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Macroeconomic Factor's Volatility, Debt Intolerance and Economic Policy Implication: A Brief Economic View of Pakistan

Muhammad Ateeq-ur-Rehman[1], **Sajjad Ahmad**[2*]

Abstract

The main aim of the study is to find the debt intolerance for the economy of Pakistan. Different economic fundamentals are taken for empirical analysis and a time series data from 1970 to 2010 is used to find the relation of macroeconomic basics with debt intolerance level. Debt intolerance is treated as dependent variable and external debt as % of GDP is taken as a measure of debt intolerance while exchange rate, growth rate, interest payment and inflation are taken as an independent variable. Different model specifications are used for the analysis and various statistical methods are applied. A negative relation is identified between growth and debt intolerance while exchange rate, inflation and interest payment are positively significant with external debt to GDP. A 35% of debt to GDP is identified a maximum debt level for the economy of Pakistan and various policies are recommended.

Keywords: Macroeconomic Factor's Volatility, Debt Intolerance and Economic Policy Implication, Pakistan.

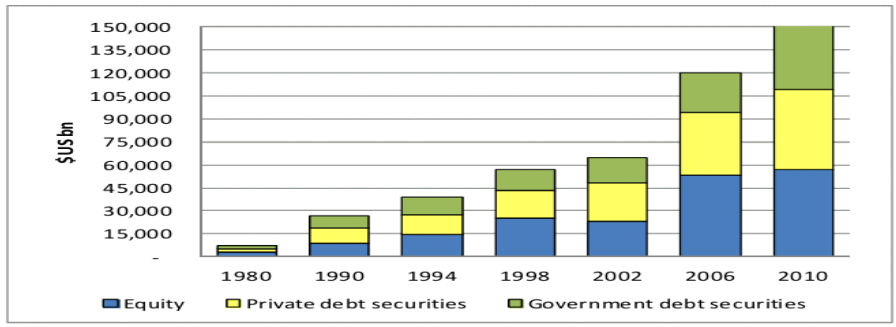
1. Introduction

Why debt intolerance level is dissimilar among economic territories? It is the most important controversial question of research nowadays and a relevant issue related to emerging economies (Lysandrou, 2013). Developing economies always suffer the resource availability problems and the advanced countries fulfill the economic needs of those countries by providing capital resources with different terms and conditions (Meng, 2016; Westermann, 2017). An efficient use of resources leads to boost up the economy and also releases the capital burden provided by the advanced economies. However, inefficient use of foreign capital increases the burden on the economies and the country has to borrow more to release previous obligation. Hence

[1] *Gutenberg School of Management and Economics, Johannes Gutenberg University Mainz, Germany.*
[2] *Faculty of Economics & Management University Putra Malaysia (UPM), Malaysia.*
[*] *Corresponding Author: Sajjaadahmad@gmail.com*

unproductive use of the resources push the relative economy into 'vicious circle of debt' and moves toward the default situation (Roberts, 2017). In addition, if the relative economy does not take correct action to remove the flaws of the economic polices then again, country defaults on its debt. It supports the 'serial default hypotheses' theory and clearly tells the debt intolerance point of relative economy (Brière, Ferrarini, & Ramayandi, 2016; Hung, 2017). However, it is quite interesting question that why debt intolerance level differs? But different absorption level of debt can be a result of difference in economic fundamentals and economic size. The role of economic fundamentals cannot be ignored when economic capital is raised across the countries. Nevertheless, the economic institutions and economic policies play an important role to keep level of such economic basics in right direction to sustain the investor's confidence level(J. A. Frankel & Rose, 1996; Westermann, 2017). Somehow, it is impossible to grow without debt and therefore growth in debt and debt composition in total capital is increased during last thirty years as shown in Figure-1**.**

The capital composition during (1980 -2010) reaches to $150bn out of which more than $90bn part of the capital is debt and it shows the utilization of debt instrument during this time. So increase in private and public debt can be a reaction of flexible economic policy and variation in the economic fundamentals all around the world. Hence debt intolerance level is also changed because of such policy reforms as shown in Figure 1. International access to capital market is totally linked with economic fundamentals and the relative economic policies. The flexible debt policies during last thirty years not only increase the default level but also increase the risk exposure as well. Figure 2 (Appendix) shows the positive relation between risk of default and external debt to GNP of overall emerging economies during last decade.



