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Impact of Interest Rate Differentials on Market Capitalization in Pakistan: An Empirical Analysis

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Abstract

The current study finds out the impact of interest rate differentials on capital market. The difference between lending rate and deposit rate has been on the growing for previous few years which affects the saving behavior and investment behavior and growth of capital market. We have estimated that how interest rate factors influence the capital market of the Pakistani economy. The secondary data covering from 1975 to 2013 is collected. We have employed auto regressive distributed lags method (ARDL) for estimation. Different variables are used such as inflation, exchange rate, trade openness, money supply, indirect taxes and gross domestic product. This study finds that interest rate differentials is negatively related with market capitalization but positively related with savings and investment. However, it is also observed that factors such as inflation, exchange rate and indirect taxes are highly significant. This study concludes that interest rate difference is a key determinant of market capitalization in Pakistan. Such findings may imply that decreasing the interest rate differentials could be used as a vehicle for achieving long-term growth of capital market in Pakistan's case.

Keywords: interest rate differentials, market capitalization, inflation, exchange rate, trade openness, money supply, indirect taxes, savings, investment.

1. Introduction

Competent capital market is imperative cause for development of economy because they utilize and mobilize the investible and idle resources in most well-organized way. Focal element of capital market efficiency is interest rate differentials, difference in lending interest rate and deposit interest rate, also known as interest rate spread. Interest rate difference has been on an upward trend during the last few years in Pakistan. Recently in Pakistan the interest rate differentials was near to 6 percent with an increasing trend. As a

consequence, the high difference in lending and borrowing rate adversely effects the growth of economy, monetary policy and its intermediates.

A foremost shudder in money market, may not immediately, but due to their link this shudder effect the capital market and the economic activities and vice versa. A crash in capital market collapses the financial intermediates, money market and subsequently declines the aggregate demand, purchasing power and the foreign investment. Further evidence, between the sturdy relation of money market and capital market, is delivered by the financial crisis of 2008/2009.

In Pakistan development of capital market was started in 1950's in which authority focused on the expansion and management of the market. Second phase which took place in 1973 and lasted till 1988 is considered as Islamic Public ownership and its implication for the growth of capital market. Third and the most important phase in the liberalization of the economy for capital inflow, outflow and trade encouragements. Privatization also initiated in the third stage in 1990's. Fourth and recent phase of capital market growth emphasized on the maturation and unswerving expansion of financial system along with trade liberalization and denationalization through fundamental modifications. According to Economical survey (2012-2013) Karachi Stock Market persisted high alleyway during 2012-13 and KSE-100 Index vended new records by doing business more than 20,300 levels in the middle of the financial year each for the very first time in the history of KSE.

Therefore the problem of the statement of this present study is to identify the effect of interest rate difference on saving, investment and capital market and what are the factors that are responsible for the high interest rates in Pakistan? The present studies employ ARDL approach and Error Correction Model, using secondary, annual data for the period of 1975-2013.

2. Literature Review

There is enormous of studies which have calculated the various aspects of interest rate differentials and its affiliation with Market Capitalization. Some significant studies are reviewed.

Matteo et al. (2004) sophisticated details on interest rate cluster in capital and money market. This was an experiential estimation by using clustering linkage technique. Time series data of 16 years was collected from 1982-1997. They concluded that multifarious type of interest rate in money and capital market, by using cluster linkages procedures, was productive to distinguish differences and analogies between the knotted co-related data.

Khawaja and Din (2007) enlightened the determinants of interest rate spread in Pakistan to find the grounds of hefty interest rate spread and influence of bank unifications on banking sector. Panel data of 29 banks was poised from 1998-2005. Macro and industry variables were used as self-governing variables. They concluded that inelasticity of deposit supply was most effective on spread while concentration caused no effect on the spread. They recommended that for declining spread the emergence of new and alternative financial intermediates would be supportive and the emergence and acquisitions of financial institutions had downbeat collision on Pakistan's banking industry.

Folawewo and Tennant (2008) elucidated about the determinants on inters rate spread in sub Saharan African (SSA) countries. They conducted the studies in 33 SSA countries by using annual data from 1988-2005 and dynamic panel data estimation techniques. They concentrated on market specific and macroeconomics determinants. They determined that macroeconomic variables and market variables played considerable role in elucidation interest rate spread. Discount rate, level of money supply, crowding out of government in public banks, reserve requirements, population size, public sector deficit and level of economic development also played their role in determining the interest rate spread.

Afzal and Mirza (2010) explicated the vital determinants of interest rate spread in Pakistan commercial banks. Panel data from post-financial reforms was counted in from 2004 to 2009. They checked the effects of firm particular factors, bank definite variables and macroeconomics variables on spread. Fix effects regression method was used for analysis. Results showed that firm particular factors and macro variables were more operational on spread while interest rate volatility and financial development was less effective. They concluded that after financial reforms banks compete not only in term of services but in term of prices. They found negative relation between loan per employ and spread. They proposed that for earning high profit bank must emphasize on operational efficiencies.

Nabi and Suliman (2011) advanced a research on capital accumulation and credit rationing depends on lending and borrowing interest rates. Theoretical part consisted on panel data of 52 countries were collected from 1997-2005. A simple endogenous growth model was developed to observe the effects of interest rate spread, interest rate factors, GDP per capita, law and order, inflation, liquid liabilities, industry value added, claims on government and liquidity law. They showed through empirical evidence that interest rate was less effective than interest rate factor and credit rationing and interest rate spread depended on the credit controls enforcement.

Richard et al. (2012) accessed the force of interest rate on capital market in Nigeria. Data between the periods of 1985-2007 was collected on inflation and exchange rate. Multiple regression analysis of OLS method and ADF test was used for analysis. Analysis proved that inflation and exchange rate were less effective ingredients. They recommended that barriers on interest rate, appropriate monetary policy, stable macroeconomic circumstances, government incentives and appropriate policies on lending rate were obliging in capital market growth.

