

IMPACT OF EXCHANGE RATE UNCERTAINTY ON EXPORTS: A CASE OF PAKISTAN WITH US, UK AND UAE

Taqadus Bashir¹

International Islamic University Islamabad

E-mail: doc.tbc@gmail.com,

Maria Hassan²,

International Islamic University Islamabad

E-mail: mariahasan_1@hotmail.com

Sara naseer³

International Islamic University Islamabad

E-mail: saranaseer1@gmail.com

Alia afzal⁴,

International Islamic University Islamabad

E-mail: Alia.afzal6@gmail.com

¹ Dr Taqadus Bashir, Lecturer, International Islamic University Islamabad

E-mail: doc.tbc@gmail.com

² Maria Hassan, MS Scholar, International Islamic University Islamabad, E-mail:

mariahasan_1@hotmail.com

³ Sara naseer, MS Scholar, International Islamic University Islamabad, E-mail: saranaseer1@gmail.com

⁴ Alia afzal, MS Scholar, International Islamic University Islamabad, E-mail: Alia.afzal6@gmail.com

ABSTRACT

Primary objective of this paper is to investigate fluctuations in exports resulting from the volatility in exchange rate of Pakistan with three of its major trading partners, the United States of America (US), United Kingdom (UK), and the United Arab Emirates (UAE). Data in this research covers a longer period of time using monthly data from 1988:8 to 2011:6. Empirical testing provides the results that volatility in exchange rate of Pakistan with UK, and UAE project significantly negative impact exports of Pakistan but in case of US this relation is not proved to be significant. Fully modified OLS results for this paper are highly supportive for the proposed model predicting exports of Pakistan to be highly correlated with exchange rate of Pakistan with its major trading Partners explaining the change in exports because of uncertainty in the currency market. Technically supporting this paper, ADF is used purposively to check stationarity of the variables, Garch (1,1) model to check volatility of exchange rate, and ARDL results are achieved using ARDL cointegration with Wald test technique to check the long run relationship also VECM is used to estimate speed of adjustment in exports in short run due to change in exchange rate.

Keywords: Exchange rate, Bounds Test, Exports.

I. INTRODUCTION

During 2009 there was a huge collapse in the world aggregate demand as a result of global financial crisis. This fall in world aggregate demand led to a sudden decrease in exports across the world. There was a considerable fall in exports of Pakistan as well and this fall was recorded as 13.4% in 2009. It shows that global demand plays a significant role in exports determination in case of Pakistan (Hussain, 2010).

To visualize significance of exports of a country, we consider the point that performance of Pakistan's exports over the last 35 years remains insignificant, but during the period 1970-1980s there was a fall in Pakistan's exports as a percentage of GDP. In 1992 this ratio of exports to GDP has increased to 14 percent. Since 1992 this ratio is about 13-14percent. (Haque and Kemal, 2007). So we construe that exports of a country play a vital role in determination of economy strength of a country. Pakistan is an agricultural country earning 78% of its foreign income from the export of its agricultural products (Maskas & Keith, 1999). Any push or pull that changes exports of Pakistan has a very significant impact on per capita income and consumption of population of Pakistan and hence on economy in a broader term.

Bretton wood exchange rate system ended and a new era of the floating exchange rate regime started. Although it was a leap toward the advanced economy but it raised the risk for international trade to great extent (Michael D. McKenzie and Brooks, 1997). In

the past not much attention is given to volatility of exchange rate leading to a situation where risk-averse exporters will cut their exports (Paul De Grauwe, 1988).

Ambiguity remains while reporting volatility in exchange rate-affecting exports of a country (Baron, 1976). Exporters have volatility concerns while anticipating returns and future exports payment (Ethier, 1976). Therefore, a risk-averse exporter will fear uncertainty and will prefer hedging himself against any exchange rate volatility. Besides that, an additional cost of hedging reduces his exports to the foreign country to avert loss. Any representative exporter preparing invoices in some foreign currency has uncertain profits after the initial delivery of goods/services (Ethier, 1976).

Talking either about goods or assets market, ER establishes a bridge joining a country with the remaining of the world. If a country has a faulty ER policy, there is a risk that it will lead to misrepresented and fake trade opportunities, later leading into a misallocation of very fundamental resources (Siddiqui, Afridi & Mahmood, 1996).

This discussion leads us to the conclusion that actually the volatility in the exchange rate is the risk attached to unpredictable actions observed in the exchange rate (Mackenzie, 1999). Ozturk (2006) is of the opinion that economic fundamentals like inflation rate, interest rate or balances of payment, had been volatile during 1980s and in early 1990s, which further resulted in exchange rate volatility.

Objective of this research is to; Investigate what, if any, is the Direction of the relation between exchange rate volatility (ERV) & the export-trade of Pakistan.