Deposits	5,000	16,000	18,000	22,000	29,000	45,000	59,000
GPD	11,000	22,000	26,000	30,000	33,000	49,000	63,000

Figure 1: Global Security Stock from 1980-2010 ($ US bn)

Source: Mckinsey (2008), BIS (2011), WFE (2011), World Bank (2011), Lysandrou (2013)

The main objective of this study is to investigate the significant determinants of the debt intolerance of Pakistani economy analyzing different economic

indicators. The economy of Pakistan is not out of such scenario during last thirty years in which the most advanced debt instruments are introduced to finance the capital. Different economic indicators are taken into account with the support of literature and annual indicators (1971-2010) are collected from World Bank database and some those from the State Bank of Pakistan. External debt to GDP is taken as a benchmark for debt intolerance while inflation, exchange rate, GDP growth rate and interest rate payment is taken as the indicators of the debt intolerance. By applying different empirical techniques, an insignificant relation of independent variables is found with dependent variable. Moreover, a significant lagged relation of external debt to GDP ratio is found known as repeated default state of an economy and it clearly supports the *theory of serial default* examined by Mendoza (2008). In addition, Table 1(Appendix) shows the debt rescheduling numbers during (1971-2010) and illustrates the external debt as percentage of GDP of Pakistan. The same table clearly demonstrates and evidence related to the theory of 'serial default' and debt intolerance level supported by the previous literature. The contemporary study advocates the debt intolerance level especially for Pakistan and it is not more than34%. Consequently, it also exhibits the safest debt intolerance level can be 30% of GDP for the economy of Pakistan. The empirical evidence suggests that Pakistan should make an economic policy in which the level of debt should not exceed 30% of GDP for the economic sustainability. Otherwise Pakistan would be facing 'serial default' situation for the upcoming economic scenario. Figure 3. shows the zigzag movement of the debt structure during (1971-2010) and the rescheduling problem occurs when the level of debt crosses the figure of 34%. The ratio of debt to GDP remains below from (2004-2008) and during this period no debt rescheduling is made by the Govt. of Pakistan. Therefore, Pakistan should restrict the policy not to cross the debt level from 30% of GDP to keep the economy on the right direction.

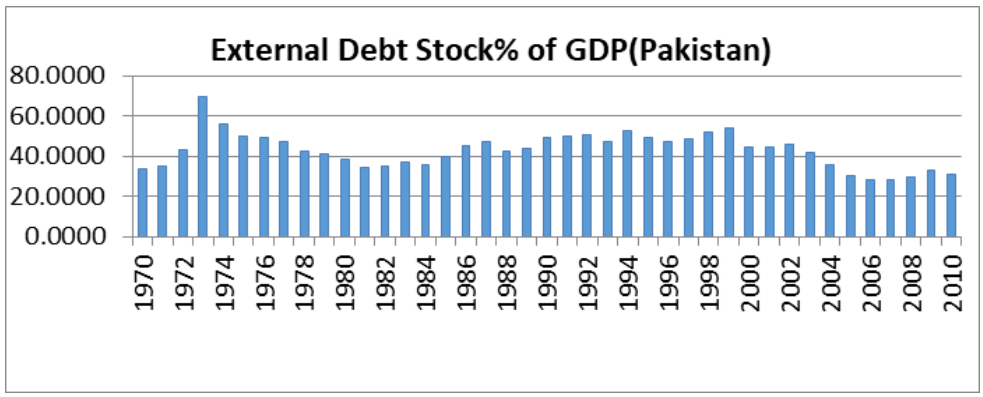


Figure 2:External Debt Stock% of GDP (1970-2010)

Source: World Bank (2012) and own calculated

The rest of the paper is structured as follow; section two presents the previous literature while section three discusses about the conceptual framework, methodology and model specifications. Section four discusses the data, results and discussion. Finally, section five concludes with policy implication.

2. Literature review

Institutional environment cannot be avoided when an analysis of an economy is taken into account. Subsequently, institutions work under the political institution from where all economic issues are originated and all the economic fundamentals (debt, exchange rate, interest rate and growth level) are controlled by the authority(Westermann, 2017). As Giordano and Tommasino (2011) theoretically describe the importance of political control which leads to set the level of debt to keep the economy safe. Unlikable condition regarding economy starts from the political authority who decides to be defaulted or not. However, if the cost of default is cheaper to benefit of no default then the political people chose the default condition. Therefore, to be in the default condition is the gradual process adopted by the government decreasing the debt tolerance level. Consequently, Díaz-Cassou, Erce, and Vázquez-Zamora (2008) state the issue of debt restructure analyzing the effective role of institutions on the economic affairs and economic empowerment. Hence, an international lending units and intercontinental private debtors have a major role to push the economy on the right track at the time of financial distress (Meng, 2016). For instance, the economic reforms and key financial information is provided by the institutions to retain the investor's confidence. Thus the reestablishment in the economic policy in different sectors leads the economic indicators (growth, inflation and exchange rate) toward the precise direction.

