DOI: 10.5281/zenodo.14390162



Journal of Contemporary Macroeconomic Issues www.scekr.org

The Asymmetric Effects of Exchange Rate Volatility on Trade Flows of Pakistan							
Nimra Gul ¹ ; Misbah Nosheen ² ; Muqdas Bibi ³							
1. MPhil scholar, Hazara University, Mansehra, Pakistan							
Email: nimragul688@gmail.com							
2. Associate Professor of Economic	s, Hazara University, Mansehra, Pakistan						
Email: misbah.nosheen@yahoo.cor	<u>n</u>						
3. MPhil scholar, Hazara Universit	y, Mansehra, Pakistan						
Email: <u>muqdasbibi36@gmail.com</u>	-						
PAPER INFO AI	BSTRACT						
Information:	This research investigates the effects of asymmetric volatility						
Received: 18 November, 2024	exchange rate on Pakistan's trade performance with major trade						
Revised: 11 December, 2024	partners. The effects of exchange rate trade (import & export) by						
Published: December, 2024	exchange rate volatility and economic activities measured for						
Keywords:	Pakistan's major trading partners from 1985 to 2020. The researcher						
Volatility exchange rate, ARDL,	uses non-linear ARDL and linear ARDL techniques for estimation.						
Nonlinear ARDL, F-test, T-test	They also apply co-integration tests, with the F-test being used for lagged value significance and the t-test for establishing significance.						
Corresponding Author's email:	The linear ARDL of export and import in the short-run reveals that						
misbah.nosheen@yahoo.com	exchange rate volatility positively impacts Pakistan's exports. In the long run, all the partners positively impact imports.						

1 Introduction

Due to globalization, the world has become a global village, and international trade has increased rapidly. For international trade, the need for foreign currencies has substantially been increased to make global goods and services transections and a stable exchange rate. In the world's economy, the role of the exchange rate is significant. A country like Pakistan in which exchange rate stability is vital for the growth of their economy (Bhutt et al., 2014). In the starting, the financial market's immaturity and limited use of monetary instruments could not make volatility exchange rate seem like a genuine concern for policy makers. However, the continued efforts of researchers to understand the risk nature, trade returns. Later on, the introduction of a floating exchange rate instigated the uncertainty and randomness in the exchange rate. Volatility was synonymous with uncertainty captured through the component of risk, which remained an essential part of financial markets (Khan, 2011).

Therefore, the volatility exchange rate is involved in international transections related to goods and financial assets. The actual reflection of exchange rate volatility to mismatch expectations among investors and traders about a particular currency's future value while considering the market factors like level of income, rate of interest, and money supplies (Azid et al., 2005).

As a consequence of higher depreciation, there will be upward production resources. The export of the economy also depends on the income level of foreign, income higher than demand. Additionally, Wilson (2009) found that prices change internationally due to currencies' value variations. The volatility exchange rate was a critical problem even before 1970, and onward, volatility arose as a major issue when replaced fixed exchange rate system to flexible exchange rate system. The state bank of Pakistan has implemented different policies of the exchange rate to control exchange rate variation. The state bank fixed the nominal exchange rate at 9.9/\$ from 1973 to 1981. In 1982 devaluation happened in the real exchange rate. In 1999, the state bank of Pakistan had announced the official exchange rate, and the exchange rate was jumped from PKR 46/ \$ to PKR 51.39/\$, an 11.7 percent devaluation (khan et al., 2014).

Various previous studies showed both negligible and positive effects of volatile exchange rates on trade. Hodge (2005) explains the relationship between trade and uncertain exchange rates. The model assumed risk-averse importing and exporting firms when increased exchange rate volatility results in increased firm uncertainty about profitability. The increasing uncertainty, so the less export supply and fewer imports demand. Hence the undesirable relationship between exchanges rate volatility and global trade.

