Determinants of Deposits in Conventional and Islamic Banking: A Case of an Emerging Economy

Beenish Akhtar
PhD Scholar, Department of Management Sciences,
COMSATS Institute of Information Technology, Lahore, Pakistan
E-mail: beenish.akhtar@yahoo.com

Dr. Waheed Akhter
Assistant Professor, Center of Islamic Finance,
Department of Management Sciences,
COMSATS Institute of Information Technology, Lahore, Pakistan
E-mail: drwaheed@ciitlahore.edu.pk

Dr. Muhammad Shahbaz
Assistant Professor, Department of Management Sciences,
COMSATS Institute of Information Technology, Lahore, Pakistan
E-mail: mshahbaz@ciitlahore.edu.pk

(Working Paper)

January, 2015

Center of Islamic Finance
COMSATS Institute of Information Technology
Lahore Campus

Pakistan

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Abstract

The main objective of present study is to examine the impact of selected macroeconomic variables on deposits of both conventional and Islamic banks in Pakistan. Six years quarterly data i.e. 2006 to 2011 was obtained from 30 banks consist of 25 conventional and 5 islamic banks. Both short-run and long-run relationship among these variables were examined using bounds testing approach of the Autoregressive-Distributed Lag (ARDL), to find cointegration and error correction framework. Results of this study reveal that variables such as interest rate of conventional banks, profit of Islamic banks, consumer price index, money supply and base lending rate have different impact on both conventional and Islamic bank deposits. Depositors of both conventional and Islamic banks are sensitive to the returns received on the deposits. Any boost in interest rate increases the deposits of conventional banks and decreases the deposits of Islamic banks. The study shows that an important element to attract the depositors towards the Islamic banks is religious factor. This paper has important implications for Islamic banks to offer more competitive rates of profit with respect to the interest rate of conventional banks in order to collect more deposits.

Keywords: Deposits, Conventional Banks, Islamic Banks, Pakistan

JEL CLASSIFICATION: E20, E41, E42, E51, E52

Introduction:

Financial sector is considered to be the backbone of the economy. Passed studies have confirmed the causality between financial development and economic growth [Schumpeter (1939), McKinnon (1973) and Shaw (1973), Gregorio and Guidotti (1995), Arestis and Demetriades (1997), Calderon and Liu (2003)]. However, the direction of relationship between financial development and economic growth is very crucial. It has been revealed that development in financial sector is essential and it induces growth in an economy (Arestis et al. 2001). An established long-run causality is found between financial depth and economic growth (Khan et al., 2005), which is according to the perspective that "economic growth is an outcome of financial development" and same inference is drawn by Shahbaz (2012). This entails that financial instability deteriorates the positive effect of financial development on economic growth.

The major purpose of saving is to main future consumption and as a mean of investment. The main objective of people for saving in conventional banks is to get rewarded and to earn profit for forgoing their current consumption. As a result the levels of deposits in conventional bank are influenced by interest rate. Therefore conventional banks are upheld on the principle of giving interest on their deposits (Kasri and Kassim, 2009). One of the most discussed topics among the Muslims regarding the banking industry is the forbiddance of interest. However, there is universal unanimity that interest paid on the bank deposit is regarded as riba, which is purely prohibited in Islam. Due to the forbiddance of interest, Islam promotes several types of investment, based on equity and trading (Usmani, 2006). In Pakistan, there exists dual banking system and now seeing the growth of Islamic banking system, many conventional banks are opening their Islamic windows and separate Islamic branches (SBP, 2010).

This study empirically assesses whether the factors affecting deposits of conventional and Islamic banks are same or different. This is done by finding out the relationship between the deposit of Islamic banks and conventional banks and the factors which determine these deposits. Factors consists of interest rate, the rate of return on Islamic bank deposit, GDP, inflation, stock market composite index, M_3 and base lending rate. The objectives of the conventional banks are met through the interest-based banking whereas objectives of the Islamic banks are achieved through the equity-based contracts.