Under the umbrella of strong institutions, a country can manage all the problems related to economic fundamentals while in case of weak institutional environment, the country has a lot of problems to resolve the issues related to economy. As Park and Song (2011) examine the effective role of macroeconomic factors those determine the economic line of potential. For example; inflation and interest rate spread known as ''conditioning variables''. In addition, the level of solvency is not same for all territories with same level of debt. History of default determines the debt intolerance level for different countries with same debt burden determined by inflation. High inflation loses the confidence of the investor and reduces real gain of the relative investors. Bannister and Barrot (2011) also illustrate the importance of macroeconomic factors volatility to predict the debt intolerance and threshold level. For instance, real growth and level of inflation are the stronger reason to change the level of debt and intolerance level. Thus, if real growth increases then the country's debt tolerance level also increases without economic flux and vice versa.

The role of exchange rate cannot be considered unimportant analyzing the debt and threshold level of the relative economy. As J. Frankel and Saravelos (2012) also investigate the foremost role of exchange rate to analyze the economic position and economic strength of the state. In addition, J. A. Frankel and Rose (1996) also

describe the importance of exchange rate and interest rate when a country reaches to worse economic circumstances. In this situation, country faces the overvaluation problem of the exchange rate increasing the interest rate and hence the country moves toward the default position. For instance, Park and Song (2011) also illustrate that the exchange rate and interest rate have also an explanatory power to assess the level of default of the relative country. According to IMF (2002), the role of exchange rate cannot be ignored at the time of default or financial crises because it spillovers the economy to worse condition. Serial default is also an important issue now days all around the world and the economic history shows the originality of serial default theory which clearly states the current economic default is the result of previous default. (Bordo, Meissner, & Stuckler, 2010) also state that a high debt level is the major reason to default with poor economic fundamentals and vice versa. During this scenario, the growth level of the country falls and debt burden increases by which a country is nested into the default situation. Nevertheless, Catão, Fostel, and Kapur (2009) investigate the dependency of current default on the past evasion because of adverse shock of the productivity. Hence the country issues more debt to repay the fixed cost and such vicious activity brings the country to its high debt intolerance level and the state defaults. Pardo Caicedo (2012) also describes different situations in which an economy moves towards the worse phenomenon of financial crises. Firstly, 'original sin' is the main problem for underdeveloped economy in which net worth of obligation increases the worse economic shocks. Consequently, additional debt is needed to meet the current interest expense and an economy moves to default also known as balance sheet effect. In this condition, an economy could never run away from the vicious circle of 'original sin'. Secondly, the debt tolerance level is not same for advanced and developing economies because of difference in financial soundness and institutional structure. Due to dissimilar absorption level among economies, the fundamentals of an economy react differently in different countries at the time of fiscal stimulus. Therefore, emerging economies suffer more and reach to peak point of debt intolerance. In contrast, Bordo and Meissner (2006) state that high debt to GDP ratio does not matter in presence of strong economic structure of the relative country and an increase in such ratio is protected with foreign currency reserves. Nevertheless, a high export level increases the relative confidence level even the relative debt to GDP ratio is high. Consequently, an economic base is the back bone of financial fundamental that boosts up the interrelated economic activities. Conversely, the weak economic structure increases the level of debt and relative cost. Hence, a spillover effect of the debt level destroys the banking and monetary system which is the basic reason of country's account deficit and the ferocious circle of debt intolerance.

3. Conceptual Framework and Methodology

The above section clearly shows the importance of economic fundamentals when debt t intolerance level is taken into analysis.