Mouchakka (2014) focused on the impact of interest rates on capitalization rate. He checked the brunt of interest rate with low inflation on public equities, real estate, agriculture land and private equity investment form 1978-2013. Moody's analysis, MCREIF and MSREI strategies were used for scrutiny. He concluded that only interest rate was not accountable for alteration in capital rate, as an increase in credit availability construction lending muffled, demand overtaking supply, spread was wider than notable suggest and inflation was an absent factor.

Kwark (2002) focused on the interest rate spread as a leading indicator in business cycles. He built a heterogeneous model which includes aggregate shocks, defaults risks and interest rate spread. During amendable investment decisions interest rate spread hang about steady because deceased default risk was counterbalance by improved investment demand of default risk. When investment decisions were inflexible default risk decreased

with an increased profit margin of financial intermediates and interest rate spread decreased. They suggested that inflexibility of investment was a leading factor in interest rate spread over business cycle

Tennaut (2006) interrogated the reasons and remedies of high interest rate spread Jamaica. He used comprehensive survey of 27 stakeholders. 27 interviews were accomplished with the person with uppermost authority in selected institution. Evidence proved that spread was because of economic condition, authoritarian and social structure while some opinioned that spread was due to voracity and inefficiency. They suggested that spread could be restricted by better macroeconomic firmness, reduced amount of government borrowing in domestic markets, encouraging competition and growing efficient operational sector.

Khrawish et al. (2010) compared the relationship between stock market capitalization rate and interest rate at Jordan stock exchange. Multiple linear regression model was used to analyze connection between government prevailing interest rate, stock market capitalization rate and government development stock rate over the period of 1990-2008. Results showed positive relation between government prevailing interest rate and stock market capitalization rate, government development stock rate exerted negative brunt on stock market capitalization and significant relation between government prevailing interest rate and government development stock rate. They recommended that government intrusion, conceding incentives, illicit interest rate, improve dogmatic environment and decreased red tape could encourage Financial Market.

Bujari (2014) interrogated the role of stock market capitalization and banking sector in growth and development of Latin America. Generalized method of moments (GMM) was used on the pooled data from 2004-2012. Data on stock market capitalization of listed firms in stock exchange, no of ATM's per 100,000 adults, commercial banks purchases per 1000,00 adults, banking spread and domestic credit by central bank was collected for assessment. They instituted that economic growth was optimistically related with market capitalization and disapprovingly with banking sector. They found that with an augment in market capitalization domestic credit also improved which reduced the interest rate differential. They suggested that registered companies should inquire about new utensils and regulations.

3. Data, Data Sources and Diagnostic Methodology

This study consists of secondary, annual data during the period 1975-2013. Data has been collected from Handbook of Statistics of State Bank of Pakistan, Pakistan Economic Surveys, World Development Indicators and Ministry of Finance. The variables, on which data is collected, are MCAP (market capitalization), INF (inflation), TAXES (indirect taxes), IRD (interest rate differentials), OPEN (trade openness), ER (exchange rate), MS (money supply), SAVG (savings), GDPGR (Gross domestic product growth rate), INV (investment) and INCOME (per capita gross national product). In the current study we concentrate the effect of interest rate difference on savings, investment and capital market. We test the hypothesis on Pakistan's economy by employing popularized co-integration analysis known as autoregressive distributed lag (ARDL) modeling approach. The present study has been specified in following three models:

3.1 Model Specification

Model 1: Determinants of investment

Inv=f (IRD+INF+ER+MS+OPEN+GDPGR)……1

$$INV = \propto_0 + \propto_1 IRD + \propto_2 INF + \propto_3 ER + \propto_4 MS + \propto_5 OPEN + \propto_6 GDPGR + \mu_i \quad \ldots 2$$

This equation can be written as the long run and short run of ARDL model as

$$\Delta(INV)_t = \gamma_o + \sum_{i=1}^{\alpha} \gamma_{1i} \Delta(INV)_{t-i} + \sum_{i=0}^{b} \gamma_{2i} \Delta(IRD)_{t-i} + \sum_{i=0}^{c} \gamma_{3i} \Delta(INF)_{t-i} + \sum_{i=0}^{d} \gamma_{4i} \Delta(ER)_{t-i} + \sum_{i=0}^{e} \gamma_{5i} \Delta(MS)_{t-i} + \sum_{i=0}^{f} \gamma_{6i} \Delta(OPEN)_{t-i} + \sum_{i=0}^{g} \gamma_{7i} \Delta(GDPGR)_{t-i} + \gamma_8 (INV)_{t-1} + \gamma_9 (IRD)_{t-1} + \gamma_{10}(INF)_{t-1} + \gamma_{11}(ER)_{t-1} + \gamma_{12}(MS)_{t-1} + \gamma_{13}(OPEN)_{t-1} + \gamma_{14}(GDPGR)_{t-1} + \mu_t \quad (2)$$

In this equation Δ represents the first difference and μ_t is the error term. This equation is viewed as an ARDL of order (a, b, c, d, e, f, g). Where γ_o is intercept and γ1i, γ2i, γ3i, γ5i,γ6i, γ_{7i},γ8, γ9, γ10, γ11, γ12, γ13, γ14 are short run and long run coefficients.

