

# GOVERNANCE AND EXCHANGE RATE IN PAKISTAN: A TIME SERIES ANALYSIS

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**ABSTRACT:** *Financial market is more sensitive rather than any other market. The eExchange rate is a more prominent indicator of financial market and it directly affects the whole economy. As globalization increases international dependence also increases many times. So volatility in the exchange rate has a direct effect on the terms of trade. Variance of volatility can be minimized with better governance. The exchange rate is used as a proxy variable for financial markets. Empirical analysis of the impact of governance on exchange rate in Pakistan is uniqueness of study. In this study, we investigated the effects of saving rate, money supply and governance on the exchange rate. This analysis is a time series for the time period of 1980 to 2012. After checking unit root, Auto-Regressive Distributed Lag (ARDL) approach to co-integration is applied. Empirical findings are exploring significant impact of governance on exchange rate in the short run (SR) as well as in the long run (LR) in Pakistan. Results suggest that if governance improves it will bring positive change in the economy through the exchange rate. These results are consistent with the theory.*

**Keywords:** Governance, KU Index, Exchange Rate, Pakistan

## INTRODUCTION

In simple words, the exchange rate (ER) is defined as the value of one currency in terms of other's currency. In other words, we can say that, exchange rate refers to the value of one currency that is used to convert one currency to another. Mostly, the official exchange rate (exchange rate that is acceptable in exchange market) determined by the national authorities. Currency appreciation and depreciation affect the macroeconomic stability of the economy. Floating exchange rate means the exchange rate depends upon demand-supply forces. It means the exchange rate set by capitalist. The Laissez-Faire economy is the philosophy that market outcomes are always the best for the whole society.

There should be no intervening by any authority in the market mechanism. According to this philosophy, interventions always create more hurdles than solutions. But laissez-faire or market economy has been collapsed during 1929. It was Keynes, who develop a new economic framework. Keynesian revolution in economic theory based upon that there should intervene from public institutions to save people from market mechanism. The 1970s oil crisis explored weakness of the Keynesian model. Again market system preachers started and propagate that solution of all human economic problems hidden in market economic system. But this time Classical philosophy has emerged with the name of Monetarist that led by Milton Freidman.

The monetarist orthodox school influences the ongoing debate on the conduct and role of stabilization policy. The orthodox developed empirical and theoretical improvement over the era of 1950s to early 1970s. They reformed quantity theory of money (QTM), adoptive expectations hypothesis, the monetary approach to balance of payments theory, exchange rate determination Augmented Philips curve analysis. They generated a large number of empirical support and real world correspondence. But all these theories based upon citrus-paribus conditions to strengthen monetarist orthodox. Now, in 2015 we are preaching and try our best to implement this philosophy with complete presumptuousness. Even after the global financial crisis of 2007-2008 that was replica of great depression 1929 to some extent. In the 20th century, states play little role in economic activities.

## 1.2 The Market Mechanism Orthodox

Nelson [7] explained that people who resist the free market phenomena are considered and labeled irrational. According to te opposition, their preference for traditions and stability over efficiency is considered an undesirable value. Nobel Prize winner economist Milton Friedman remained an economic adviser of Chili government for several years. Ultimately the result of visionary advices by Friedman brought high unemployment in Chili. International Journal "The Economist" wrote in April 1984 about the poor people (masses) of Chili "their hair has gone gray, waiting for the free market to give the results." Similar collapse of laissez faire philosophy has been documented all over the world. The team of top World Bank economists planned quick transformation of the Russian socialist economy to market economy. Before this, the pioneer economists of the world predicted that the Russian economy will show economic miracles. On the other hand Farkas [3] found that industrial production of Russia fall down by 50% as results of the World Bank reforms.