a. Data Sources and Variables of the Study

The empirical analysis consists of the annual time series data set from 1970 to 2010 related to the economy of Pakistan. A big period, including 40 years, gives a brief economic view related to Pakistan and the data used in empirical analyses is taken from World Development Indicators and State Bank of Pakistan. External debt to GDP (extd_gdp) ratio is used as dependent variable and it measures the debt intolerance level of the economy as Jafri (2008) also use the same ratio in order to determine the debt intolerance level. Inflation (infl_cpi) is used as an explanatory variable of the study and it is expected that a high value of inflation is not good for economy. Exchange Rate (exrt) is the most important factor to evaluate the vulnerable level of an economy. The less flexible exchange rate regime is one of the reasons to default while an economy with more flexible conversion rate can be in the favor of investors. Growth Rate (gdp_grth) is also taken as measure of debt intolerance because high growth income countries need more debt to cover the economic production and consumption. With the passage of time debt burden increases as compare to GDP of the relative economy that pushes the country into the vicious circle of the default. Interest Payment (interestpmt) is also taken as a measure of debt intolerance level because volatility in interest examines the level of debt. Pae, Thornton, and Welker (2004) also used the same explanatory measure for the debt intolerance level. The theoretical model has been developed on the basis of above mentioned explanatory variables in order to measure the debt intolerance with the support of previous literature and further analyses has been made to generalize the result.

b. Model Specification and Methodology

Specification I

With the support of literature, a model has been developed and debt intolerance has been taken dependent variable while growth rate, inflation , exchange rate and interest payment are considered as an explanatory variable in the model as presented in equation *(1)*.

$$\text{extd\_gdp}_i = \beta_o + \beta_1 \text{gdp\_grth}_i + \beta_2 \text{infl\_cpi}_i + \beta_3 \text{exrt}_i + \beta_4 \text{interestpmt}_\text{i} + \boldsymbol{\varepsilon_i} \ldots \quad (1)$$

$$i = 1, 2 \ldots \ldots \ldots n$$

Where β_o *is* an intercept and $\beta_1, \beta_2, \beta_3$ and β_4 are the slope coefficient of the explanatory variables of the model. The equation *(1)* shows the general functional and mathematical form upon which the empirical analysis is made to determine the effect of independent variables on the dependent variable while the 'ε_i' demonstrates the error term of the model.

Specification II

To investigate the 'serial default 'condition, another model has been developed with order two and theory demonstrate that the current default is the result of previous default. Therefore, a model is developed by taking the lagged effect as an independent variable with order 2.

$$\text{extd}_{\text{gdp}} = \beta_o + \beta_1 \text{extd}_{\text{gdp}_{(t-1)}} + \beta_2 \text{extd}_{\text{gdp}_{(t-2)}} + \boldsymbol{\varepsilon_i} \ldots\ldots \quad (2)$$
$$i = 1, 2 \ldots\ldots\ldots n$$

The equation *(2)* shows the functional form of the model in which debt intolerance is shown as dependent variable while lagged effect with order two is taken as independent variable with the support of serial default theory. Mendoza (2008) also explain the effect of previous debt and default on the current state of an economy.

c. Methodology

Model specifications in equation (1 and 2) are analyzed and the regression analysis is implemented to check the significance level of the explanatory variable. Further external debt to GDP is regressed with lagged order 2

4. Results and discussion

a. Results

The basic approach of contemporary study is time series analysis of the data from 1971-2010 and by applying empirical techniques to find the debt intolerance level. A key set of explanatory variables are taken into account with support of preceding literature about debt intolerance level.

In **Appendix,** Table 2 and Table 3 show the summary statistics and correlation matrix respectively. The mean value of external debt to GDP is found around 43% with maximum and minimum value of 69% and 28% respectively. However, the mean value of the explanatory variables is not found more than 9% overall and the range of standard error of all variable is found between 8% and 13% normally. In addition, a positive correlation is found among variable except in some cases whereas external debt to GDP and GDP growth are found to be negatively correlated with (-0.09) point value while exchange rate is also found negatively correlated with the figure of (-0.22) as shown in Table 3.

The simple regression model (Specification I) in Appendix (Table 4.) shows an insignificant relation of independent variable with external debt to GDP ratio. An overall model is explained with (0.09) which shows an insignificant power of the model. Surprisingly, the value of standard error is found more as compare to the predictor's value of the model. The t-statistics is also found statistically insignificant and p-value is significantly different from zero which suggests further analysis of endogenous relation in the model. Somehow, a positive relation is captured by the model except the GDP growth rate which is negative and insignificantly different from zero shown in the same table. In order to check the lagged dependency of dependent variable, further result is shown in Appendix (Table. 5) and the model is explained by (0.43) while coefficient of lagged dependence of dependent variable on independent variable is significantly different from zero as presented in Table 5. In addition, p-value< 0.05 with -2 > t> 2 also supports the evidence that the current debt level depends on the previous level of debt. In addition, the residual prediction line as shown in Figure 5 clearly states the trend from 1971-2010. The overall trend

shows the zigzag movement between -20 and 10 while trend is shown downward in recent years.