Model 2: Determinants of savings

savg=F(IRD+INF+LNINCOME+LTAXES)…….3

$$SAVG = \propto_0 + \propto_1 IRD + \propto_2 INF + \propto_3 LNINCOME + \propto_4 LTAXES + \mu_i \quad \ldots 4$$

This equation can be written as the lTong run and short run of ARDL model as

$$\Delta(SAVG)_t = \gamma_o + \sum_{i=1}^{\alpha} \gamma_{1i} \Delta(SAVG)_{t-i} + \sum_{i=0}^{b} \gamma_{2i} \Delta(IRD)_{t-i} + \sum_{i=0}^{c} \gamma_{3i} \Delta(INF)_{t-i} + \sum_{i=0}^{d} \gamma_{4i} \Delta \ln(INCOME)_{t-i} + \sum_{i=0}^{e} \gamma_{5i} \Delta \ln(ITAX)t-i + \gamma_6 (SAV)_{t-1} + \gamma_7 (IRD)_{t-1} + \gamma_8 (INF)_{t-1} + \gamma_9 \ln(INCOME)_{t-1} + \gamma_{10}(ITAX)_{t-1} + \gamma_{11}(OPEN)_{t-1} + \mu_t \quad (4)$$

Where Δ displays first difference operator and μi is the residual term. This equation is viewed as an ARDL of order (a, b, c, d, e, f, g). Where intercept is denoted by γ_o and γ1i, γ2i, γ3i, γ5i,γ6, γ_7,γ8, γ9, γ10, γ11 represents are short run and long run coefficients.

Model 3: Determinants of market capitalization

lmcap=f(IRD+INF+ER+LNINCOME+LTAXES)…….5

$$LMCAP = \propto_0 + \propto_1 IRD + \propto_2 INF + \propto_3 ER + \propto_4 LNINCOME + \propto_5 LTAXES + \mu_i \quad \ldots 6$$

This equation can be written as the long run and short run of ARDL model as

$$\Delta(LMCAP)_t = \gamma_o + \sum_{i=1}^{\alpha}\gamma_{1i}\Delta(IRD)_{t-i} + \sum_{i=0}^{b}\gamma_{2i}\Delta(INF)_{t-i} + \sum_{i=0}^{c}\gamma_{3i}\Delta(ER)_{t-i} + \sum_{i=0}^{d}\gamma_{4i}\Delta\ln(INCOME)_{t-i}$$
$$+\sum_{i=0}^{e}\gamma_{5i}\Delta\ln(ITAX)t-i+\gamma_6(LMCAP)_{t-1}+\gamma_7(IRD)_{t-1}+\gamma_8(INF)_{t-1}+\gamma_9\ln(ER)_{t-1}$$
$$+\gamma_{10}\ln(INCOME)_{t-1}+\gamma_{11}(ITAX)_{t-1}+\mu_t \quad \text{_____} (6)$$

In above equation first difference operator is Δ and error term is represented by μt. This equation also known as an ARDL of order (a, b, c, d, e, f, g). Where γ_o is intercept and γ1i, γ2i, γ3i, γ5i are coefficients for short run and γ6, γ7, γ8, γ9, γ10, γ11 are long run coefficients.

In this way, hypotheses constructed in present study are as follows:

- **H₀:** Interest rate differential has positive impact on the capital market of Pakistan.
- **H₀:** Interest rate differential has negative affect on the investment in Pakistan.
- **H₀:** Interest rate differentials negative impact the saving behavior in Pakistan.
- **H₀:** Lending interest rate, borrowing interest rate and other control variables negatively effects the market capitalization in Pakistan.

4. Empirical Results and Interpretation

4.1 The Unit Root test

Table 1, 2 and 3 estimates the results of ADF test. The ADF results point out that some variables are stationary at level and others are stationary at first difference. The results of the test present the validation of ARDL Approach for estimation.

Table 1: Results of ADF Test of Model-I

Variables	ADF Test with Intercept			ADF Test with Trend and Intercept		
	Level	1st Difference	Conclusion	level	1st Difference	Conclusion
INV	-1.63	-6.22	**I(1)**	-2.49	-6.43	**I(1)**
IRD	-1.46	-5.15	**I(1)**	-1.78	-5.07	**I(1)**
INF	-4.48	----------	**I(0)**	-4.57	--------	**I(0)**
ER	3.14	-3.47	**I(0)**	0.66	-4.29	**I(1)**
MS	-4.57	--------	**I(0)**	-4.68	--------	**I(0)**
OPEN	2.94	-7.12	**I(1)**	-2.90	-7.02	**I(1)**
GDPGR	-4.79	----------	**I(0)**	-5.12	---------	**I(0)**

Source: Authors' Estimations Using E-Views Software

Table 2: Results of ADF Test of Model-II

Variables	ADF Test with Intercept			ADF Test with Trend and Intercept		
	Level	1st Difference	Conclusion	Level	1st Difference	Conclusion
SAVG	-3.34	-6.48	**I(1)**	-3.47	-6.58	**I(1)**
IRD	-1.46	-5.15	**I(1)**	-1.78	-5.07	**I(1)**
INF	-4.48	----------	**I(0)**	-4.57	--------	**I(0)**
LNINCOME	-0.42	-3.05	**I(1)**	-1.67	-3.02	**I(0)**
LTAX	-0.55	-3.60	**I(1)**	-2.78	-3.60	**I(1)**

Source: Authors' estimations using E-Views software

Table 3: Results of ADF Test of Model-III

Variables	ADF Test with Intercept			ADF Test with Trend and Intercept		
	Level	1st Difference	Conclusion	Level	1st Difference	Conclusion
LMCAP	-1.65	-4.02	**I(1)**	-1.47	-3.92	**I(1)**
INF	-4.48	----------	**I(0)**	-4.57	--------	**I(0)**
IRD	-1.46	-5.15	**I(1)**	-1.78	-5.07	**I(1)**
INF	-4.48	----------	**I(0)**	-4.57	--------	**I(0)**
LNINCOME	-0.42	-3.05	**I(1)**	-1.67	-3.02	**I(0)**
LTAX	-0.55	-3.60	**I(1)**	-2.78	-3.60	**I(1)**

Source: Authors' Estimations Using E-Views Software

4.2 Bound Test for Co-integration

The technique of bounds test of ARDL cointegration is being by the direction of integration of the variable. There may be exist integrated first order I (1) or I (0).