Previous literature on the relationship examined in this research between Pakistani exports and the volatility existing in exchange rate is still ambiguous, as it has been empirically analyzed that, when examined in different periods and in different regions the relationship being observed varies.

Analysis in this paper has been done using convenient sampling, where exchange rates of three countries in the list of exports partner of Pakistan i.e. United Arab Emirates, United Kingdom, and United States of America were included. The current study focuses on observing the relationship of volatility in exchange rate affecting aggregated exports of Pakistan depending upon the income level of Pakistani population and commodity prices. So far, combined effect of the exchange rate has not been tested for these three partner countries with Pakistan before in any research, to the best of my knowledge, for their impact on exports trade of Pakistan. So as the risk averse exporter fears the production more than absorption in his home country and says no to exports of his products in some foreign country, this arrangement actually leads to decline in exports of that country and hence openness of their economy.

II. LITERATURE REVIEW

Volatile exchange rates influence the selection of currency for preparing invoices which in turn influences the production of exporting firm and decisions of pricing especially when the marketplace is not perfectly competitive (Baron, 1976).

Frequent adjustments resulted into a high degree of unpredictability in exchange rate affecting international trade flows. Prevailing economic situations and the review of finance literature leads us to conflicting evidence regarding the relationship between volatility of exchange rate and trade.

Cote (1994), Grauwe (1988) and Mckenzie (1999) found that the relationship existing between exports and the exchange rate volatility is ambiguous. In most of the cases an insignificant relationship is reported by the researchers (Hooper & Kohlhagen, 1978; Oskooee & Payestec, 1993). Previous researches also provided some evidences suggesting the existence of an insignificant relationship between the exchange rate volatility of the export partner countries (De Vita & Abbott, 2004). Results reported that, uncertainty in exchange rate has no impact upon UK exports to the European Union states (De Vita & Abbott, 2004). Same results were reported while examining the effect of volatility existing in the exchange rate for Irish exports to Britain. Previous researches by Peree & Steinherr (1989), Chowdhurry (1993), Kim and Lee (1996), Arize et al. (2000) and Baak et al. (2003) empirically tested this relationship and found that volatility of exchange rate has negative effect on the volume of exports. The relationship is also examined in case of Taiwan exports to the United States during the period 1989-1999 and was concluded that uncertainty in exchange rate has a significant impact on exports of a country, in case of agriculture sector while the insignificant relationship was reported in other sectors. (Wang & Barrett, 2002)

Due to exchange rate volatility, the prices of traded goods become high because the risk premium is added to cover unexpected fluctuation in exchange rate (Maskus, 1986). Due to an increase in volatility, a risk-averse person avoids engaging in trading activities by opting for some less risky or domestic investments. A rise in the volatility of exchange rate while executing international trade activities projects a negative effect on trade. Grauwe (1998) empirically tested the relationship of exchange rate and trade and observed a decrease in exports of the (name of that country) country with the rise in volatility of exchange rate. Similarly Doganlar (2002) concluded that if the exporters are risk averse, a rise in volatility of the exchange rate will lead the exporter to reduce his exports in such a situation and will prefer to sell in his home country rather than in some foreign countries.

In few cases, researchers found no relationship between exchange rate volatility and exports (Baccheta and Wincoop, 2000) whereas Asseery et al. (1991) investigated the same relationship and reported the existence of a significant linear relationship between these two variables. Ethier (1973) and Baron (1976) found that if firms hedge their investments using the forward contract then volatility of exchange rate has no effect on the trade volume. While examining impact of volatility in exchange rate on exports, sample of data from 14 Asia Pacific states (Thailand, Canada, Philippines, Indonesia,

Cointegration Test: The ARDL Approach (Autoregressive Distributive Lag)

In this paper ARDL approach to cointegration proposed by Pesaran et al. (2001) is employed for analysis of data. From the ADF statistics it is clear that all variables except CPI is stationary at level and all other variables are stationary at first difference, as per rules of time series data long term relation cannot be analyzed by use of cointegration and hence ARDL usage become a necessary evil over here to proceed any further with our empirical analysis. Keeping in view our objective of using ARDL where we actually are interested in observing long term relation between variables of interest in this paper (cointegration), we apply ARDL- cointegration where the coefficient residuals from the Wald test p-value and f-stat are and the value of chi-square are of interest to us and we match p-value and f-stats of our ARDL (wald-test) from the p-value and f-stats values in Pesaran table.