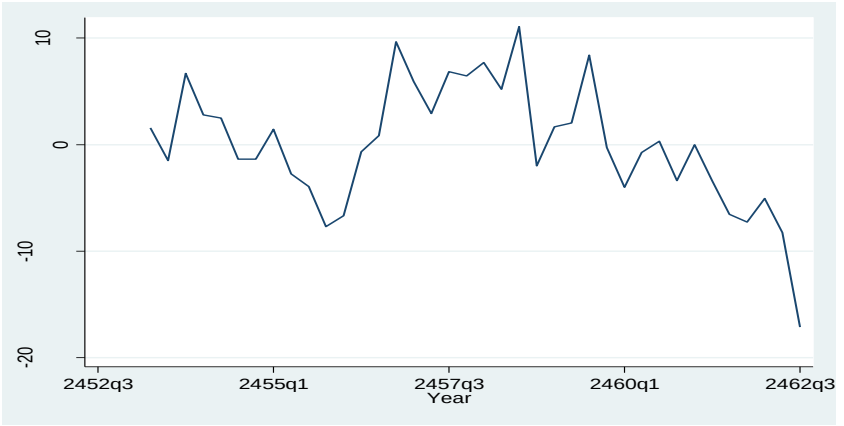


Figure 3:Residual prediction line (1971-2010)

The time relation of external debt to GDP is shown in Figure 6 to check the behavior of autocorrelation. The overall result discussed above shows the importance of the economic fundamentals, the main reason of the volatility in the external debt. However, different results have been generated with different specifications of the study. The most significance results are generated from specification II as described in equation *(2)* which totally supports the theory of serial default as discussed by (Mendoza, 2009; Catão et. al., 2009 and Bordo et. al.,2010).

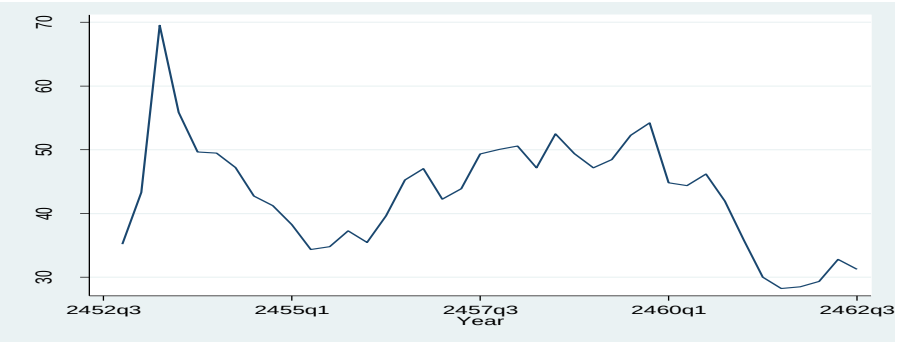


Figure 4: Time relation of external debt to GDP (1971-2010)

b. Discussion

The main reason could be the weak institutional structure and less strict regimes, the main reason to default. As Carmen M Reinhart and Rogoff (2009) clearly examine the important reasons to default and one of those is weak institutional setup. Because it is impossible for emerging economies to absorb the level of debt more than up to a certain limit and the state issue debt to remove the burden of previous debt and surprisingly serial default occur. But it is quite interesting that there is not hard and

fast rule to fix the debt intolerance as an economic history supports this proposition shown in Appendix (Table 6). Further it is clear that the country default at once also default in future.

It is impossible for emerging nations to grow without issuing debt. But it could be possible for the emerging economies not to issue more debt when the safest debt intolerance level is achieved and the same case is with Pakistan. To remove the debt burden, Pakistan has to issue more debt and the result is serial default in terms of debt restructuring and the country exist in the group IV compared with the category described by Carmen M Reinhart and Rogoff (2009). As far as Pakistan is concerned, the data shows more than 50% chances to default near future and debt would be rescheduled again. Apart from this, some other unobservable factors hidden in disturbance term also determine the level of debt intolerance and those could be the political or institutional factors. The analysis also verifies the debt fanaticism because in Pakistan no stable government is seen ever before as compare to the current and very last political government. As a result, no debt rescheduling is seen during (2002-2008) in Pakistan while the rest of the three decades are fully unstable politically resulting to acquire more debt during that crucial period. In this regard, a long term policy can help to get rid of from an unobservable disturbance term and corrective actions can be taken into account during adverse economic phenomenon. It is clear whenever, Government cross the debt more than 30% of GDP then again Government has to restructure its debt which is very bad for the economy and other economic fundamentals. Unfortunately, Pakistan did not implement any long term economic policy and if it is, the very next government rolls back the policy implemented by the previous government and it shows an inconsistent economic phenomenon for the economy of Pakistan.