- **H_0:** $\beta_1=\beta_2=\beta_3=\beta_4=\beta_5=\beta_6=\beta_7=\beta_8=\beta_9=\beta_{10}=\beta_{11}$ (No Co-integration)
- **H_1:** $\beta_1\neq\beta_2\neq\beta_3\neq\beta_4\neq\beta_5\neq\beta_6\neq\beta_7\neq\beta_8\neq\beta_9\neq\beta_{10}\neq\beta_{11}$ (Co-integration)

Table 4: the F-statistics for ARDL Co-integration

Bound Test Models	F-Stats	Lag	Prob.	Bound Critical		Conclusion
				I (0)	I (1)	
Investment Model	5.32*	2	0.00	3.41	4.68	**Co integration**
Saving Model	3.46***	2	0.07	2.26	3.35	**Co integration**
Market Capitalization	4.73*	1	0.00	3.41	4.68	**Co integration**

Note: Bound critical values are taken from the article of Pesaran et al. (2001), Table C1. iii: Case III: Unrestricted intercept and no trend. *, ** and *** certify that co-integration exists at 1, 5 and 10 percent level of significance respectively having k (no of regressors) equal to 5. F-Stats are calculated using EViews-7.

We have calculated the F-Statistics and Schwarz and Bayesian Criterion (SBC) by Wald test to regulate the maximum lag of the variables for all models. Results proves the F-Statistics is 5.32* in Model-I, 3.46* in Model II and 4.73* in Model-III which is greater than upper limit and lower limit of the critical value and proves the existence of co-integration. Results prove that due to having co-integration we accept the null hypothesis of co-integration.

4. 3 Results of Long Run ARDL Estimation of Interest Rate Differentials on Investment

Table 5 illustrates the finding of long run estimated ARDL coefficients of investment model.

Table 5: ARDL Long Run Estimations

Variables	Coefficients	Std. Errors	t – ratio	Probability
IRD	.22524	.096422	2.3360	.028
INF	-.020619	.046893	-.43970	.664
ER	-.034326	.0069161	-4.9632	.000
MS	.073223	.025458	2.8762	.008
OPEN	.19010	.060432	3.1456	.004
GDPGR	.24250	.11155	2.1739	.039
Constant	9.6146	2.3531	4.0859	.000

Note: Results are based on Author's calculations using Micorofit 4.1

The parameter of IRD is 0.22 that indicates positive and significant relationship with investment. In Pakistan the cause of positive relation may be because with an increase in interest rate differentials investors do not cut down their investment they spread the risk in diversification and hedging and with increased investment, supply increases that increase the lending and lending rate that lift up the interest rate differentials. Results of the estimations go in line with the study of Saunders and Schumacher (2000). The inflation parameter estimation is -.020619 that depicts the negative and less significant relationship with the investment. The finding of Nasir and Saima, (2010) and Fischer, (2011) support our results. The coefficient of exchange rate is -.034326 which is highly significant. In Pakistan the reason of negative relation is may be because with a depreciation in exchange rate the demand of goods in domestic market and foreign market in increased that enhance the investment.

Money supply estimations is .073223 and highly significant. It shows that one unit increased in the investment increased the money supply by .07 percent. Money supply positively impact the investment in Pakistan may be that money supply amplified the prices of stock market that get more financial benefit for the stockholder or investor. The coefficient of trade openness estimate 0.19010 which shows positive relation and high significance with investment. Our results are in alignment with the Asiedu and Brempong (2008) and Mohsin (2015). In Pakistan may be trade openness rise capital accumulation, foreign investment of superior quality research, invention, innovation, competition and resource allocation which add to the investment. The parameter GDP growth rate is 0.24250 which is strongly significant. In Pakistan the reason for positive relation is may be that GDP growth rate increase the income and quality of life of population that lift the demand and increase demand causes to increase supply and investment. Ayyoub et. al. (2011) and Abdulrahman (2015) support these results.

4.4 Short Run Estimation of Interest Rate Differentials on Investment

Table 6 depicts the results of short run dynamics of investment model. IRD has positive and significant relation with the investment of estimate 0.22524. Short term relation, by comparing, is as long run. The inflation parameter is of estimate about 0.11** and shows positive relation. Money supply estimate also same as in long term significant and positive with the investment that signifies that 1% increase in the investment increase the money supply by .073 percent.

Table 6: ECM Estimations

ARDL (0,0,2,0,0,1,2) selected based on Schwarz Bayesian Criterion			
Dependent variable is Dinv			
38 observations used for estimation from 1975 to 2013			
Regressor [Prob]	**Coefficient**	**Standard Error**	**TRatio**
dIRD	.22524	.096422	2.3360[.027]
dINF	.11404	.042685	2.6717[.013]
dINF1	.11000	.040009	2.7493[.011]
dER	-.034326	.0069161	-4.9632[.000]
dMS	.073223	.025458	2.8762[.008]
dOPEN	.035207	.064706	.54411[.591]
dGDPGR	-.14007	.075876	-1.8461[.076]
dGDPGR1	-.18793	.070277	-2.6742[.013]
dC	9.6146	.3531	4.0859[.000]
ecm(-1)	-0.6127	0.2259	-2.7122[0.00]
ecm = INV - .225*IRD + .0206*INF + .0343*ER - .073*MS - 0.190*OPEN - .242*GDPGR - 9.614*C			
R-Squared	.66275	R-Bar-Squared	.51436
DW-statistic	1.9114	F-stat. F(9, 27)	5.4587[.000]

Note: Results are based on Author's calculations using Micorofit 4.1

In the short run trade openness is not statistically significant as compared to the long run with estimate of 0.035207. Explanatory variable of GDP growth rate is negatively associated with the investment in the short run which is not according to the results of long run.