The exchange rate is considered the most critical macroeconomic variable used for determining global competitiveness, and it's also regarded as a competitiveness indicator for the economy's currency. The fluctuation in the exchange rate may cause to lead to currency depreciation as well as appreciation. Since World War II, the total global trade's share in world output has almost tripled. For instance, the exchange rate might directly affect global trade. As trading policy at international level are closely linked with exchange rates, international trade earning can be affected by volatility exchange rate. Exchange rate volatility also influences economic policy, such as countries adopting an inflation regime. The central bank has expected inflation due to changes in rate of exchange.

Different economies adopted a floating exchange rate system which created the risk and volatility exchange rate. After that problem faced by researchers, policymakers have been faced by the researchers and then started to analyze the unstable exchange rate impact on global trade. The term volatility can be defined as a stochastic or deterministic variable. The risk of such concern is more pronounced, especially in countries with relatively low levels of financial development (Hussain & Hussain, 2015).

Pakistan is developing an open economy that depends on trade for developed its economy. The purpose of present study is to examine the asymmetric effects of exchange rate volatility on Pakistan's trade flow with major trade partner's countries. Such as the US are the largest trading partner of Pakistan, and the imports were estimated at \$47.43 billion and exports \$24.59 billion. In 2019 Pakistan's export accounted for approximately 16.97% of the U.S. The United States is also the source of foreign direct investment in Pakistan. The second-largest trade partner of Pakistan is China, trade volume of Pakistan-China upward over the year. In 2018 trade volume of Pakistan China was 16.4 billion dollars. The third major trade partner is the United Kingdom percentage share of 7.3% (1.7 billion) with Pakistan. According to Pakistan trade data, the fourth trade partner is Germany, and the trade percentage is 5.5%, and the other is the United Arab Emirates showed a 996million trade with Pakistan. Netherland (4%), Spain (3.9%), and Bangladesh (3.3%) are also major trade partners of Pakistan.

Hegerty and Osakooee (2007) state that the exchange rate has negative and positive effects on trade. They conclude that variations in the exchange rates are neither positive nor bidirectional. According to Akhter and Karim, the exchange rate plays a role in determining peace of change at the international stage. So, the relationship between trade and exchange rate doesn't look sincere as they look on the floor. Several variables like traders' risk, the volume of trade, and availability may play a vital role in this regard. Furthermore, various studies illustrate that the different results proceeded toward analysis on product's industry level but find the relation among volatility exchange rate and trade flow. However, according to Oskooee et al. (2017) the indication for volatility exchange rate can be changed from country to country or from time to time.

The historical overview of the volatility of exchange rate research area discovered that estimating the specific volatility impact on global trade is still tricky. In the case of the developing country, currencies were not easily convertible, not in high demand at the international level. The currencies

of developing countries linked with globally acceptable currency would facilitate the transactions related to trade (Siddiqi, 2006).

Since the independence of Pakistan in 1947 has adopted a different exchange rate system at different times. The fixed exchange rate system was sustained from 1947 -1982. The floating exchange rate system was adopted on January 08, 1982, with the precise objective of maintaining the export intensity at the international market. The currency was attached with several other currencies. When in exchange rate made by the state bank, keeping objective of protecting the balance of payment position in Pakistan (Amjad & Khawaja, 2007).

The state bank of Pakistan replaced the floating exchange rate system with a new Exchange Rate Mechanism (NERM) on 22July 1998 as a faced financial situation forced by global financial organizations and patrons after conducting an atomic test in Pakistan on 28 May 1998. Change the reason behind the dual exchange rate system was to transmit currency benefits to exporters and diminish the exports of unnecessary goods. Moreover, devaluation of cost as far foreign debt's repayment by restrictive inflation effects and country budget deficit are concerned. The dual exchange rate system badly affects the growth and output of the country as it distinguishes between importers and exporters. Further, the article of IMF agreements, as a country is not legalized to have different currency practices except for a short period. Then, the two-tier exchange rate system was displaced with a market-based exchange rate system on 19 May 1999. Under this background, the floating rate was used for all international exchange receipts and payments for private and public sectors. Then state bank of Pakistan again intervenes in private sectors to buy and sell foreign exchange its own choice and rates. Finally, Pakistan adopted a floating exchange rate policy on 20 July 2000 (Ashraf, 2007).