5. Conclusion and Policy Implication:

a. Conclusion

''This time is different syndrome**''** is the most fundamental economic issue raised by Reinhart and Rogoff (2003) and it is universal truth that nothing is static in this dynamic economic world. Thus the economic regimes and economic fundamentals can never be static under the umbrella of unobserved dynamic economic shocks. However, nobody knows the directions of the economic shocks but historical evidences engage the economic bodies to identify the future economic shocks and their effects to set the potential line for the economy. In addition, the economic fundamentals are linked with financial turmoil when an analysis of economic crises is taken into account. So, different economic basics are identified to determine the different financial crises and for example debt crises is the most primary issue now days. Consequently, whole world and especially emerging economies are facing a big problem of repayment of the debt. So, the economies have become more debt intolerant now days as compare to previous economic environment.

The main aim of this study is to find the debt intolerance level related to the economy of Pakistan while different economic fundamentals are taken for empirical

analysis. A time series data from 1970 to 2010 is used to find the relation of economic basics with debt intolerance level. Debt intolerance is treated as dependent variable and external debt as % of GDP is taken as a measure of debt intolerance while exchange rate, growth rate, interest payment and inflation are taken as an independent variable. Different model specifications are used for the empirical analysis and different methods are applied to find relation. A negative relation is identified between growth and debt intolerance while exchange rate, inflation and interest payment are identified positively significant in relation with external debt to GDP. As Pae et al. (2004) also use the same explanatory measure to analyze the debt intolerance level. A 35% of debt to GDP is taken as benchmark for the economy of Pakistan while the safest debt intolerance could be 30% debt of GDP in case of Pakistan. On the basis of empirical results following policy implications are recommended

b. Policy Implication for Pakistan

There should be stable political system in order to achieve the economic stability and economic growth. The Government of Pakistan should rethink foreign debt and capital structure policy because with the passage of time the Government is busy to increase the debt burden on the economy, the main problem for the country to be intolerant. Further, The Government should make a balance between capital inflow and out flow which cannot be possible if the relative institutions are weak. In addition to that prudential improvements are required to increase the level of efficiency which can definitely decrease the debt intolerant problem related to Pakistan. As Gallagher (2011) also illustrates that an international investment agreement and clear prudential improvement can be the best solution for both parties. Moreover, the fix burden should be reduced by implementing effective economic reforms to increase fiscal surplus. Contrary to this if Government does not take corrective action then the result would be a fiscal loss and growth level would decrease gradually. Meanwhile the debt level would rise near future and the Government will have to reschedule its debt obligation. In addition, an optimal debt policy should be adopted by the Government of Pakistan which is the main solution for the economy. It is clear whenever, Government cross the debt more than 30% of GDP then again Government has to restructure its debt which is very bad for the economy and other economic fundamentals. Thus Government should control the movement of the economic fundamentals as shown in Appendix (Figure 8). Such economic fundamentals can be adjusted with the economic cycle implementing dynamic economic policy. The study does not fully disclose the problem of debt intolerance and the safest debt intolerance level for the economy of Pakistan. Deep analyses can be taken into account for further research while economic size, capitalization, political and institutional index could be taken as a measure of debt intolerance in relation with the economy.

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APPENDIX

Table 1: Debt rescheduling in Pakistan (1971-2002)

Year	Debt issued	External Debt to GDP	Inflation	Exchange Rate	Growth Rate
1971-73	233.8	69.52	23.70	4.76	0.46
1973-74	107.2	55.87	26.66	9.9	3.5
1974-78	650.0	47.21	10.13	9.9	5.15
1977-78	226.3	42.74	6.14	9.9	8.04
1980-82	232.0	35.00	5.90	11.84	6.5
1985-88	11.0	42.26	8.84	18	7.6
1998-99	1987.6	54.00	4.14	49.50	3.70
1999-00	1241.7	44.82	4.37	53.64	4.26
2000-01	617.3	44.36	3.15	61.92	1.98
2002	12500.0	46.17	3.29	59.72	3.22

Source: Siddiqui and Siddiqui (1975), SBP (2012) and IMF (2012)

Table 2: Summary Statistics (1971-2010)