The value of ecm(-1) shows the adjustment in the long run. The value implies that deviation from long-run investment is corrected by 61% over each year at 1% level of significance. So, the value displays a sound quicker adjustment speed.

4.5 Long Run Estimations of Interest Rate Differentials on Saving

Table 7: ARDL Long run Estimations

Variables	Coefficients	Std. Errors	T – ratio	Probability
IRD	0.57313	.42480	1.3492	.188
INF	-.44667	.15006	-2.9765	.006
Lnincome	.42020	.13235	3.1748	.004
Ltaxes	-1.3558	.53348	-2.5414	.017
Constant	36.2583	5.1064	7.1005	.000

Note: Results are based on Author's calculations using Micorofit 4.1.

In our estimation the value of parameter IRD is of 0.57313. IRD and saving are positively related that assures that 1% change in the interest rate differential increase the savings by 0.57 percent. In Pakistan positive and less significant relation of IRD and savings may be that of inelasticity of the savings, there is no alternative options and financial intermediates of saving, in Pakistan deposit insurance system and large number of banks also increase the savings in spite of high IRD. The findings are according to the results of Barajas and Steiner (2000) and Khawaja and Din (2007).

The value of coefficient inflation is -0.44667 which is most significant and negatively related with savings. The reason of this indirect relationship in Pakistan is may be because inflation cause to increase the prices so people consume more, save less and they save only for precautionary purpose. Results go in line with Azam et al. (2010). The parameter GNP per capita (income) estimates 0.42020 with highly statistical significant value. In Pakistan, with an increase in the per capita income people have more money to save. According to Sajid and Sarfraz (2008) GNP per capita (income) positively impact the saving. Indirect taxes estimate value is -1.3558 which implies that 1%. In Pakistan may be indirect taxes increase the price of commodities that affects the purchasing power and on the other side, employs retain more than their earnings [Peter and Akerr (2001)].

4.6 Short Run Estimation of Interest Rate Differentials on Savings

Table 8 predicts the short term estimation of the saving model.

Table 8: ECM Estimations

ARDL (1,2,0,0,0) selected based on Schwarz Bayesian Criterion			
Dependent variable is dSAVG			
38 observations used for estimation from 1975 to 2013			
Regressor	**Coefficient**	**Standard Error**	**TRatio [Prob]**
dIRD	-1.0363	.44385	-2.3347[.026]
dIRD1	-.91664	.44559	2.0571[.048]
dINF	-.30161	.10629	-2.8375[.008]
dLNINCOME	.28373	.10362	2.7381[.010]
dLTAXES	-.91549	.33988	-2.6935[.011]
dC	24.4828	4.6626	5.2509[.000]
ecm(-1)	-.67523	.12419	-5.4372[.000]
ecm = SAVG - .573*IRD + .446*INF - .420* LNINCOME + 1.355LTAXES – 36.258*C			
R-Squared .62118		R-Bar-Squared .52974	
DW-statistic 1.9989		F-stat. F(6, 30) 7.9255[.000]	

Note: Results are based on Author's calculations using Micorofit 4.1

The estimated value of interest rate differentials in short run is -1.0363 with highly statistical significant. The results show that 1% increase in the interest rate differentials reduced the savings by 1.03%. Through comparing short run with long run we observed that IRD is negatively distress the savings. The coefficient of inflation is -0.30161 which is significant and shows negative relation according to the results of long run. GNP per capita income is of estimate 0.28373 that shows positive and high significant statistical value. The parameter of indirect taxes is negatively related with savings with estimate -0.91549. The estimations predict that 1% change in indirect taxes cause to change the savings by .91% indirectly.

The value of coefficient ecm-1 of Model II is 0.67 for the short term model. It clarifies the deviancy of savings is adjusted by 67% during the time span of year at 1% significant level.

4. 7 Long Run Estimations of Interest Rate Differentials on Market Capitalization

Table 9 shows the results of estimated ARDL long run coefficients market capitalization and interest rate differentials.

Table 9: ARDL Long run Estimations Results of Market Capitalization

Variables	Coefficients	Std. Errors	t – ratio	Probability
IRD	- 0.46844	0.12587	-3.7215	.001
INF	0.021074	0.048295	0.43636	.666
ER	-0.11787	0.026435	-4.4587	.000
lNINCOME	0.046046	0.043726	1.0531	.300
lTAX	3.2788	0.48213	6.8007	.000
Constant	-26.3809	5.0538	-5.2200	.000

Note: Results are based on Author's calculations using Micorofit 4.1

Regression coefficient of IRD is -0.46 which means that 1 unit increase in market capitalization decrease the interest rate differentials by 0.46 which is strongly significant. Increase in the interest rate differentials push the demand of more investor's way in capital market and pull the supply of more extensional investment of new companies' way. Our results are according to the finding of (Alam and Vddin, 2009). While, Asiedu and Afful (2013) found that with a rise in interest rate differentials market capital also rises because equity and debt are complement for each other's and government borrow from domestic resources and customers exchange in spite of borrowing.

The estimate of paramedic Inflation is 0.02 which indicate positive relation between and Inflation and less significant. It mean if inflation increase 1% the market capitalization increase 0.02%. Due to increase in inflation cash flow also increases while, discount rate is equal to nominal rate and real rate of return does not depends on the any return while nominal or inflationary return so they evade the worth of assets. Our result according to (Chaudhary, 2001).

Coefficient of exchange rate is high significant and negatively related with market capitalization according to our results. One percent increase in the exchange rate will decrease the market capitalization by 0.12% because with devaluation in the rupee, dollar appreciated and as a consequence extraneous investors or financiers transform the yields into home money which disappoint the foreigner investors for long term investment. These finding follow the study of (Granger 2000).

The income parameter which is per capita GNP is positively but insignificant related to the market capitalization. If market capitalization increases by one unit it affects the per capita GNP by 0.04%. In Pakistan increase in income cause to shift up the demand function and capital market response immediately to change in demand and supply, which increase employment opportunities, also disperse the risk and give access to investors. These results go in line with (Levine and Zervos, 1998) and (Yartey, 2008).

