity at levels and must possess the same order of integration in order to do these standard co-integration tests. (Pesaran et al., 2001) came up with the bound test strategy to solve this issue. This methodology enables the examination of the co-integration relationship between the time-series, irrespective of their integration orders, whether they are integrated of order zero (I(0)) or integrated of order one (I(1)) (Pesaran et al., 1999). The biggest advantage of the boundaries test over standard co-integration testing is this. Furthermore, this method is better suited than other for treating small sample sizes since it can discriminate between dependent and independent variables (Ghorbani and Motallebi, 2009). In their study, Bahmani-Oskooee and Hegerty, 2007 conducted an analysis of the existing literature and observed that the majority of exchange rate fluctuation indicators exhibit stationarity, but the variables often included in trade models tend to be non-stationary series. In order to better understand how exchange rate fluctuation affects exports, (Pesaran et al., 2001)'s ARDL technique is the one that is most strongly advised. This approach has been used by some previous studies, such as:

Equation (2) is represented as a conditional ARDL error correction model in the following manner to carry out the limits test procedure:

$$LogY_t = \alpha_0 + \beta_0 t + \sum_{i=1}^{I_1} \gamma_{1i} LogY_{t-i} + \sum_{i=1}^{I_2} \gamma_{2i} LogEX_{t-i} + \sum_{i=1}^{I_3} \gamma_{3i} LogGCF_{t-i} + \sum_{i=1}^{I_4} \gamma_{4i} LogA = \pi r^2 RIR_{t-i} + \sum_{i=1}^{I_5} \gamma_{5i} LogINF_{t-i} + \mu_t \quad (3)$$

$$\Delta LogY_t = \alpha_0 + \delta_0 t + \theta_1 LogY_{t-1} + \theta_2 LogEX_{t-1} + \theta_3 LogGCF_{t-1} + \theta_4 LogRIR_{t-1} + \theta_5 LogINF_{t-1} + \sum_{i=1}^{I_{i-1}} \varphi_{1i} \Delta LogY_{t-i} + \sum_{i=1}^{I_{2-1}} \varphi_{2i} \Delta LogEX_{t-i} + \sum_{i=1}^{I_{3-1}} \varphi_{3i} \Delta LogGCF_{t-i} + \sum_{i=1}^{I_{4-1}} \varphi_{4i} \Delta LogRIR_{t-i} + \sum_{i=1}^{I_{5-1}} \varphi_{5i} \Delta LogINF_{t-i} + \mu_t \quad (4)$$

Where LogY, LogEX, LogGCF, LogRIR, and LogINF are the natural logarithms of exports, exchange rate, gross capital formation, real interest, and inflation; I_1, I_2, I_3, I_4, I_5 are lengths of lag; $\theta_1, \theta_2, \theta_3, \theta_4, \theta_5$ are long-term coefficients; and $\phi_{1i}, \phi_{2i}, \phi_{3i}, \phi_{4i}, \phi_{5i}$ are short-run coefficients and is random error term.

According to Pesaran et al., 2001, to estimate the level relationship the ARDL technique employs two way fundamental measures. Co-integration test is the first step to figure out whether there is a level association subsists between the considered variables in Equation (4). A level connection between the variables serves as the null hypothesis to be rejected or accepted. To carry out this test, we compare the calculated F-statistics with critical value bounds that change depending on the total number of variables. Furthermore, the critical value for extraordinary situations has been proposed by some more recent research, similar to the one by Narayan (2005), which focused on fewer sample sizes. The provided information establishes both lower and upper limits for the essential values across a range of situations. The lower boundary in each case is predicated on the assumption that all variables possess zero order integration I(0), whilst the upper boundary is predicated on the assumption that all variables possess first order integration I(1). If the calculated value of the F-statistic falls below the lower limit of the critical value, we have sufficient evidence to reject the null hypothesis, indicating the presence of co-integration. In contrast, co-integration may be inferred to be present if the calculated F-statistic value surpasses the upper limit. In conclusion, the test is inconclusive if the calculated F-statistic value falls anywhere between the two extremes. If a long-term correlation is known to exist between the two variables, the ARDL method may be used to estimate both of their short-term and long-term coefficients. The best lag orders for a set of our variables are established using the AIC criterion.