The rest of paper is organized as following: section-II present review of literature, section III illustrates methodological framework, section IV provides results from statistical analysis and discusses them in the light of previous studies. Section V gives conclusion and policy recommendations.

II. Literature Review

Various studies have shown that bank savings are key to the process of economic growth because they are the basis of capital formation (Kasri and Kassim, 2009, Adelakun, 2011, Abduh et al. 2011). Kasri and Kassim (2009) investigated the impact of determining factor of saving in Indonesian Islamic banks. To find out the level of Islamic bank's saving, they examined the impact of real rate of return on Islamic deposit, interest rate of conventional deposit, real income and number of Islamic bank branches on it. The Vector Autoregressive (VAR) and Impulse Response Function are applied to examine relationship between the variables. Their results showed that the interest rate of conventional banks has a very powerful negative effect on savings of Islamic banks. Islamic bank deposit increases with an increase in rate of return and decrease in interest rate. As the rate of return of Islamic banks decreases below the interest rate

of the conventional bank, the depositors of the Islamic banks transfer their deposits from the Islamic banks to the conventional banks. Their results reveal the significance of the interest rate in influencing the saving behavior of customers to save in Islamic banks.

Haron and Azmi (2008) found that rate of return of Islamic banks, conventional bank's interest rate, base lending rate, Kualarumpur composite index, consumer price index, GDP and money supply are very important determinants of both Islamic and conventional bank deposit. Inflation rate is inversely associated with the saving account and fixed deposits of conventional banks. The interest rate has also a negative relation with Islamic bank's deposit but it is positively related to conventional bank deposit. A boost in the conventional bank interest rate will raise the deposit of conventional bank but on the other hand, the deposit level of Islamic banks decreases. On the contrary, the findings of different empirical studies showed that customer of Islamic banks are not motivated by the profits. Rather religion is recommended as the main motive for saving in Islamic banks.

Rachmawati and Syamsulhakim (2004) discovered the four variables such as economic growth, number of Islamic bank branches, profit and interest rate that affect the mudaraba deposits in case of Indonesia. They found that the religious consideration is not only purpose which attracts individuals toward Islamic banks rather they are also motivated by the welfare maximization purpose. Metawa and Almossawi, (1998) noted that in Bahrain, Muslims being a majority, the religious aspect is the key variable which affects the level of the deposit of Islamic banks and rate of return is not the basic variable that determines the level of deposit. Smilarly, Haron and Planisek, (1994) found that in Malaysia, the main objectives of customers to deposit their money in Islamic banks are both religion and profit. Gerrard and Cunningham (1997) probed the saving behavior of Muslims in case of Singapore. They found that if Islamic banks

are not able to earn profit even in this condition Muslims hold their deposits with Islamic bank for at least one year.

Khoirunissa (2009) proved that economic factors which influence the decision of customers to deposit in Islamic banks are healthy financial systems, receiving economic benefits, online facilities, quick services and easy reachable locations. Similarly, there are religious factors which influence customers to deposit in Islamic banks, such as following religious orders, better realization of Islamic principles and living in an environment which is supporting religion.

On the other hand, Erol and El-Bdour (1990) showed that Muslim customers are not attracted towards Islamic banks only on the religious basis; rather they patronized Islamic banks due the returns, which they received on their investments. In Islamic countries services presented by conventional banks and Islamic banks are not being easily differentiated by the depositors. External factors such as family, peer group and motivating Muslim scholars also influence the customer to open an account with the Islamic bank.

Haron and Norafifah, (2000) found the outcome of interest rate on conventional bank deposit and the effect of past dividend rates on Islamic bank deposit in Malaysia. They reported that interest rates of conventional banks are negatively related to Islamic bank deposit. Moreover, it is noted that the utility maximization theory exists within the Muslim customers, is proved by the inverse association between conventional bank interest rate and Islamic banks interest-free deposit.