Taxes are high significant in capital market. Market capitalization increased by 3.27 in the same direction by one unit increase in the taxes (Piketty and Saez, 2012).

4. 8 Short Run Estimation of Market Capitalization on Market Capitalization

Table 10 explains the short term effect of IRD on capital market where market capitalization.

Table 10: ECM Estimations

ARDL (0,0,0,0,0,0) Selected Based on Schwarz Bayesian Criterion			
Dependent Variable is dMCAP			
38 Observations Used for Estimation from 1975 To 2013			
Regressor	**Coefficient**	**Standard Error**	**TRatio[Prob]**
dIRD	-0.46844	0.12587	-3.7215[.001]
dINF	0.021074	0.048295	0.43636[.666]
dER	-0.11787	0.026435	-4.4587[.000]
dLNINCOME	0.046046	0.043726	1.0531[.300]
dLTAXES	3.2788	0.48213	6.8007[.000]
dC	-26.3809	5.0538	-5.2200[.000]
ecm(-1)	-0.2801	0.1212	-2.3110[0.00]
ecm = MCAP + .468*IRD - .021*INF + .117*ER - .046*LNINCOME – 3.278*LTAXES + 26.38*C			
R-Squared	.62118	R-Bar-Squared	.52974
DW-statistic	1.9989	F-stat. F(6, 30)	7.9255[.000]

Note: Results are based on Author's calculations using Micorofit 4.1

The parameter of IRD is 0.468** which shows significant at 7% and exposes a significant negative impact on capital market. It means that 1% increase in IRD will root to decrease capital market by 0.468**%. We have grasp that coefficient of IRD is showing negative and significant relation with capital market in long run and short run. The coefficient inflation is 0.021** which shows less significant and positive relation with market capitalization. Exchange rate is negatively and high significantly related with capital market and proves that 1% increase in exchange rate decrease the market capitalization by 0.117**. The estimates of income (pcGNP) and taxes (indirect taxes) are 0.046** and 3.27** respectively, positively and highly significant to the capital market, that indicates that 1% change in pcGNP and taxes raise the capital market by

0.046** and 3.278** simultaneously. By comparing the results of short run and long run we concluded that relation and significance of all variables in the short run was almost identical to long run.

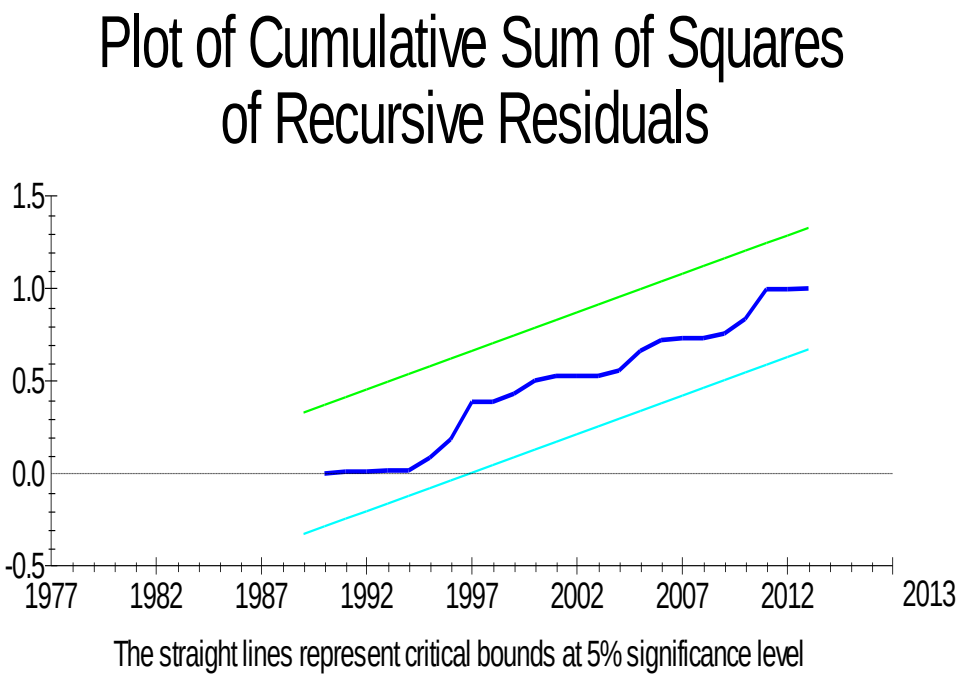
The value of parameter ecm-1 of Model III is 0.28 for the short term model. It explains the deviation of capital market is corrected by 28% over the time period of year with 1% significant level.

4.9 Diagnostic Test

Diagnostic test shows the value of R2 for all ARDL models is greater which presents overall goodness of fit which is satisfactory. The statistic value of F is significant at 1% which proves the joint significance of present variables in the models. The value of Durbin-Watson statistics for each models is near about 2.

4.10 Stability Test

To check the stability of the data and model we estimate the cumulative sum of recursive residuals CUSCUM and cumulative sum of recursive residuals of square CUSUMS in auto regressive distributed lad model (ARDL). The results demonstrates that parameters in our estimated models are stable as the graph of CUSUM and CUSUMS statistics lies in the critical bounds of 5% significant value.