4. OUTCOMES AND DISCUSSIONS

4.1. Test of Unit Root

It is essential to verify the stationarity of time series data prior to building a time series model. To construct our model, we have employed Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests with constant and linear trends to test the stationarity of our data series. The lag length of both of the tests is chosen with the help of Schwarz Information Criterion (SIC). Table 1 shows unit root test results.

The results of the unit root test indicate that the exchange rate and inflation variables exhibit stationarity at the level, denoted as I(0), whereas the export and gross capital creation variables demonstrate stationarity at the first difference, denoted as I(1). Given that the data series comprises a combination of both integrated of order zero (I(0)) and integrated of order one (I(1)) variables, the ARDLmodel emerges as a more appropriate choice compared to other models for examining the interrelationships among the variables at the level.

4.2. Bound Testing Results for Level Relationships

The present research used the Akaike information criterion (AIC) to determine the most suitable lag order for the variables under investigation. The AIC suggests that lag 1 is optimal for our model and the model is ARDL (1,1,1,1). The fundamental assumption of the bound testing technique of Pesaran et al., 2001 is that the error terms must be serially independent. In choosing the best lags for the model's variables, this criterion might also play a

Table 1: ADF and PP unit root tests

Variable	ADF		PP	
	I (0)	I (1)	I (0)	I (1)
Export	−1.5846	−4.9855***	−1.8784	−4.9855***
Exchange Rate	−3.9639***	−5.7278***	−3.7850**	−13.3511***
Gross Capital Formation	−2.1651	−6.0768***	−1.7943	−6.0783***
Inflation	3.9400***	−7.6451***	−3.8607**	−16.6377***
Real Interest Rate	−2.9883	−7.8201***	−2.9883	−8.5597***

***, **represents 1% and 5% level of significance

role. For the purpose of testing the no-serial-correlation-present null hypothesis, the LM test is used. Based on the test outcome, it may be concluded that, with a significance level of 1 percent, there is inadequate evidence to support the rejection of the null hypothesis. Consequently, the model may be used to establish a level association between the variables.

Since our sample size is small, we have used the critical bounds value of Narayan (2005). Bound testing results are shown in Table 2.

Table 2 depicts that the calculated F-statistic value is greater than the upper limit of the critical value at 1 percent level of significance. Therefore, we can say that there is long-term relationships between exports, exchange rate, gross capital formation and, inflation in our model. The selected ARDL model is reconstructed as a single error correction model that allows for the differentiation of long-term from short-term interactions.

4.3. Short and Long-Term Relationships

Normalizing the export equation, from the ARDL (1, 0, 1, 1, 1), the long-term relationships of the estimated results are shown in Equation (5).

$$LEXP = 39.3391 + 0.3524*T - 0.4536*EX - 2.2188*GCF + 0.5445*INF - 0.3934*RIR + et \quad (5)$$

(1.77) (1.16) (−3.18)*** (−0.85) (2.61)** (−1.64)

***, ** represents 1%, 5% level of significance at the parenthesis

The results of our model illustrate that two out of four variables significantly explain the variation in export at 1 and 5% level respectively. The findings indicate that fluctuations in currency rates have a detrimental consequence on the export performance of Bangladesh. A one percent depreciation of Bangladesh Taka could result in 0.45 percent decrease in exports of Bangladesh. According to Arize and Malindretos (1998), it is argued that an escalation in currency rate volatility may results in a decrease in export volume. This is primarily attributed to the rise in adjustment costs, such as irreversible investments, which are amplified by heightened levels of uncertainty and associated risks. The aforementioned observation aligns with the theoretical frameworks proposed by Clark (1973), and Hooper and Kohlhagen (1978) about the conduct of risk-averse exporters.