Yousaf et al. (2009) examineed the relationship between Islamic bank deposit and monetary policy variables in Bahrain and Malaysia. The empirical evidence proposed that Islamic bank deposits and monetary policy variables are cointegrated. In Bahrain, monetary policy variables affect Islamic bank deposit negatively. While comparing the effect of monetary

policy variables on Malaysian and Bahrain Islamic banks, it is found that Bahrain's Islamic bank deposit are more responsive to macroeconomic shocks and interest rate fluctuations. In the short-run there isn't any relationship between Islamic bank deposits and monetary policy variables for both Malaysia and Bahrain.

The next section focuses on the approach for the testing of key variables extracted from literature review that can affect the deposits of Islamic and conventional banking in Pakistan.

III. Methodological Framework

Sample and Data:

The total population for this research work consist of all the banks which are currently working in Pakistan, under the categories i.e. public sector, commercial banks, specialized banks, domestic private banks and foreign banks. Final sample contains only those banks which have fulfilled the following standards:

1. For the whole study period banks must remain in business.
2. Data must be available for the whole study period.

After removing the missing data on the basis of the above standards, final sample contains a total of 30 banks, for the quarter period of six years (i.e. 2006-2011). To conduct the study data has been collected from the Quarterly reports of Banks, Economic Survey of Pakistan, Pakistan Bureau of Statistics, and Publications of State Banks.

Research Methods:

Mostly the economic variables are trended and this trendiness' causes the major problem of spurious regression in the macroeconometric model. The cointegration becomes dominant requirement for an economic model, utilizing time series data which is non-stationary. The presence of cointegration is guaranteed if two stochastic trends cancel each other (Asteriou and

Hall, 2007). To officially test the non-Stationarity in a variable, Augmented Dickey and Fuller (ADF) test is used. This test simultaneously examines non stationarity and the presence of a unit root in a variable. To empirically examine the long-run relationship between the variables, the model developed by Pesaran et al., (2001) has been used that is also called bounds testing (or autoregressive distributed lag (ARDL)) approach to cointegration. The empirical equation of the ARDL bounds testing is gven below:

$$\Delta Y_t = \alpha^0 + \gamma^1 \sum_{j=1}^{k} \Delta Y_{t-j} + \delta_1 \sum_{j=0}^{k} \Delta X_{1t-j} + \delta_2 \sum_{j=0}^{k} \Delta X_{2t-j} + \delta_3 \sum_{j=0}^{k} \Delta X_{3t-j} + \delta_4 \sum_{j=0}^{k} \Delta X_{4t-j}$$
$$+ \delta_5 \sum_{j=0}^{k} \Delta X_{5t-j} + \delta_6 \sum_{j=0}^{k} \Delta X_{6t-j} + \delta_7 \sum_{j=0}^{k} + \Delta X_{7t-j} + v^1 Y_{t-1} + v^2 X_{1t-1} + v^3 X_{2t-1}$$
$$+ v^4 X_{3t-1} + v^5 X_{4t-1} + v^6 X_{5t-1} + v^7 X_{6t-1} + v^8 X_{7t-1}$$

We set k = 1

ΔY_t represents change in deposits in year t. Vector X represents independent variable.

In our study we examine the role of seven variables in determining the deposits of conventional and Islamic banks by using above model. For analyzing the impact of Base lending rate (BLR), consumer price index (CPI), Gross Domestic Product (GDP), interest rate, Karachi stock exchange composite index (KSCI), money supply and profit rate (PR) of Islamic banks' data has been collected from banks and other respective institutes.

IV. Results and their Discussions

The cointegration approach entails that all variables involve in the method should be stationary at I(0) or I(1) or I(0)/I(1). Thus, it is obligatory to find out the stationary properties of the variables. Before taking the unit root test of the variable, most of the variables are lagged first. Log of variables has been taken. The log is used to linearize a model which is non-linear in parameters (Gujarati and Porter 1992). The results of unit root analysis are reported in Table-1. Our results

show that the null hypothesis of a unit root cannot be rejected for the majority of the variables at level. Only TCD, GDP and KIBOR reject the null hypothesis of a unit root at level, it means these variables are stationary at the level, whereas all remaining variables i.e. have a unit root at the level. The remaining variables are found to be stationary at 1st difference i.e. total Islamic bank deposits, base lending rate, consumer price index, Karachi stock exchange composite index, money supply and profit rate. Total conventional bank deposits is also stationary at level. The values in the brackets show the lag length at which variable become stationary. We fndd that time series data is a mixture of both *I (0)* and *I (1).*