Due to fluctuations in the exchange rate is difficult for investors and policymakers to track the economy's exchange rate. This study observes the asymmetric exchange rate effects on Pakistan's trade with trading partners, the current study finds the long-run effects on Pakistan with significant trading partners' countries. This study covers a data period from 1985-2020. In current years, the enhancement in economic activities surrounding the way investors indicate that Pakistan is upgrading its trade ranking of the world. Pakistan has strong opposition on the global stage. The marketplace based on a floating exchange rate exists in Pakistan. The market plays a vital role alongside the government.

Objectives

Following are the objectives:

- 1. The general objective of this study intends to investigate the asymmetric effects of exchange rate volatility on Pakistan's trading activities with major trade partners.
- 2. To examine the volatility exchange rate effects in long-run trading in Pakistan with significant trade partners.

Hypothesis

In this study, the following hypothesis will be formulated to decide on the acceptance or rejection of the null hypothesis.

- 1. The volatility Exchange rate has no significant impact on Pakistan's export with major trade partners' countries.
- 2. The volatility Exchange rate has significant impact on Pakistan's export with major trade partners' countries.
- 3. Economic activity has no significant impact on Pakistan's export with major trade partners' countries.

- 4. Economic activity has significant impact on Pakistan's export with major trade partners' countries.
- 5. The real bilateral exchange rate has no significant impact on Pakistan's export with major trade partners' countries.
- 6. The real bilateral exchange rate has significant impact on Pakistan's export with major trade partners' countries.

This study aims to provide the opportunity of uneven change rate volatility outcome on Pakistan's with essential exchange companions' nations. It will give the evidence of the economic system to relative economic growth level. The look will also offer a new perception of the erratic exchange rate behavior. The outcomes of this study will be fruitful for the policymakers and planners at the macroeconomic level to make decisions. Additionally, the study will also help estimate the rate of exchange to make a good decision in currency market. It will also help to minimize the losses in exchange contracts.

2 Literature Review

Various studies have determined a mixed association between volatility exchange rate and international trade. According to Clark et al. (2004) studied the volatility exchange rate effects on all IMF countries' trade activities. They also measured the different range of exchange rates.

Oskooee and Wang (2007) explored the volatility exchange rate impact for U.S. and China Commodity Trade. They disaggregated total trade and used China's export and import data of 88 industries to recognize exchange rate effects. The conclusion from this study showed that imports of China were negatively affected, and exports were positively affected.

Byrne et al. (2008) considered the volatility exchange rate impact on bilateral trade of U.S. The study concludes that the volatility exchange rate effect is positive and is significant, negative for differentiated goods and insignificant for homogenous goods.

Hall et al. (2010) explored the indication for the effects of volatility exchange rate on trade and investigated the exchange rate of ten EME¹ and eleven other developing countries. They studied panel data for EME countries over 1980 to2006 and for developing countries data from 1980 to 2005. The conclusion from the study shows mixed results of exchange rate volatility, both significant and insignificant.

Bakhromov (2011) investigated the volatility exchange rate effect on Uzbekistan's trade. The researcher used Johannsen's co-integration framework and tested the cointegrating vectors like import, export, and FDI with volatility exchange rate in the long run. The study's finding demonstrated that increasing instability has a substantial negative effect on imports and export in the long run. They further observed that trade improvement when reducing volatility and significant effect on trade.

Nicita (2013) studied international trade and its relationship with the exchange rate. The author explored the volatility exchange rate effect on global trade by investigating misalignment exchange rate affects trade policy choice. The framework of methodology consisted fixed effects model and used data from 2000 to 2009. The results found that the misalignment exchange rate encourages export and import restriction. While founded volatility exchange rate effect in the short run only for developing countries and the long run for developed countries exchange rate volatility increases financial availability and boosts the intra industries share.