The high exchange-rate volatility exhibits a significantly negative impact on economic growth in the long run. This supports the view that uncertainty about exchange-rate policies involves considerable costs in terms of foregone growth [10, 16]. Fluctuation in the exchange rate is rapier for poor class of the nation. If exchange rate depreciates then rich class (haves) beneficiary and poor class (have not) pay the cost. If the exchange rate appreciates then again same class suffer in the long run. Academics and policy makers and are completely agreed that the quality of governance matters for real development. It was found and conform that institutions had ability to raise real per capita income and promote economic growth in the world. The development dividend paid by the good governance [18].

There are varieties of factors (economic, social and political) that cause variation of exchange rate like economic factors, the trade openness, GDP, national income, domestic money supply and foreign money supplies, the regime of exchange rate, a nominal rate of interest rates, monetary policy and inflation. The role of each factor varies from nation to nation

and depends upon on the economic conditions of country as well. However, developing nations, in the process of structural change are affected more by these factors. If we sum up all these social, political and economic factors those disturbs exchange rate of country will be governance in broader sense. Here, we found how much all these factors (governance) influence the exchange rate in case of Pakistan. No doubt, it is much away from conventional determinants of exchange rate that explained by various top economist.

This research specifically design to examine impact of governance on exchange rate in Pakistan for the time period of 1980 to 2012 using the time series data. Organization of Study is as follows, in section two reviews of literature. Section three of the study discusses methodology and data collection. Empirical findings are discussed in the fourth section. The Last section of study provides conclusion and policy recommendations on the basis of results.

## LITERATURE REVIEW

There are various empirical studies at the domestic and international level, presented a relationship between exchange rate and governance. Brief literature review of some selected studies is given below.

Rickne tested empirically role of governance on exchange rate volatility in a panel study of 33 oil exported nations for the period of 1985 to 2005. In this study, seven governance variables were selected for analysis. Study organized through comprehensive analysis that covers almost all aspects. The empirical results showed that the real exchange rate has tendency to co-move with the real oil price and increases with the level of oil dependence. But good governance has ability to weakening this relation. The study concluded that the currencies of those countries with better bureaucratic structure, highly strong legal system, effective democratic systems and equal distributions of income are less affected by oil price volatility [11].

Rodrik found that high real exchange rate adverse effect on economic growth. The study used quantitative approach and checks the impact of exchange rate on growth of developing and developed nations. Two approaches were used for analysis. In first approach analyze the impact of institutions on real exchange rate. Proxy used for institutional governance that developed by World Bank. For every country study use simple average of the World Bank's rule of law, regulatory quality, government effectiveness and corruption indices. While in second approach impact of product market failure on real exchange rate was used. It was found that developing nations suffer comparatively more than developed nations [12].

Cerge-Ei [2] analyzed sources of volatility in exchange rate of the Euro separately of five central and Eastern European Countries (CEEC-5) group. TARCH (threshold autoregressive conditional heteroskedasticity) model was employed to find out robust relation between variables. Kim [5] found that the economic crisis of Korea in 1997 due to weaknesses of corporate system, financial system and poor governance. Korea was world's 11th largest economy but due to poor governance it's near to default. Then, Korean government realized its financial crisis. And then government make agreements with International Monetary Fund (IMF)

for bailout packages of worth \$58 billion. IMF gave this bailout package just for the sake of adoration of market system. If Korea was defaulted at that time it may be against the dignity of Market economy. Study concluded that there should be a difference between financial liberalization and trade liberalization. It was suggested that there is need a comprehensive efforts to re-scope the importance of governance. Market reforms should be incorporate with governance because market forces have not much potential to handle different market problems.

Over the last decade, international institutions, i.e. International Monetary Fund (IMF) and the World Bank (WB) are preaching good governance [17]. Bretton wood sisters (system) faced pressures by domestic pressure groups to apply agenda of transparency, accountability and participation. The study examined the challenges that faced by the both international organizations. For the sack of the implication of agenda both organizations are trying to enhance their relations with nongovernmental organizations (NGOs). What a government does, or does not do, will influence economic stability and growth in developed and developing economies. Public policies like: monetary, fiscal and exchange rate policies, along with international trade policies, regulation, labor policy, education, technology, healthcare and the provision of key institutions such as property rights, all have a significant impact on economic progress [14].