Table-1: Unit Root Test

Augmented Dickey Fuller Test		
Variables	Level	First Difference
lnTCD	-3.737** (2)	
lnIBD		-4.486** (1)
lnBLR		-4.387** (7)
lnCPI		-5.123*** (7)
lnGDP	-4.535*** (1)	
KIBOR	-4.00** (1)	
lnKSCI		-3.39* (8)
lnM3		-4.23** (1)
PR		-4.67** (6)

Notes: Variables Description: TCD (Total Conventional Bank Depostis), TID (Total Islamic Bank Deposits), BLR (Base lending rate), CPI (consumer price index), GDP (Gross Domestic Product), KIBOR (Karachi inter bank offered rate), KSCI (Karachi stock exchange composite index), M3 (Money Supply), PR (Profit Rate)
*** significant at 1% level of significance
** significant at 5% level of significance
* significant at 1% level of significance

ARDL Bounds Testing Approach:

We applied the ARDL bounds testing approach to cointegration developed by Pesaran et al. (2001) to examine the presence of the long run relationship between the variables. The approach of ARDL can be used regardless whether the variables are integrated at level or integrated at the 1st difference. The estimations of the long-run coefficients provided by the bounds test are mostly unbiased and t-statistics are valid even in a situation when some variables are endogenous (Inder, 1993; Banerjee et al. 1993; Pesaran et al. 2001). Thirdly, even if the sample size is small, this test executes properly. The presence of cointegration among the variables deposits and its determinants is examined by limiting the lagged levels variable equal to zero. Hence, the null hypothesis of cointegration is

$H_0 : \phi_1 = \phi_2 = \phi_3 = \phi_4 = \phi_5 = \phi_6 = \phi_7 = \phi_8 = 0$

And the alternative hypothesis of cointegration is

$H_1 : \phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 \neq \phi_5 \neq \phi_6 \neq \phi_7 \neq \phi_8 \neq 0$

Our calculated F-statistiic showed that when the total conventional bank variable is taken on as dependent variable then our computed F-value is more than upper critical bound which implies there exist a long-term association i.e. cointegration among the variables at 5 per-cent and same inference is drawn once we used total Islamic bank as dependent variables. This shows that variables are cointegrated for long run relationship in case of Pakistan.

Table-2: Critical Values of Bounds Test

Critical Value	Lower Bound *I (0)*	Upper Bound *I (1)*
1%	2.96	4.26
5%	2.32	3.50
10%	2.03	3.13

Table-3: Cointegration of Vectors

Vectors	F-Statistics	Cointegrated	Not Cointegrated
TCB/lnBLR,lnCPI,lnGDP,KIBOR,lnKSCI,lnM3,PR	3.89**	Cointegrated	
TID/lnBLR,lnCPI,lnGDP,KIBOR,lnKSCI,lnM3,PR	6.70***		Cointegrated

Notes: Variables Description: TCD (Total Conventional Bank Depostis), TID (Total Islamic Bank Deposits), BLR (Base lending rate), CPI (consumer price index), GDP (Gross Domestic Product), KIBOR (Karachi inter bank offered rate), KSCI (Karachi stock exchange composite index), M3 (Money Supply), PR (Profit Rate)
*** significant at 1% level of significance
** significant at 5% level of significance
* significant at 1% level of significance

Results of Long-Run Relationship:

The long-run relationship among the explanatory variables and deposits of conventional banking systems is measured in Table-4. The deposits of conventional banks are positively linked to interest rate of conventional banks. The value of the coefficient of the KIBOR is 0.186 and it is significant at 1 percent level. The deposits of conventional banks have a significant long-run relationship with the profit rate of Islamic banks but it is negatively linked to deposits of conventional banks. A 1 per-cent increase in profit rate of Islamic bank will decrease the deposits of conventional banks by 7 %, all else is same. It is significant at the 5 percent level of significance. Any increase in BLR will result a decrease in the amount of conventional bank

deposits. BLR is significantly affecting the deposits of conventional banks. The coefficient of base lending rate has a negative sign and it is significant at 1 per cent level of significance. KSCI (Karachi stock exchange composite index) indicates the growth and portfolio selection of depositors, a negative relation is found between the KSCI and conventional bank deposits, although the relationship is insignificant. The CPI has positive relation with the deposits of conventional banks and it is significant at 1 per-cent level of significance. For M3, we found a negative relation between M3 and the deposits of conventional banks which is significant at the 5 percent level of significance. Economic growth has a negative but insignificant impact on deposits of conventional banks. These results show that depositors of conventional banks inclined to dissave or withdraw their money from the deposits during high growth period.

Table-4: ARDL Long-Run Results of TCD

Dependent variable Total Conventional Banks Deposits			
Regresors		Coefficient	t-value
C		0.5137	0.2408
lnBLR		-0.3890	- 4.5124***
lnCPI		0.7045	5.5936***
lnGDP		- 0.0521	0.6555
KIBOR		0.1866	2.9530***
lnKSCI		-0.0305	0.6390
lnM3		0.5323	4.3200**
PR		-0.0701	-2.1925**
R-Squared	0.9685		
Adjusted R-squared	0.9528		
F-statistic	61.6765		
Prob(F-statistic)	0.00000		
Akaike info criterion	-3.226		
Schwarz criterion	-2.829		

Notes: Variables Description: TCD (Total Conventional Bank Depostis), TID (Total Islamic Bank Deposits), BLR (Base lending rate), CPI (consumer price index), GDP (Gross Domestic Product), KIBOR (Karachi inter bank offered rate), KSCI (Karachi stock exchange composite index), M3 (Money Supply), PR (Profit Rate)
*** significant at 1% level of significance
** significant at 5% level of significance
* significant at 1% level of significance

The long-run relationship among the explanatory variables and deposits of Islamic systems is reported in Table-5. The deposits of Islamic banks are negatively related to the interest rate of conventional banks and this relationship is significant at the 5 percent level of significance. The value of the coefficient of the KIBOR is -0.28 at the 5 percent level of significance, negative sign shows that it has an inverse relationship with deposits of Islamic banks. The deposits of Islamic banks have a significant long-run relationship with the profit rate of Islamic banks. Their relationship is significant at the 5 percent level of significance. BLR is significantly affecting the deposits of Islamic banks. The coefficient of base lending rate has a positive sign and it is significant at 5 per cent level of significance. KSCI indicates the growth and portfolio selection of depositors, a positive relation is found between the KSCI and Islamic bank deposits, although the relationship is statisticaly insignificant. The CPI has a significant negative relation with the deposits of Islamic banks. For M3, we found a positive relation between M3 and the deposits of Islamic banks which is significant at the 1 percent level of significance. The results show that GDP has a negative but insignificant relation with the deposits of Islamic banks. This finding indicates that depositors of Islamic banks inclined to dissave or withdraw their money from the deposits during high growth period.

Table-5: The ARDL Long-Run Results of IBD

Dependent variable Total Islamic Banks Deposits			
Regresors		Coefficients	t-value
C		-21.7786	-2.2546**
lnBLR		0.4266	2.5373**
lnCPI		-2.4106	-2.2450**
lnGDP		-0.8105	-1.6196
KIBOR		-0.2886	-2.8787**
lnKSCI		0.3124	0.9597
lnM3		3.7878	4.1646***
PR		0.2915	0.0260**
R-Squared	0.9696		
Adjusted R-squared	0.9544		
F-statistic	63.8536		
Prob(F-statistic)	0.0000		
Akaike info criterion	-2.912		
Schwarz criterion	-2.464		