¹ The emerging market countries, those countries are trading from close system of market to open markets system.

Satawatananon (2014) examined the short and long volatility effects for trade flow among the U.S. and Thailand. He used annual trade data for commodity trade between Thailand and U.S. from 1971 to 2012. For empirical investigation, the study employed the ARDL model, mainly bounds testing and used ECM modeling to separate long-run effects from short-run effects. He concludes that volatility had a significant mixed impact on commodities trade between United States and Thailand.

Shaikh and Hongbing (2015) investigated the instability rate of exchange and trade flows. They worked on time series data for China, Pakistan and India, and applied the ARDL approach to evaluation the results in long run and short. The estimated outcomes showed adverse effects of volatility exchange rate on export of China in short-run and positive effects on long-run export. While in the case of India and Pakistan, insignificant effects of exchange rate on trade in the long and short run.

Bredian et al. (2003) studied asymmetric effects of exchange rates on trade between Ireland with European unions. The result showed that the volatility exchange rate positively affects trade between European unions and Ireland.

Fidrmuc and Horvath (2008) examined the exchange rate volatility dynamics daily for members' countries of E.U., such as Slovakia, Czech, Hungary, Poland, Romania, and the Republic. The researchers used TARCH and GARCH models for the analysis of the study. The results indicate that an asymmetric significant exchange rate veniality affects all analyzed countries.

Khan (2011) investigated the volatility exchange rate impacts on capital and Pakistan's trade flow. The researcher used monthly data from 1970 to 2009. For data analysis, the researcher used different models such as GARCH, EGARCH, and TGRCH to find the impact of volatility. The study illustrated the favorable volatility exchange rate effects on Pakistan's trade with developed and developing countries.

Ikechi et al. (2020) studied Nigeria's international trade and volatility exchange rates. They used different variables like import, export, and real exchange rate (REER) for determining the exchange rate effects on trade. They employed ARCH and GARCH models, and results showed a negative relationship between volatility exchange rate and Nigeria's trade.

Wiseman (2021) used a non-linear (NARDL) model for analyzing the effect of fluctuating rate of exchange for rice trade of Southeast Asian for 2007 -2014. The study focuses on the largest exporting and importing countries, like Malaysian, Indonesian, the Philippines, and Chinese rice imports from Thailand. The estimation of the study suggests that there are insignificant impacts on the trade of Southeast Asia.

Barguellil (2021) used the ARDL model to analyze the exchange rate effects on MENA countries from 1990 to 2018. The aim of studying asymmetric impacts of exchange rate on economic growth by international trade. The study concludes a native relation between trade and variation in rate of exchange.

Mosbei (2021) studied exchange rate effects on the intra East African community trade activities. The study found that the rate of exchange does not effect on regional trade of East Africa. The volatility in the exchange rate would decrease international trade because the risk-averse traders avoided reducing their trading activities.

Oskooee and Harvey (2021) checked the volatility effects of exchange rate trade between Mexico and the United States. The monthly data was used from 2002 to 2016 for 95 U.S. exporting industries to Mexico and 89 U.S. importing industries from Mexico. The result from the non-linear model discovered that when increased exchange rate volatility had adverse effects, decreased volatility did not affect trade.

3 Econometrics Model

This study finds the effects of asymmetric volatility exchange rate on Pakistan's trade performance with significant trade partners. The exchange rate effects on trade (import & export) were investigated by utilizing variables such as real bilateral exchange rate, absolute bilateral exchange rate volatility, and economic activities measured for Pakistan's trade with major trading partners.

The model of the study is taken in the following forms:

Export and import models:

 $X \quad {}^{Pak}_{t} = \alpha_0 + \alpha_1 \quad Y^i_t + \alpha_2 \quad REX^i_t + \alpha_3 \quad V^i_t + \epsilon(3.1)$

 X_{\star}^{Pak} Pakistani export trading partner assumed for positively dependent on the economic activity of partner and Y is negatively on the real bilateral exchange rate.