This approach was also used by Feeny (2005), Nieh and Wang (2005), Bahmani-Oskooee and Kara (2005), Yildirim and Sezgin (2003), Morley (2006), Narayan (2006), Narayan (2005) and Liang and Cao (2007). Narayan (2006) claimed that this particular approach is an efficient and unbiased approach that can perform best when samples are small, irrespective of whether the variables are cointegrated of order one or more. In order to estimate the long run relationship between variables ARDL approach uses two steps. First step of this approach is to identify whether the relationship exists in long run if each of the variables (in eq. III) is considered as a dependent variable. Then for identifying the presence of long run relationship F-test is used. Null hypothesis of this approach is that there is no cointegration among the variables. This null hypothesis ($H_0: 1Y \gamma = 2Y \gamma = 0$) is tested against the alternative hypothesis ($H_0: 1Y \gamma \neq 2Y \gamma \neq 0$).

$$\Delta Exports = a IPI + ERuk + ERusa + ERuae \dots \dots \dots Eq (III)$$

In equation III when exports are considered as a dependent variable, the null hypothesis is tested against alternative hypothesis. F-test is used for the combined significance of lagged level coefficients. If upper critical value is less than the F-statistics it means that variables are cointegrated. If the lower critical value is greater than the estimated F-statistics it concludes that there is no cointegration among variables. And if the value of F-stats lies between upper and lower critical value, then the cointegration between variables is indecisive.

If long run relationship exists between variables we will move to second step in which ARDL approach is used to estimate the short-run coefficients and the long-run coefficients. Akaike Information Criterion (AIC) is used to determine optimal lags. There is possibility of presence of trend in the respective data series because of which equation III is estimated by taking in to account Case III: unrestricted intercept and no trend and Case IV: unrestricted intercept and restricted trend as described in Pesaran et.al (2001).

Where Δ is differencing operator such that $\Delta x_t = x_t - x_{t-1}$ and n is the number of lags in the unrestricted VAR representation of x_t and d is an m vector of deterministic terms. Actually in short, the activity going on in economic cycle of a country is that, short term change occurring in exchange rate statistics of Pakistan with its major trading partner countries changes the exports of Pakistan. So by applying VECM we intend to see what is the period of adjustment of exports of Pakistan in lieu of change in exchange rates that prevail between the two trading countries at time t .

VECM country wise (Exports): Table5

Err correction:	D(IP)	D(ERUS)
CointEq1	-0.070283	0.883965
	(0.03295)	(0.53768)
	(-2.13325)	(1.64403)
Err Corr:	D(ERUAE)	D(IP)
CointEq1	-0.013592	0.013227
	(0.00857)	(0.00620)
	(-1.58523)	(2.13480)
<u>Error corr:</u>	<u>D(ERUK)</u>	<u>D(IP)</u>
CointEq1	-0.277821	0.002183
	(0.05779)	(0.00061)
	(-4.80725)	(3.55081)

IMPLICATIONS

An aggressively competitive and a stable ER is the most appropriate strategy to have an optimal policy target. Every time speculation of currency devaluation results into a massive capital flight from the country (Siddiqui, R; Afridi. U; and Mahmood. Z, 1996). Exposure to such situation creates deplorable conditions for the developing countries like Pakistan that necessitates an in-depth examination of the ER guiding the policy-makers for its adjustments towards equilibrium. Therefore, there is a huge need for practitioners specially the controlling bodies of State Bank of Pakistan to control money supply and make their policies more respondent to control of ER volatility and to stabilize it to prevent its deplorable effects becoming cataclysmic for trade of Pakistan. Conclusively, Volatility in ER of Pakistan with the major trading partners affects export trade of Pakistan even in the longer period.

CONCLUSION

The present endeavors investigated dynamic relationship between exchange rate uncertainty of the US, UK, and UAE with Pakistan and exports of Pakistan. Initially model fit of exchange rate of trade partner countries and exports is examined using fully modified OLS and secondly for the purpose of investigating long run relationship ARDL has been employed. T-test and F-test results of ARDL are vigorous and robust indicating strong bond of relationship between exchange rate uncertainty of sample economies and exports of Pakistan in the long run. Values of ARDL for $K=5$ are lower than the lower bound ($I(0)$) and higher than the upper bound ($I(1)$) indicating that model is best defined in long run for the sample economies. VECM is applied to investigate short term adjustments between 5 regressors and the exports variable keeping away from spurious regression dilemma. Volatility measure is done using Garch to overcome variance in the series. Overall results suggest that any instability in exchange rate of Pakistan with its major trade partner results into destabilized exports and hence an injured economy. So for the purpose of economic development we need to control or forecast the exchange rate to minimize uncertainty for exporters which leads to reduced exports of Pakistan. Also there must be a stabilization strategy to hold control of exchange rate uncertainty. Practically for Pakistani economy we need our central bank to exert control upon the monetary policy to avoid as much as possible the volatility in the exchange rate to save exporters from the risk of loss and hence increase economy openness.

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