Notes: Variables Description: TCD (Total Conventional Bank Depostis), TID (Total Islamic Bank Deposits), BLR (Base lending rate), CPI (consumer price index), GDP (Gross Domestic Product), KIBOR (Karachi inter bank offered rate), KSCI (Karachi stock exchange composite index), M3 (Money Supply), PR (Profit Rate)
*** significant at 1% level of significance
** significant at 5% level of significance
* significant at 1% level of significance

Discussion:

The long-term correlation amongst the explanatory variables and deposits of both conventional and Islamic systems is measured in Table-4 and 5. A contradictory behavior among the customers of conventional and Islamic bank is examined. This behavior is revealed by the reverse signs of the coefficient of the variables. Theoretically, it is assumed that customers of the Islamic banks are not motivated by profits and hence, any change in the interest rate of the conventional banks and profit rate of Islamic bank do not have any noteworthy affect on the customer of Islamic banks. On the contrary, it is observed that any changes in the rate of interest or in the rate of profit of Islamic bank significantly affect the level of deposit in conventional as well as in Islamic banks. Consequently, customers of Islamic banks are motivated by profit,

while making their economic decisions they prefer profit motive over their religious motive. Our results correspond with those of Adelakun (2011). According to Shari'ah principle, rate of profit of Islamic bank deposits is known to the customers of Islamic banks at the end of the maturity of the deposits, On the other hand, the conventional bank rate of interest on deposits are known to the depositors in advance. Under normal circumstances, rate of profit increases after a mount in the rate of interest of conventional banks. Given this specification, there is a chance that customers of Islamic banks will liquidate their deposits and for better returns will move towards conventional banks. These results are uniformed with the previous studies conducted by (Abduh et al. (2011); Haron and Ahmad (2000); Kasri and Kasim (2009) and Zainal et al. (2009)).

Any increase in BLR will result a decrease in the amount of conventional bank deposits. BLR is significantly affecting the deposits of conventional banks. During higher rental prices depositors need more cash in hands in order to meet their needs and to fulfil their expense obligations. Thus, directs the depositors to with drawl their money hence, results in reducing deposits. Kader and Leong (2009) found the same results. KSCI indicates the growth and portfolio choice of depositors, an inverse relation is found between the KSCI and conventional bank deposits, although the relationship is insignificant. Depositors of Islamic banks are not much involved in the stock market activity. Although gambling and speculation are important activities of the stock market and these two are strictly prohibited in Islam. Depositor of conventional banks is involved in the activities of the stock market. Our results are in accordance with the results of (Haron & Azmi, 2008) and Naceur & Ghazouani (2007).

The CPI has a significant positive relation with the deposits of conventional banks and an inverse relation with the deposits of Islamic banks. Horika and Wan (2007) found the same results. As forecasted, the higher growth means higher GDP will lead to lower saving due to

higher anticipated future income. Outcomes illustrate that GDP has a negative but insignificant relation with the deposits of conventional banks. This finding supports the theory of permanent income and is also in a row with the findings of Finger and Hesse (2009) and Zainal et al. (2009). Our results show that depositors of conventional banks inclined to dissave or withdraw their money from the deposits during high growth period. Whereas the depositors of Islamic banks inclined to save more during the period of high growth. This behavior of Muslims is explained as that Muslims are persuaded to save rather than to expend lavishly. M3 is negatively related to the deposits of Conventional Banks but have a positive relation with the deposits of Islamic banks. It can be seen that whenever there is an excess supply of money the profit rates of Islamic banks on its deposits are high as compared to the conventional bank deposits. Same results are found by Yousef et al. (2009). Hence, motivating depositors to choose Islamic banking to maintain their deposits.