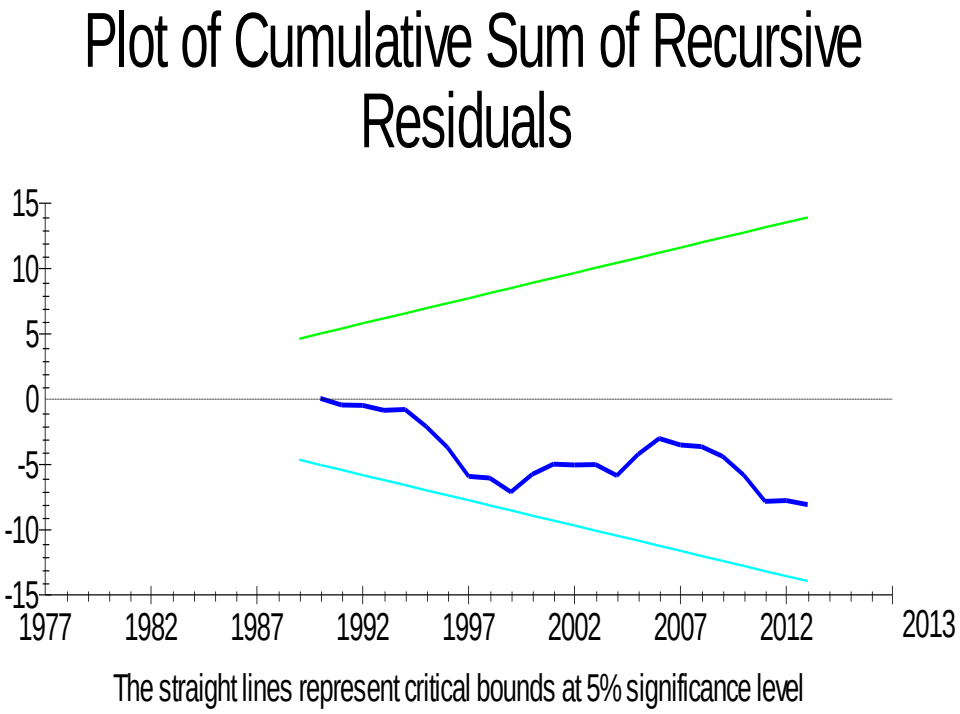


Figure 1: Stability Test for the Model-I [INV (IRD, INF, ER, MS, OPEN, GDPGR)]

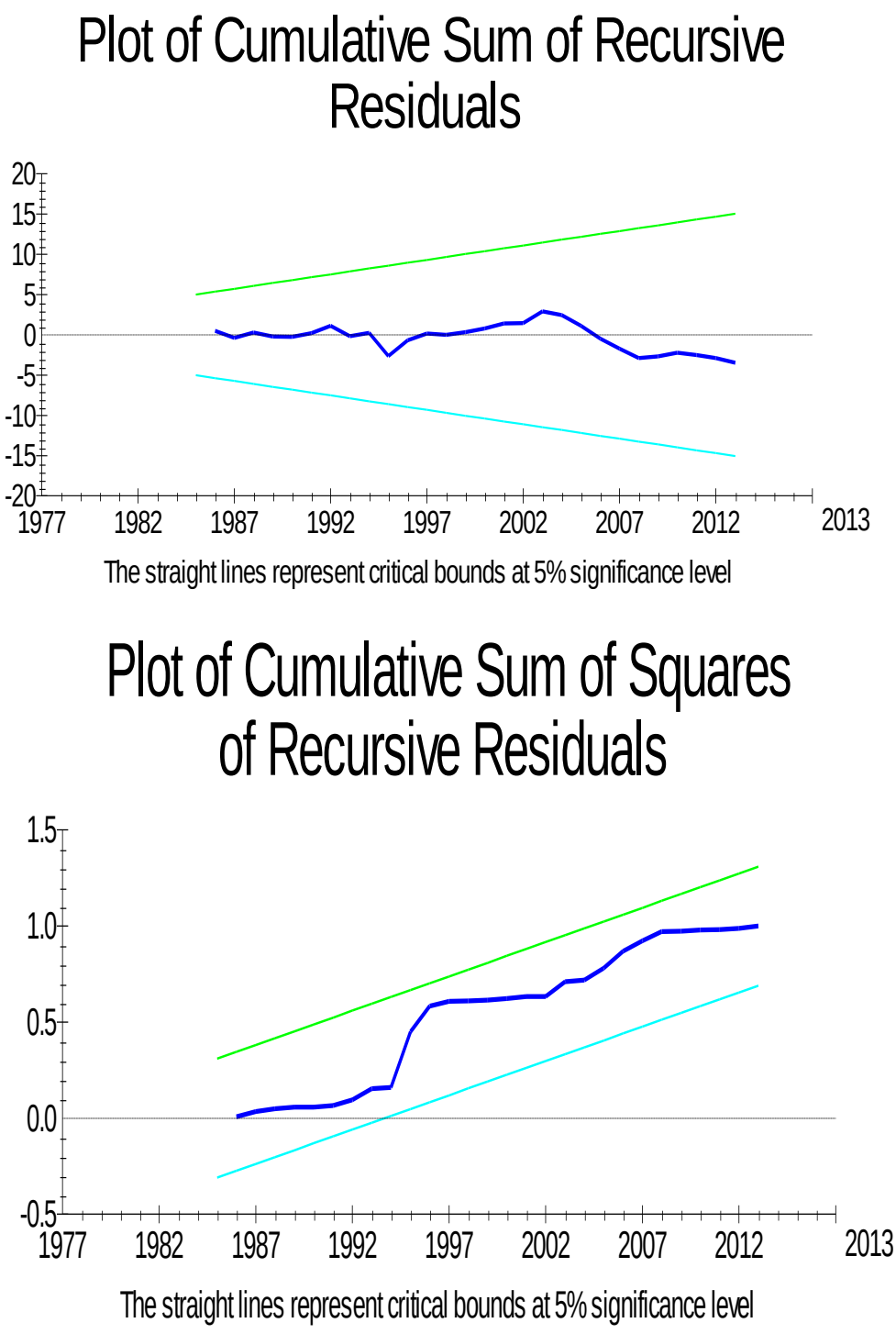


Figure 2: Stability Test for the Model-II [SAVG (IRD, INF, LNINCOME, LTAXES)