When taking a broad perspective, this result agrees with what researchers Qian and Varangis (1994) discovered about the circumstances of emerging countries. Exchange rate fluctuations have a major effect on economic activity in countries that have dollarized their economies and utilize foreign currency as their principal means of exchange. Additionally, hedging may be difficult and expensive in emerging nations like Bangladesh where the derivatives markets are underdeveloped. The positive relationship between the level of risk and the price of options is one piece of evidence suggesting that exchange rate volatility has lasting, unfavorable effects. This relationship results in increased costs associated with securing future profits. Due to this, the amount of the market's transactions declines.

The findings shown in Table 3 demonstrate that currency rate fluctuation has a noteworthy adverse effect on Bangladesh's exports in short-term and long-term, with statistical significance seen at the 1% level. The coefficient shows that one percent depreciation of real exchange rate of Bangladesh Taka will results in 0.14 percent decrease exports which is much lower that the long-term effect. One possible reason for the decrease in merchandise trade is the limited availability of hedging options that compels risk-averse enterprises focused on maximizing profits to reduce their export activities when confronted with significant uncertainty. The study found that two additional controllable variables, namely gross capital formation and real interest rate, have a statistically significant negative influence on exports with a lag of one. Inflation has positive impact on exports but statistically insignificant.

Table 3 also provides a concise illustration of the predicted ARDL model's error correcting mechanism (ECM). Empirical results show that the sign and statistical significance of the error correction component (negative) are consistent with theory. The co-integration linkages between the model's variables are further supported by this result. The concept of Error Correction Model (ECM) serves as a measure of the pace at which equilibrium adjusts in response to exogenous shocks within a certain time frame. In our model, the value of ECM -0.30 means 30 percent of disequilibrium in the short run will be adjusted in the next year of the export equation.

4.4. Diagnostic Test

We have performed all types of diagnostic test that are generally done for time series model (Table 4). To detect the serial correlation, BG Serial Correlation LM experiment is conducted and the outcome is that there is no serial correlation in our model.

For detecting heteroscedasticty Breusch-Pagan-Godfrey heteroscedasticity test is employed and we cannot reject the null hypothesis of homoscedasticity. Normality check shows that the model' data is consistent with normal distribution. To test the stability of the model CUSUM and CUSUMSQ test are performed. Brown et al. (1975) propose utilising CUSUM and CUSUMSQ to evaluate the solidity of both long as well

Table 2: F- Statistics to investigate the presence of long run relationships

Model	Number of Independent Variables	Size of the Sample	Calculated Value of F Test	Critical Bounds value Constant and Linear Trend					
	K	n	F-Statistics	10%		5%		1%	
				I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
ARDL (1,0,1,1,1)	4	38	5.7308	3.03	4.06	3.47	4.57	4.40	5.72