Financial crisis-1997- of Asia has had dramatic effects on the living standard and social disorder in Indonesia, Korea, and Thailand [6]. Even Asian tigers didn't save from this crisis. The financial crisis brought recession in Asia. The Asian financial crisis of 1997 was differs from previous crises. Study discussed it was due to integrated global economies, weakness in governance in the corporate, financial, and government sectors. It is found that the poor governance in these nations is constraint that causes the crisis. After crisis Thailand requested to IMF for help to correct external current account imbalances. Bailout package from IMF focused on promotes governance, competition in the countries, stop state sponsored monopolies, cartels and privatizing state enterprises.

The IMF contributed to promote good governance in member nations (Good Governance: IMF role 1997). There are many policy advices for member nations mainly, introducing such systems that limit the scope for ad-hoc decision making. The IMF encouraged liberalization of the trade, exchange rate and price systems. Furthermore, member countries of the IMF also get technical assistant to increase their capacity and IMF also provide assistance to its member countries to design and implement liberal economic policies, increasing capacity of institutions and in improving public sector accountability. There are many sub part of development agenda of the IMF as, transparency in financial transactions, central bank, and improvement of public sector more generally. In short, IMF helps countries to improve governance and control over corruption.

The present study is much different from all of above review studies, because it analyses the specific linkages among exchange rate, saving, money supply and governance. One unique aspect of this study, that there is scarcely any study in

Pakistan, which empirically define the linkage between governance and exchange rate.

**DATA AND METHODOLOGY**

The current study has used data of time series on exchange rate, gross savings and money supply (M2) for the time period of 1980 to 2012. The required data collected from several issues of Pakistan Economic Survey and World Development Indicators (WDI). The values of governance are taken from KU index [4]. KU index was developed by same author from 1980 to 2010. But here, KU index is extended (on same pattern or index methodology) to 2012 [4].

Several functional forms have been checked to quantify the relationship between exchange rate, gross savings, money supply (M2) and governance. The most suitable functional form of the variables is stated as:

$$\text{Exchange rate} = \beta_1 + \beta_2 \text{governance} + \beta_3 \text{Lm2} + \beta_4 \text{gsavings} + \varepsilon \quad (a)$$

In the above equation (a), exchange rate is dependent variable. Governance measured by index, LM2 is money supply in log form and savings is gross savings.

**Unit Root Test**

Basically unit root is feature of process that develops through time that can source of problems in statistical inference involving time series models. Unit test is precondition to make sure that not a single variable of model is order (I (2)) of integrated or higher order especially when

we are going to apply the ARDL approach to co-integration. We check it because when there is unit root in variables then calculated F-Statistic is not valid. So on the basis of these arguments checking the unit root order is post ARDL test.

**Autoregressive Distributed-Lag Model (ARDL)**

There are many approaches used in literature for co-integration like, Engle-Granger residual based test, Maximum Likelihood based test and Gregory and Hansen (1996). These techniques have some problems. Mostly techniques for model estimation are unable to check the statistical relationship between indicators, especially when the data set is small. In this study, we use small data set due to constraints. This paper is applying the Auto-Regressive Distributed Lag (ARDL) approach to co-integration that proposed by Pesaran. It is not controversial for small data sets. Pesaran *et al.* [9] further extended the ARDL approach to co-integration. ARDL is the best econometrics technique and have advantages on other co-integration techniques so far. First of all, it can be applicable when the variables are of I (0) or I (1) or mutually integrated. But none of the variables is of I(2) or higher order. Secondly, ARDL best technique when there is problem of endogeneity in model.

The dynamic model of responses is to include lagged values of x or explanatory variables of the regression equation. Actually, this is the basis of the distributed-lag model, in which a series of lagged descriptive or explanatory variables accounts for the time adjustment process.