Variable	Obs	Mean	Std. Dev.	Min	Max
extd_gdp	40	43.17375	8.731791	28.24	69.53
gdp_grth	40	5.055	2.301053	-1.6	9
infl_cpi	40	9.39	5.475747	2.91	26.66
interestpmt	40	7.8105	15.81148	-30.67	54.03
exrt	40	8.11775	13.57785	-3.56	82.31

Table 3: Correlation Matrix (1971-2010)

	gdp_grth	extd_gdp	exrt	infl_cpi	intere~t
gdp_grth	1.0000				
extd_gdp	-0.0987	1.0000			
exrt	-0.2206	0.0526	1.0000		
infl_cpi	0.1353	0.2617	-0.0751	1.0000	
interestpmt	0.2079	0.0586	0.0663	0.1561	1.0000

Table 4: Simple Regression Model (1971-2010)

Source	SS	df	MS		
Model	268.64701	4	67.1617525	Number of obs	= 40
Residual	2704.87563	35	77.2821608	F(4, 35)	= 0.87
				Prob > F	= 0.4922
Total	2973.52264	39	76.2441702	R-squared	= 0.0903
				Adj R-squared	= -0.0136
				Root MSE	= 8.791

extd_gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdp_grth	-.5149496	.6468217	-0.80	0.431	-1.828068	.7981683
interestpmt	.0226226	.092547	0.24	0.808	-.1652578	.210503
infl_cpi	.4412403	.2622821	1.68	0.101	-.0912207	.9737013
exrt	.0261905	.1072528	0.24	0.809	-.1915443	.2439252
_cons	41.24427	4.299111	9.59	0.000	32.51661	49.97193

Table 5: Specification with lagged dependency (1971-2010)

Source	SS	df	MS		
Model	855.981878	2	427.990939	Number of obs	= 35
Residual	1114.83394	32	34.8385607	F(2, 32)	= 12.28
				Prob > F	= 0.0001
Total	1970.81582	34	57.9651712	R-squared	= 0.4343
				Adj R-squared	= 0.3990
				Root MSE	= 5.9024

extd_gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dd_extd_gd~d	-.4969501	.158098	-3.14	0.004	-.8189852	-.1749151
d_extd_gdp1	.5976705	.1279968	4.67	0.000	.3369495	.8583915
_cons	43.58103	1.053702	41.36	0.000	41.43471	45.72735

Table 6. History of Default and Debt ratio as % of GDP (1970-2008)

	Year of default or restructuring	Ratio of external debt to GNP at the end of the year of default or restructuring	Ratio of external debt to exports at the end of the year of default or restructuring
Albania	1990	16.6	98.6
Argentina	1982	55.1	447.3
-	2001	50.8	368.1
Bolivia	1980	92.5	246.4
Brazil	1983	50.1	393.6
Bulgaria	1990	57.1	154.0
Chile	1972	31.1	Na
	1983	96.4	358.6
Costa Rica	1981	136.9	267.0
Dominican Republic	1982	31.8	183.4
Ecuador	1984	62.2	271.5
-	2000	106.1	181.5
-	2008	20.0	81.0
Egypt	1984	112.0	304.6
Guyana	1982	214.3	337.7
Honduras	1981	61.5	182.8
Iran	1992	41.8	77.7
Iraq	1990	na	Na
Jamaica	1978	48.5	103.9
Jordan	1989	179.5	234.2
Mexica	1982	46.7	279.3
Morocco	1983	87.0	305.6
Panama	1983	88.1	162.0
Peru	1978	80.9	388.5
-	1984	62.0	288.9
Philippines	1983	70.6	278.1
Poland	1981	Na	108.1
Romania	1982	Na	73.1
Russian Federation	1991	12.5	Na
	1998	58.5	A09.8
South Africa	1985	Na	Na
Trinidad and Tobago	1989	49.4	103.6
Turkey	1978	21.0	374.2
Uruguay	1983	63.7	204.0
Venezuela	1982	41.4	159.8

	Year of default or restructuring	Ratio of external debt to GNP at the end of the year of default or restructuring	Ratio of external debt to exports at the end of the year of default or restructuring
Yugoslavia	1983	Na	Na
Average		69.3	229.9

Source: Carmen M Reinhart and Rogoff (2009)