Figure-1: CUSUM of Square of TCB

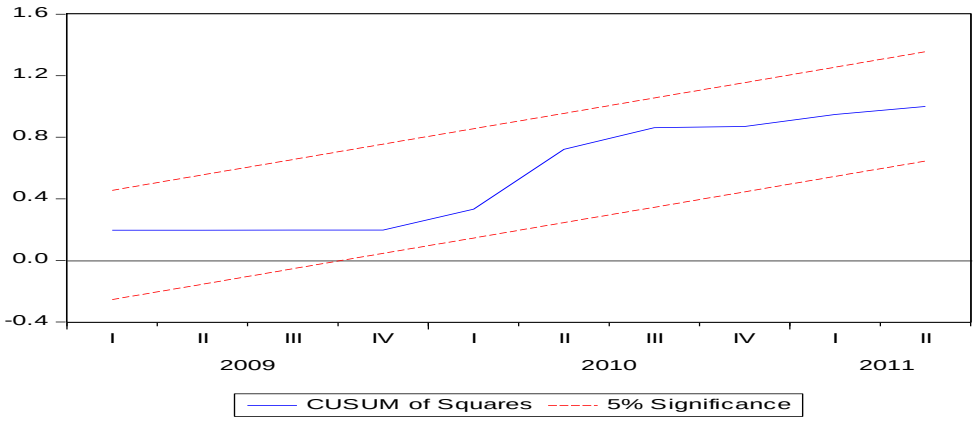
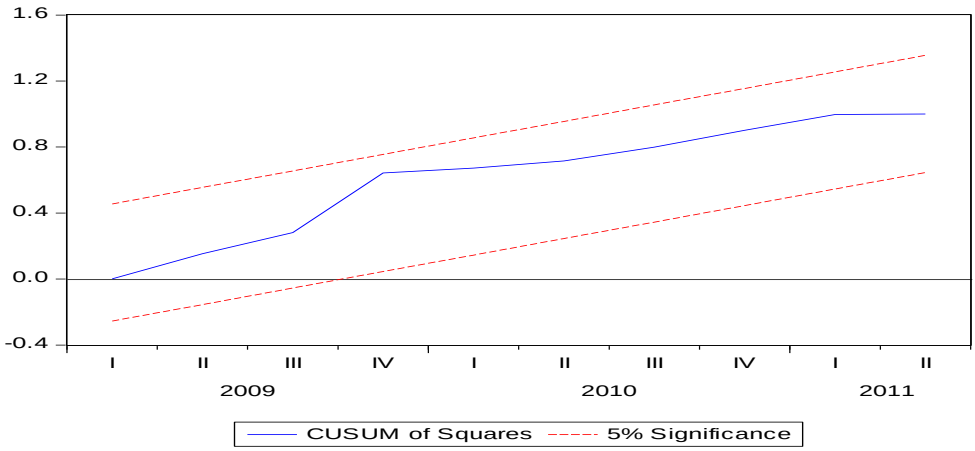


Figure-2: CUSUM of Square of IBD



V. Conclusion and Policy Recommendations

This study scrutinized the relationship of the deposit of conventional and Islamic banks and its results validate that financial variables such as BLR, CPI, KIBOR, M3 and PR have considerable long-run relation with the deposits of both conventional and Islamic bank deposits. However, the strength and direction of the relationship of both systems is different. With the exception of money supply other determinants those have significant relation with the deposits of conventional banks are justified according to the saving behavior theories of conventional banks. The relationship of BLR is not as expected. For CPI, which is used as a substitute for inflation, research discover that it has an inverse relation with the deposits of Islamic banks.

A contradictory behavior among the customers of conventional and Islamic bank is examined in this study. It is observed that any changes in the rate of interest or in the rate of profit of Islamic bank significantly affect the level of deposit in conventional as well as in Islamic banks. Consequently, this study signifies that customers of Islamic banks are motivated by profit. This signifies the normal behavior of customers. Hence, endure the effect of

substitution in the conventional system. The profit rate of the Islamic banks affects the customers of both conventional and Islamic banks. Finally, results show that an important element to attract the depositors towards the Islamic banks is religious factor. That is why more conventional banks are offering their customers with Islamic banking facilities and opening Islamic windows all over the world. In the context of policy implications, in order to collect more deposits, Islamic banks should offer more competitive rates of profit with regard to the interest rate of conventional banks. Furthermore, Islamic banks can also focus on the religious dimension. This factor will help in attracting more depositors.

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