 REX_t^i The real bilateral exchange rate between Pakistan and partners.

 V_t^i Volatility is a statistical concept, meaning rapid change or certain changes, measured by the standard deviation of the real exchange rate.

$$M_{t}^{Pak} = \beta_{0} + \beta_{1} Y_{t}^{Pak} + \beta_{2} REX_{t}^{i} + \beta_{3} V_{t}^{i} + \mu$$
(3.2)

 $M \int_{t}^{Pak}$ Pakistani import trading partner assumed for positively dependent on the economic activity of Pakistan, Yis positively on the real bilateral exchange rate.

REX^{*i*} The real bilateral exchange rate between Pakistan and partners.

 V_t^i Volatility is a statistical concept, meaning rapid change or certain changes, measured by the standard deviation of the real exchange rate.

Variable Clarifications							
S. No	o. Variables Name	Variable	Data Source				
		measurement					
1	Import	Imports % GDP	WDI				
2	Export	Exports % GDP	WDI				
3	Economic activities	Annual % growth	WDI				
		rate of GDP					
4	Real bilateral exchange rate	$(P_{pak} \times NEX_i) / p_i$	WDI				
5	Volatility	SD of exchange rate	WDI				
4	Estimations						

Variable Clarificati

Table 1

Descriptive Statistics 4.1

The study data's mean, median, maximum, and minimum values are displayed using descriptive statistics. The descriptive data are shown in Table 4.2.

Descriptive Statistics									
EXP IMP GDP BEX VBEX									
Mean	30.85417	29.22782	3.134910	203.6383	22.36890				
Median	24.60109	24.89180	2.772235	2.727777	0.098750				
Maximum	101.0030	75.74463	18.32799	4353.983	3078.449				
Minimum	6.988073	9.615834	-14.95814	-1.286041	0.000728				
Sum	9472.229	8972.940	1015.711	61295.12	6688.302				
Sum Sq. Dev.	142714.3	79205.50	4638.583	1.18008	9829479				
Observations	307	307	324	301	299				

Table 2

			Table 3				
Correlation Matrix							
	EXP	IMP	GDP	BEX	VBEX		
EXP	1						
IMP	0.87	1					
GDP	-0.15	-0.20	1				
BEX	-0.05	-0.07	-0.29	1	1		

Because there is no evidence of Multicollinearity among explanatory factors in the previous table, no value is close to 1.

The stationarity of variables is estimated using the panel unit root test.

Table 4										
Panel Unit Root Test										
	Levin, Lin & Chu LM, Pesaran and ADF - Fisher PP – Fisher									
	t stat		Shin W-stat							
Variables	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)		
EXP	-2.15**	-5.27*	-0.34	-7.44*	16.09	90.8*	12.09	166.2*		
IMP	-2.09**	-8.65*	-0.58	-9.82*	17.36	124.4*	15.46	202.03*		
GDP	-0.40		-3.94*		49.99*		48.55*			
BEX	8.75	1.12	10.12	-1.54**	1.20	36.08*	1.20	65.69*		
VBEX	17.26	21.40*	9.63	4.66	8.32	36.37*	12.36	43.69*		

* show the 1 %, ** shows the 5% and *** shows 10% level of significance.

In the table above, GDP is stationary at the level, while other variables are stationary at the first difference. The estimation of ARDL co-integration techniques is the next stage. When variables are integrated at the level, and some are initially different, Dickey and Fuller (1974), Peasanon et al. (2001), Philips and Perron (1988) and Shahbaz and Lean (2012) advocate using the ARDL co-integration technique.