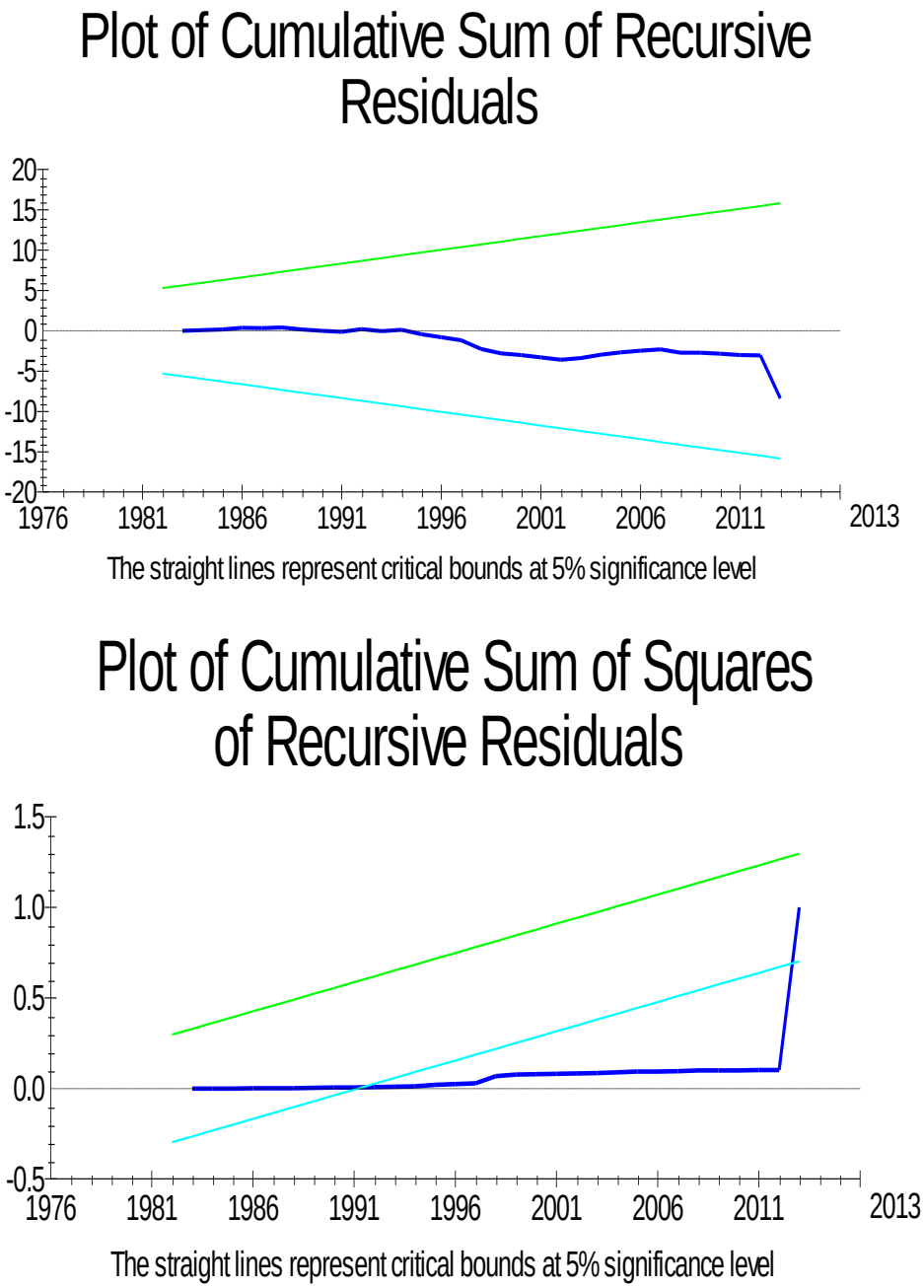


Figure 3: Test of Stability for the Model-III [MCAP RD,ER,INF,LNINCOME,LTAXES)]

5. Conclusion and Suggestions

The current study reconnoiters the involvement of market capitalization in deliberating the issues of the difference of lending rate and deposit rate in Pakistan. Study has used ADF test which specify varied results with diverse order of integration. There exists long run relationship among variables for all models. Long run estimation and error correction representation of both models have been discussed and their interpretations are made. Result of the study wind up that investment, savings and capital market are interlinked with each other in short and in long run.

The observed confirmation of the time series regression analysis recommends that interest rate differentials has most significant effect on investment and market capitalization in short run and also in long run. While interest rate differentials has less significant impact on savings in long run and significant in short run. However, the other control variables- exchange rate, money supply, trade openness, GDP growth rate, indirect taxes and GNP per capita are found statistically significant and highly elastic in dropping the difference between lending rate and borrowing rate and growth of capital market through the short and long time periods. While the inflation is less significant in the study.

The outcome of the study is steady with the a huge quantity of studies who established that interest rate differentials adversely affect the market capitalization in short run and long run. It is also resolved that present study is also subject to some serious restrictions in relation to the continuous and large variation in the capital market and interest rate. The difference deposit interest rate and lending interest rate became wider because of many intermediates coefficients like financial intermediates, quality of loans, non-performing loans, absence of competition, administration cost and lack of other options for savers and investors. This study is restricted to only capital market as a response variable but interest rate differentials brutality can be evaluated by including intermediate coefficients.

6. Policy Suggestions

i. We suggest that operative and effective strategies should be adopted to reduce the volatility in the interest rate by the monetary authorities.

ii. State Bank should apply strict check and balance on the financial intermediates to keep in view the interest rate indicted by the commercial banks.

iii. Lending rate and deposit rate should be retaining at one digit (not high) to buoy up investors to lend money from bank and insert it into capital market.

iv. The intermediates between savers and investors and capital market should be removed and there should be ease of access.

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