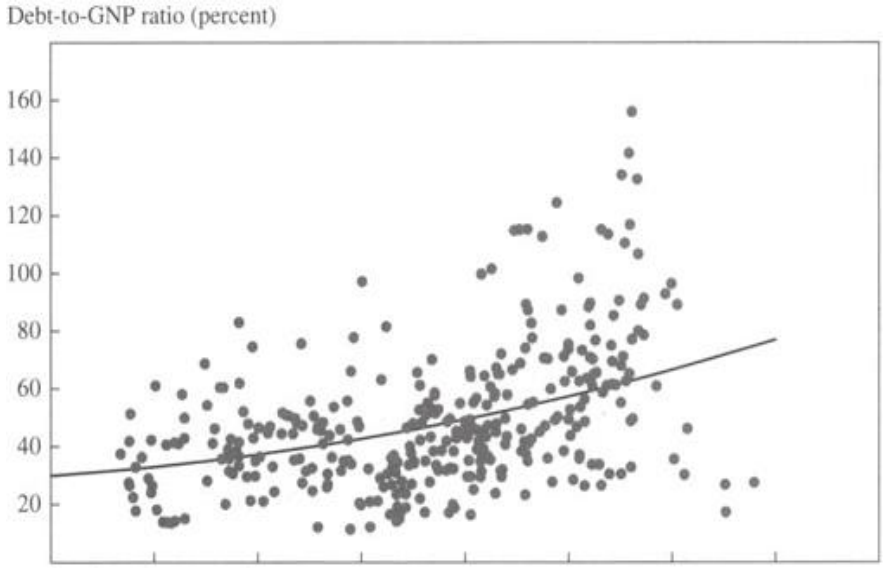

Figure 5: External Debt and Default Risk in Selected Emerging Market Economies (1979-2000)

Source: C. M Reinhart, Rogoff, and Savastano (2003)

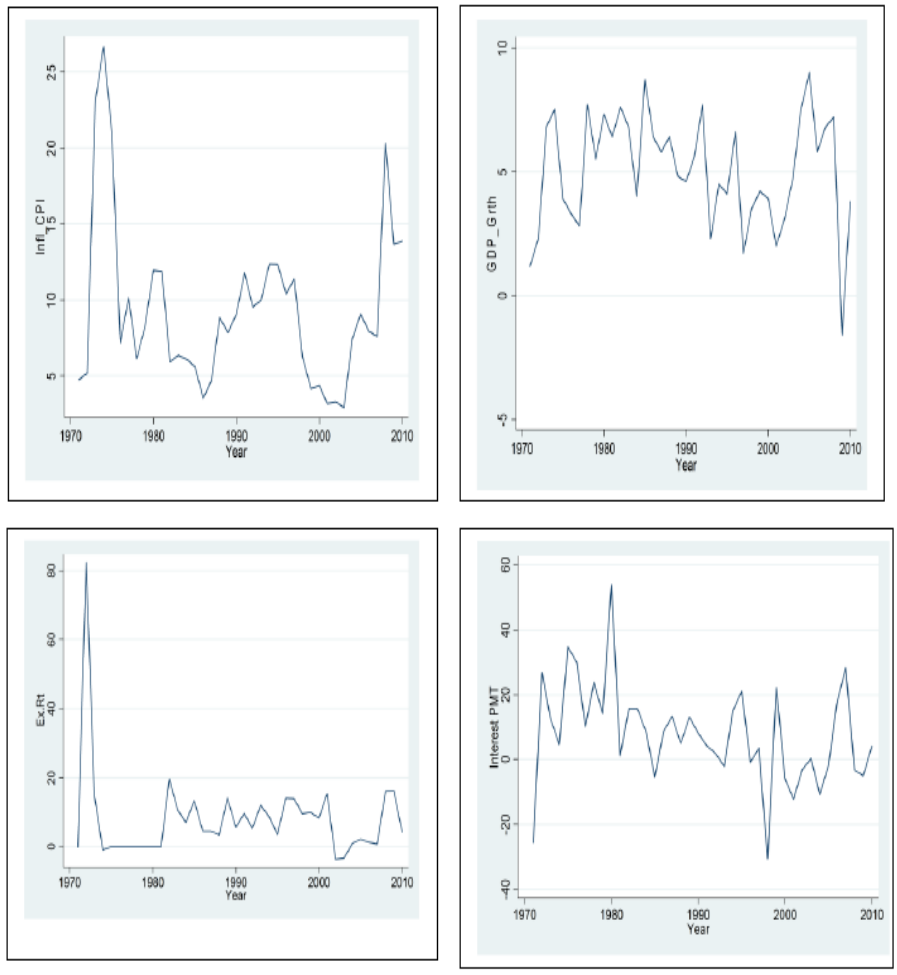

Figure 6: Variable trends of the model (1971-2010)