**RESULTS AND DISCUSSION**

**Table 1: ADF Unit root Results**

Variables		Intercept		Trend and Intercept		Conclusion
		Coefficient	Std. Error	Coefficient	Std. Error	
Governance	Level	-0.016867	0.038707	-0.191891	0.113633	I(1)
	1st Difference	-0.959162*	0.190845	-0.958427	0.194558	
Ingross Savings	Level	0.002439	0.0425	-0.221726	0.124971	I(1)
	1st Difference	-0.219297*	0.045999	-0.234569	0.04802	
Exchange rate	Level	0.078463	0.02958	-0.34678	0.165013	I(1)
	1st Difference	-1.089535*	0.190062	-1.1084	0.190983	
LM2	Level	-0.00212	0.007237	-0.42869	0.139096	I(1)
	1st Difference	-0.790560*	0.184464	-0.791152	0.187379	

\* Indicates stationarity in concern variable.

In above table 1, first Column is showing variables. Second and third columns are explained first difference and second difference coefficients values along with standard error. In fourth column order of stationarity is given. First governance that is principal independent variable in model has a unit root at the level and intercept (-0.016867/ (0.038707)) t-value = -0.4359. Then check unit root at level form, but now intercept and trend both are selected. Which contains t-value = -1.689, it show still problem of unit root exist but less than level

form. Stationarity in data is compulsory at least at first difference I (1) for ARDL. Until we get suitable result for stationarity, continue this process. At first difference, coefficient and standard error are -0.959162, 0.190845 respectively. Now t-value shows significant results. It means at first difference, there is no unit root problem in governance time series. The same pattern is adopted for all remaining variables. All variables governance, gross savings, exchange

rate and Money supply (LM2) are free from unit root at first difference I (1).

**Exchange Rate and Governance**

Now check the co-integration between exchange rate and governance with supporting variables money supply and

gross savings annually. Following co-integration equation of ARDL approach is checked long run and short run association between variables.

$$\Delta \text{exchangrate} = \alpha_0 + \sum_{i=1}^n \alpha_i \Delta \text{exchangrate} (t-1) + \sum_{i=0}^n \delta_i \Delta \text{Governance}(t-i) + \sum_{i=0}^n \phi_i \Delta \text{money supply}(t-i) + \sum_{i=0}^n \psi_i \Delta \text{Gross savings} (t-i) + \beta_1 \text{exchangerate} (t-1) + \beta_2 \text{governance}(t-1) + \beta_3 \text{money supply} (t-1) + \beta_4 \text{Gsavings}(t-1) + \epsilon_t$$

**Table 2: Estimated LR Coefficients of ARDL (1, 0, 0, 0) Model, (Using the ARDL Approach and SBC)**

ARDL Model (1, 0, 0, 0)				
Variables	Coefficient	t value	[p-value]	
Governance	63.0256	1.915**	[0.067]	
LM2	-0.14001	-0.48316	[.633]	
gsavings	-0.1605E-8	1.1194	[.274]	
R-Squared = .99085		R-Bar-Squared = .9805		
DW-statistic= 2.0221		F-Stat= 679.6565[.000]		
Diagnostic Tests:				
Serial Correlation (LM) = .030590[.861]		Functional Form (LM) = 0.012467[.911]		
Normality (LM) = 2.0067[.367]		Heteroscedasticity (LM) = 5.9462[.015]		
F-statistic	95%Lower Bound	95%Upper Bound	90%LowerBound	90%Upper Bound
8.1013	2.8013	4.0815	2.2013	3.3688
W-statistic	95%Lower Bound	95%Upper Bound	90%LowerBound	90%Upper Bound
32.4051	11.2052	16.3259	8.8052	13.4752

Note: Values in [ ] show p value. \*\* Indicates that the coefficients are significant at 10% level of significance.