	Table 6
Long-Run Volatility	V Coefficient Estimates in the Linear Export Model

Long Run										
	Const	GDP		BEX	VBEX					
China	10.39(4.88) *	0.71(1.78	8) ***	-3.01(-2.42) *	1.00(1.49)					
Germany	-11.10(-1.65)	4.33(3.91	l) *	21.93(3.88) *	0.06(2.79) *					
Netherlands	3.94(5.41) *	1.33(1.92	2) ***	3.27(0.35)	0.005(0.018)					
Spain	2.59(2.14) **	-1.22(-2.	21) **	0.04(2.23) **	-1.69(-2.42) *					
	Diagnostic test									
	F test	LM (p value)	Cu-sum) Cu-sum so	L Adj r2					
China	4.20**	0.46	S	S	0.89					
Germany	3.90***	0.38	S	S	0.98					
Netherlands	5.23*	0.48	S	S	0.92					
Spain	5.67*	0.14	S	S	0.93					

* show the 1 %, ** shows the 5% and *** shows 10% level of significance, E views 10 is used for estimation

The results of the F test show that long-term co-integration exists. The model is statistically stable based on Cum-sum and Cum-sum square. The results of the L.M. test show that there is no auto-correlation problem.

 Table 8

 Long -Run Coefficient Estimates of Volatility in the Linear Import Demand Model

Long Run Linear ARDL Import Model

ARDL represents the long-term impact of an explanatory variable on Pakistan's imports.

Long Run									
	Const	GDP		BEX		VBEX			
China	12.46(2.1) *	0.29(0.61)	-2.48(-3.3) *		0.39(2.00) **			
Germany	4.58(0.9)	2.30(3.42	2) *	8.76(2.29) **		0.01(0.80)			
Netherlands	3.71(4.7) *	1.38(4.44) *		0.90(0.88)		-0.05(-0.99)			
Spain	23.07(4.6) *	1.71(1.40)		0.023(0.65)		-1.80(-1.75) ***			
Diagnostic test									
	F test	LM (p value)	Cu-sum	l)	Cu-sum sq	Adj r2			
China	4.67**	0.93	S		S	0.88			
Germany	3.90***	0.95	S		S	0.96			
Netherlands	4.64*	0.87	S		S	0.93			
Spain	4.88*	0.12	S		S	0.91			

* show the 1 %, ** shows the 5% and *** shows 10% level of significance

The F tests indicate that long-term co-integration happens. Based on Cum-sum and Cum-sum square, the model is empirically stable. The L.M. test results indicated that there is no auto-correlation issue.

Table 10

Long Run Non-Linear ARDL Export Model

Long -Run Coefficient Estimates of Volatility in the Non- Linear Export Demand Model									
	Long Run								
	Const	GDP		BEX	PVB	X	NV	/BEX	
China	11.64	0.70		-3.91	1.25		-0.2	75	
	(2.11) **	(1.68)		(-3.19) *	(2.96)	*	(-0	.21)	
Germany	-18.88	5.20		18.31	0.066		-90	.67	
	(-3.38) *	$(3.38)^{-3}$	ł	(2.93) *	(3.04)	*	(0.9	97)	
Netherlands	4.1	1.46		2.30	0.04		1.3	0	
	(10.41) *	$(3.60)^{-3}$	ł	(2.68) *	(0.28))	(3.2	70) *	
Spain	12.23	0.03		0.20	-0.15		-0.	55	
	(10.35) *	(0.20)		(3.32) *	(-2.05	ō) **	(-6	.53) *	
			Diagn	ostic test					
	F test	LM value	(p Ci	um-sum)		Cu-su	m sq	Adj r2	
China	3.12**	0.46	S			S		0.64	
Germany	6.65*	0.93	S			S		0.98	
Netherlands	4.30**	0.78	S			S		0.91	
Spain	5.03**	0.45	S			S		0.93	

* show the 1 %, ** shows the 5% and *** shows 10% level of significance

Table illustrates that Pakistan's trading partners' GDP has a long-term positive influence on Pakistan's exports. Similarly, the currency rates of Chain has a detrimental impact on Pakistani exports.