Figure 1: CUSUM and CUSUMSQ plots

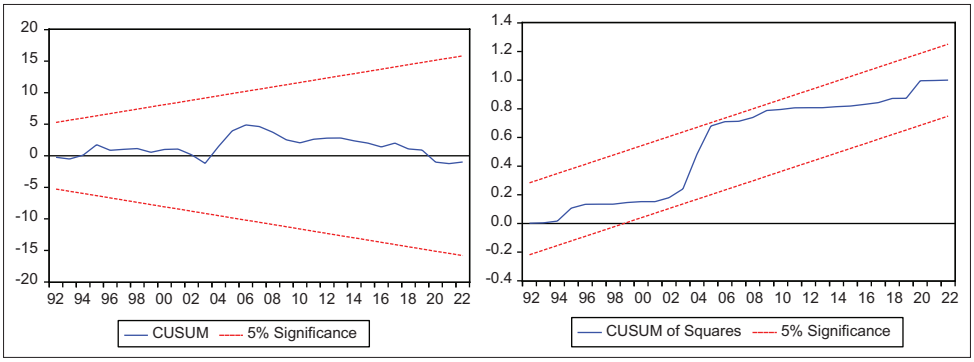

Table 3: Error correction model and short run coefficients

Independent Variables	ARDL (1, 0, 1, 1, 1)
EXP(−1)	0.698***
REX	−0.137***
GCF	0.778
GCF(−1)	−1.448*
INF	0.080
INF(−1)	0.085
RIR	0.036
RIR(−1)	−0.154**
Constant	11.880
Trend	0.106**
ECM(−1)	−0.302***
R-squared	0.995731
Cointeq=EXP - (−0.4536*EX−2.2188*GCF+0.5445*INF−0.3934*RIR+39.3391+0.3524*T)	

AIC-1.517458 SIC−1.099514 HQ. −1.365266 F 803.4896 DW 2.085052 Prob (F) 0.0000. ***, ** represents 1% and 5% level of significance

Table 4: Diagnostic checks

BG Serial Correlation LM Test		Breusch-Pagan-Godfrey Heteroscedasticity test		Normality Test	
H0: No serial correlation at up to 1 lags		Ho: Homoscedasticity		Ho: Normally distributed	
F-statistic	0.08	F-statistic	2.16	Jarque-Bera	0.60
Prob. F (2,15)	0.78	Prob. F (2,15)	0.054	Probability	0.74

Source: Authors' own calculation from World Development Indicators (WDI) Data

as short-run coefficients and dynamics. While the CUSUMSQ test is based on the cumulative sum of the squared recursive residuals, the CUSUM test employs the cumulative sum of recursive residuals.

The CUSUM statistics and CUSUM of squares statistics plots, as shown in Figure 1, are both within the critical limits at the 5% significance. This ensures the long run stability of the model.

5. CONCLUSION AND POLICY SUGGESTIONS

This research focuses to examine the possible impact of the real currency rate on export performance in Bangladesh. The analysis utilizes annual data sourced from publicly available sources, namely the WDI. We use simple exponential smoothing to smooth out the real exchange rate data for the betterment of model. We have calculated the real exchange rate by multiplying the nominal exchange rate of BDT with the ratio of domestic price level and foreign (US) price level. The results of the unit root test indicate that the data set comprises a combination of variables with integrated of order zero (I(0)) and variables with integrated of order one (I(1)). This means that we should use the popular time series model ARDL model to establish the short-term and long-term co-integrating relationship between independent and dependent variables. One advantage of this methodology is its effectiveness in handling limited sample numbers and repressors characterized by a mix of integrated of order zero (I(0)) and one (I(1)).

The findings of our study indicate the presence of a co-integrating connection among exports, the real currency rate, gross capital creation, rate of inflation, and the real rate of interest. Moreover, the pace of adjustment in the long run equilibrium is considerably high and statistically significant at 1%. A one percent depreciation of Bangladesh Taka could result in 0.45 percent decrease in exports of Bangladesh. Arize and Malindretos (1998) contend that increased currency rate fluctuation will reduce the amount of export by increasing adaption expense such as irrecoverable investment owing to increased skepticism and threat. This is consistent with academicals ideas of the conduct of threat-averse exporters in Clark (1973), and Hooper and Kohlhagen (1978). Results of the study demonstrate that currency rate fluctuation has a noticeable adverse effect on Bangladesh's exports, in short as well as long-term, with a significance threshold of 1 percent. The coefficient indicates that a 1% depreciation of the real exchange rate of the Bangladesh Taka would lead to a 0.14% reduction in exports, a magnitude well below the long-term impact. The variables of gross capital formation and real interest rate have a statistically significant negative influence on exports with a lag of one. The effect of inflation on exports is favorable, albeit it lacks statistical significance. The policy makers of Bangladesh should adopt policy measures that would make exchange rate of BDT stable to reduce the adverse effect of currency fluctuation on exports in Bangladesh.

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