**Table 3: ECM Representation for Selected ARDL (1, 0, 0, 0), Model Based on SBC**

ARDL Model (1, 0, 0, 0)				
Variables	Coefficient	t value	[p-value]	
dGOV	-8.0484	-1.75**	[.093]	
dIm2	0.01788	0.521	[.607]	
GSAVINGS	-0.1605E-8	-1.119	[.274]	
ecm(-1)	-0.12770	-2.323**	[.028]	
ecm = ER -63.0256*GOV + .14001*LM2 + .1605E-8*GSAVINGS				
Diagnostic Statistics:				
R-Squared = .49948		R-Bar-Squared .41940		
F-Stat = 8.3162[.000]				
F-statistic	95%Lower Bound	95%Upper Bound	90%LowerBound	90%Upper Bound
8.1013	2.8013	4.0815	2.2013	3.3688
W-statistic	95%Lower Bound	95%Upper Bound	90%LowerBound	90%Upper Bound
32.4051	11.2052	16.3259	8.8052	13.4752

Note: Values in [ ] show p value. \*\* Indicates that the coefficients are significant at 5% level of significance.

Above table 2 shows the result of long run ARDL estimates and diagnostic test. The long run coefficient of governance is positive and significant at 6 %. This implies that improvement in governance quality lead to improve the exchange rate in the long run. Similarly, the gross saving variable has also insignificant impact on exchange rate. Money supply that is measured by M2 has a negative and insignificant effect on exchange rate in case of Pakistan. In this model F-statistic is above the upper bound at 95% it means there exists level of effect presence in the long run. Similarly W-statistic is also very above at 95% between the bounds the null hypothesis of no level effect is rejected. The basic assumption of normality is also fulfilled. Null hypothesis about the functional form of the model is also rejected means functional form is also fine. R-squared value is in favor of that model is good fit. The results of error correction model or mechanism (ECM) are reported in table below.

Error Correction term ECM (-1) is captured the adjustment towards the long run equilibrium. The coefficient of ECM (-1) specified the speed of adjustment back to long run equilibrium after a shock in short-run. ECM (-1) is extremely significant with negative sign that indicates the co-integration and long-run causality among exchange rate, governance, gross savings and money supply. The coefficient of ECM (-1) suggests that the adjustment process is satisfactory. The short run impact of governance on the exchange rate is negative and significant at 9 %. Money supply (LM2) and Gross savings (gsavings) have insignificant effect on the exchange rate on short runs. In this model F-statistic is above the upper bound at 95%, it means the level of effect exists in short run and similarly W-statistic rejected the null hypothesis of no level form effect. In short, governance has an impact on exchange rate in short run as well as long run.

## CONCLUSION AND RECOMMENDATIONS

The basic aim of the study is to find the impact of governance on exchange rate in Pakistan. Time series data used for the period 1980 to 2012. The exchange rate is used as a proxy variable for financial markets. Empirical analysis of impact of governance on exchange rate in Pakistan is uniqueness of study. Governance is not a single indicator that observable, rather it is a comprehensive mixture of economic, social, political, institutional and technological indicators. Measurement issues related to governance are incorporated by KU index. After checking unit root in variables, the ARDL econometric technique is applied to our model. Results are showing significant impact of governance on exchange rate in short run (SR) as well as in the long run (LR) in Pakistan. Results suggest that if governance improves it will bring positive change in economy through the exchange rate. These results are consistent with the findings of Akram *et al.* and Rodrik [1, 12].

Keeping in view the above qualitative and quantitative discussion, this study offers some policy recommendations to reduce volatility in exchange rate through good governance in Pakistan.

(i) Financial market is the most sensitive market among all markets, so better governance can ensure stability in financial market.

(ii) All institutions should perform their duties according to their limits and should be accountable for better outcomes.

To summarize, steps should be taken by the policy makers to improve governance quality that integrates financial governance as well as economic governance in Pakistan.

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