Long-Kun volatinty Coefficient Estimates in the Non-Einear inipolt Demand Model							
Long Run							
	Const	GDP	BEX	PVBEX	NVBE		
China	12.46	0.29	-2.46	0.38	0.42		
	(1.82) **	(0.55)	(-1.22)	(0.49)	(0.11)		
Germany	-8.10	4.01	-5.05	0.017	-18.2		
	(-0.61)	(3.25) *	(-1.75)	(0.83)	(-4.16) *		
Netherlands		3.44	1.22	0.42	-1.80		
		(1.87) ***	(1.18)	(1.29)	(-2.31) **		
Spain	14.01	0.59	-0.03	0.06	-0.31		
	(9.79) *	(2.67) *	(-2.36) **	(0.64)	(-1.84) ***		
		Diagno	stic Test				
	F test	LM	Cum-sum	Cum-sum sq	Adj r2		
China	4.35**	0.93	S	S	0.88		
Germany	4.95*	0.80	S	S	0.91		
Netherlands	5.13*	0.75	S	S	0.87		
Spain	5.00*	0.20	S	S	0.92		

 Table 12

 Long-Run Volatility Coefficient Estimates in the Non-Linear Import Demand Model

* show the 1 %, ** shows the 5% and *** shows 10% level of significance E views 10 is used for estimation

Table illustrates that the exchange rates of Chain, Germany and Spain, have a detrimental impact on Pakistani imports. Duasa and Jarita (2009) analyzed the long-run relationship between trade and unstable exchange rate and trade. The result from the model the shock in exchange rate disturbed trade balances in Malaysia.

Conclusion

The study investigates the impact of Asymmetric exchange rate volatility on Pakistan's trade performance with major trade partners (China, Netherlands, Germany, Spain,) spanning 1985 to 2020. Linear and Non-linear ARDL techniques are used for estimation. The study used the export and import of Pakistan as a dependent variable, otherwise economic activities, bilateral exchange rate, and volatility bilateral exchange rate are independent variables.

The findings also show that exchange rate volatility (China, Germany, and the Netherlands) directly influence Pakistani exports in the long run, whereas Volatility Spain, has a negative impact.

Linear ARDL import model show that the currency rate volatility directly influences Pakistani imports in China, Germany, the Netherlands, Italy and Spain. However, Volatility in the United Kingdom and the United Arab Emirates has an adverse influence. Further in long run linear ARDL import model shows that seven trading partners of Pakistan has a significant impact on imports.

The results from non-linear ARDL export model illustrate that Pakistan's GDP with its trading partners has a positive and considerable impact on Pakistani exports over a short period. Furthermore, the Positive Volatility of Exchange Rate (PVBEX) of trading partners (Spain, the United States, and the United Kingdom) has a negative impact on Pakistani exports. The negative Volatility of the Exchange Rate (NVBEX) of trading partners (China, Germany, Italy, and Spain) has an adverse impact on Pakistani exports. The findings support the non-linear link between Pakistani exports and the volatility exchange rate of China and the United Arab Emirates for the short run. The results also demonstrate a non-linear link between Pakistan exports and exchange rate volatility in Italy, the United States, and the United Kingdom in the long run.

The non-linear ARDL import model, illustrates PVBEX of trading partners (Netherlands, Germany, Italy, United States, and the United Arab Emirates) positively impacts Pakistani imports. Still, PVBEX of trading partners (Spain, China, and the United Kingdom) has a negative impact on Pakistani imports in short run. In long run the exchange rate of Germany, China and Spain have a significant impact on Pakistan imports. The findings support the non-linear association between Pakistani imports and the volatility exchange rate of Italy and the United Arab Emirates in long run

Recommendation

After the finding and conclusion of the research study, the researcher makes the following recommendations.

- Developing economies like Pakistan should be well-known for international trade and exchange rate policy.
- Pakistan should need to review the policy of international trade, avoid uncertainty in domestic currency.
- Pakistan should increase trade, especially with developing economies, with their currencies, and avoid the risk and uncertainty impacts on trade by international currency.
- Researcher suggests that there should be more and more studies in future, because exchange rate is changes time to time and also change the policies of trade. In future the researchers should studies (research) on exchange rate volatility effects on trade of Pakistan to whole world.

References

- Azid, T., Jamil, M., Kousar, A., & Kemal, M. A. (2005). Impact of exchange rate volatility on growth and economic performance: A case study of Pakistan, 1973-2003. *The Pakistan development review*, 4(2), 749-775.
- Barguellil, A. (2021). The Asymmetric Indirect Impact of Real Exchange Rate on Economic Growth through Foreign Trade: An Asymmetric ARDL Panel Model. *Asian Economic and Financial Review*, 11(8), 658-671.
- Barguellil, A. (2021). The Asymmetric Indirect Impact of Real Exchange Rate on Economic Growth through Foreign Trade: An Asymmetric ARDL Panel Model. *Asian Economic and Financial Review*, *11*(8), 658-671.
- Bahmani-Oskooee, M., Usman, A., & Ullah, S. (2020). Asymmetric impact of exchange rate volatility on commodity trade between Pakistan and China. *Global Business Review*, 12(2), 44-80.
- Hodge, D. (2005). The effect of exchange rate volatility on trade and employment: A brief review of the literature. Human Sciences Research Council. Retrieved from: <u>http://hdl.handle.net/20.500.11910/6419</u>

- Hussain, S. B., Hussain, S., & Hussain, F. (2015). Exchange rate volatility during different exchange rate regimes and its relationship with export of Pakistan. *The journal of Governance and public policy*, 7(11), 255-260.
- Hall, S., Hondroyiannis, G., Swamy, P. A. V. B., Tavlas, G., & Ulan, M. (2010). Exchange-rate volatility and export performance: Do emerging market economies resemble industrial countries or other developing countries? *Economic Modeling*, 27(6) 1514-1521.
- Ikechi, K. S., & Nwadiubu, A. (2020). Exchange Rate Volatility and International Trade in Nigeria. *International Journal of Management Science and Business Administration*, 6(5), 56-72.
- Khan, A. J., Azim, P., & Syed, S. H. (2014). The impact of exchange rate volatility on trade: A panel on Pakistan's trading partners. The Lahore journal of economics 19(1), 31–66.
- Khan, A. J., & azim, d. P. (2011). Exchange Rate Volatility in Developing Countries: Implications for Trade and Capital Flows in Pakistan (Doctoral Dissertation, GC university Lahore, Pakistan) 18(1), 22-40.
- Nicita, A. (2013). Exchange rates, international trade and trade policies. *International Economics*, 135, 47-61.
- Wilson, I. (2009). Rage against the machines: Explaining outcomes in counterinsurgency wars. *International Organization*, 63(1), 67-106.
- Siddiqi, A. H. (2006). *Finance of Foreign Trade and Foreign Exchange*. (4thed.) Royal Book Company, Karachi, Pakistan: *Journal of Transnational Management* 22(2), 121-150.
- Ashraf, M. (2007). Development and growth of Islamic banking in Pakistan. *African journal of Business* management, 7(32), 3144-3151.
- Satawatananon, K. (2014). *The Effects of exchange rate volatility on commodity trade flows between the US and Thailand* (Doctoral dissertation, The University of Wisconsin-Milwaukee).
- Shaikh, S. A., & Hongbing, O. (2015). Exchange rate volatility and trade flows: Evidence from China, Pakistan and India. International journal of economics and finance 7(11), 121-127.
- Fidrmuc, J., & Horváth, R. (2008). Volatility of exchange rates in selected new EU members: Evidence from daily data. *Economic Systems*, 32(1), 103-118.
- Wiseman, T., Luckstead, J., & Durand-Morat, A. (2021). Asymmetric Exchange Rate Pass-Through in Southeast Asian Rice Trade. *Journal of Agricultural and Applied Economics*, 53(3), 341-374.