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THE EFFECTS OF INTEREST RATE ON SAVINGS AND DEPOSITS IN PAKISTAN

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ABSTRACT

The main purpose of the research is, to study the effects of interest rate on savings and deposits of scheduled banks (registered in the list of State Bank of Pakistan) & other financial institutions in Pakistan, during 2002 to 2016. Typically, the interest rate is significantly related with the saving and deposit and it is considered that higher the interest rate, higher the savings and deposit. We will examine the pragmatic of this phenomenon in scheduled banks & other financial institutions of Pakistan. The data is mainly based on secondary sources which have been taken from World Bank and annual reports of State Bank of Pakistan (SBP). Savings & deposit are considered as dependent variable in two different models and deposit interest rate as explanatory variable; the amount of deposits has been taken that is explained in local currency in the financial statements of SBP. Ordinary least square regression method has been applied to investigate the relation between interest rate and savings &deposits in Pakistan with the help of E-views statistical software. The result shows that deposit rate is positively affected by interest rate whereas savings is adversely influenced by interest rate but comparatively interest rate is strongly significant for savings.

KEYWORDS: Deposit, Financial Institutions, Interest Rate, Saving, Scheduled Banks

INTRODUCTION

What we are paid for the usage of our deposited money by banks is called interest. Interest rate is measured in percentage and it is impulsive in nature which is truly reflected by variables of economy including inflation rate, regulations by government and other market factors. The central bank of country decides the rate in which people get return on their money. In Pakistan State Bank of Pakistan (SBP) announces the rate in monetary policy in alternate month from July via press release and website. Investors decide whether to invest in profitable projects or deposit in bank however common people prefer to save the money in banks due to high market risk. The commercial (scheduled) banks receive the money from customers in various accounts i.e. fixed deposits & saving accounts and play an intermediary role between SBP and customers. To be effective and efficient in the operations & performance, banks need abundant amount of money and deposits are the main source of bank finance therefore it gets prominent significance. Banks render many offers to persuade customers towards deposits and even in current account banks offer some incentives and free facilities to maintain specific balance in the bank account. From the bank management perspective, it is better to know all the aspects that compel customers' choice to deposit money in the bank.

Conventionally it is considered that when people get high return in terms of interest from banks on their money, they tend to deposit more in banks. It could be an alternative of investment in various projects. Interest rate influences habit of customers to save the money and collectively it shows the saving habit of any nation. Saving is considered the pillar for economic growth, sufficient saving leads the increment in aggregated fixed capital that helps the economy to be sustained.

Savings shows the strength of a nation & it establishes capital formation that is the reason behind innovative technological development. Productivity of the labor could increase by the help of technological diversification that induces the increment in GDP. The perception of saving money reflects by the purchasing power of customers and wages rate in the country. If people have remaining money after spending, they tend to save it and these deposits increase the average deposit of banks. The deposited money is invested by banks and they get profit which is usually more than they pay back to customers in term of interest or banks may also lend the deposited money to earn the difference of interest paid & received, hence the system of cash cycle runs. The high interest rate increases the deposit and profitability of the banks.

Interest rate is decided by SBP in Pakistan as previously mentioned; the SBP executes plan and decisions as per market situation to achieve the macroeconomic goals. For the stability of the supply of money in the market, SBP announces monetary policy to control the interest rate and inflation rate of the country which reflects many other economic factors. Financial institutions advance loan or owe money internally at a certain interest rate which is called interbank market rate and somehow it is affected by interference of SBP in money and foreign exchange market. Variation in the interest rate has significant impact on inflation in the economy. The inflation rate would be historically low, less than 6 percent and the interest rate would be 5.75 percent for the Fiscal Year 2017.

LITERATURE REVIEW

Interest rate has great significance in describing many economical phenomena and so many studies have been on it to show the relation with other economic variables. Bank deposits are the result of habit of people saving and to elaborate saving behavior, the interest rate has been introduced as an essential factor. Classical economists deposit is considered as the operation of rate of interest. Money saving habit will enhance if the rate of interest increases as on high interest rate people will sacrifice their current consumptions. Modern theories of consumer behavior also consider the rate of interest as an important factor on the present value of long term assets which is based on utility maximization. Keynes (1936) focused on ending and defined the interest rate as it is a return on spreading liquidity not for accumulation during a period whereas it is considered the opportunity cost of current consumption or equity return in from the future perspective. Discount rate, advancing rate and deposit rate are included in interest rate. Edmister (1982) Conventional bankers reform their customer culture better, by utilizing price of deposit. Bank loan rates, deposit interest rates, customer balance and deposit mix decision are ranged, by variation in deposit price that make impact on bank growth and profit margins. Hadjimatheou (1987) described that, increased rate of interest affects consist of two fractional effects for a net saver, which is increased present consumption, due to income effect and reduced present consumption, due to substitution effect.

Some studies have been done, regarding the profit that people get from Islamic bank, in return of their deposits. Haron and Shanmugam (1995), studied the relationship between rate of profit and deposit of Islamic bank, by applying Pearson Correlation and First Order Autoregressive Model. The result showed an adverse association between the profit rate and deposits, whereas a favorable linear association between deposit of Islamic and Conventional banks. Tsuru (2000) elaborated that saving rate; growth and capital formation are effected by financial institutions, who play the role of intermediaries in four different aspects including liquidity constrain, idiosyncratic risk, rate of interest and rate of return risks.

US deposit interest rate was examined by Galac and Kraft (2000) and they found that, foreign banks provide the low return on deposit than domestic banks. At the time of slowdown in economy, this negative interest rate elasticity could

create a big difference. Loayza and Shankar (2000), studied the relation in real interest rate, per capita income in Indian agricultural industry and its role in GDP; they found a positive relation among these variables, with respect to GDP and an adverse effect of savings on inflation, dependency rate and financial development.

Impact of deposit rate deregulation in Hong Kong on the market value of commercial banks was examined by Kwan (2002). The study revealed that rules and deregulation decreases the deposit interest rate which is ultimately effects on market values. High deposit to asset ratio may drop and the interest rate deregulation negatively effects on return of deposit. Athukorala and Tsai (2003), considered the household saving in their research with respect to inflation and interest rate in Taiwan, they found the unfavorable association between inflation & saving, whereas a positive association between interest rate & saving.

Haron, Azmi and Salina (2006) applied cointegration technique approach, to study the determinants of commercial bank in Malaysia. The result revealed that deposit is positively affected by Kuala Lumpur Composite Index, GDP, rate of interest, money supply, profit of Islamic bank and base lending rate whereas return on deposit and inflation are adversely influenced bank deposit.

Saving is closely related with deposit in banks. Nabar (2011) studied targets, interest rates, and household saving in urban China for the duration of 1996 to 2009 when there was a rising trend in saving rates. The result elaborated the inverse relationship between real interest rate and urban saving rates. It is suggested in the study that to increase domestic consumption it is required to lower household saving which is possible when real deposit rate increases.

Onwumere, Okore and Ibe (2012), examined the impact of interest rate liberalization on savings and investment in Nigeria, for the period of 1976-1999, by using simple regression technique, with the help of SPSS statistical software. The result showed saving was adversely and lightly affected by interest rate liberalization, whereas strongly affected by investment. They suggested that, a differentiation between loan & deposit and wholesale & retail transactions. Interest rate must be in contrast of lending and deposit rate.

Orji Anthony (2012), studied the Bank savings and bank credits in Nigeria, with the reference of determinants and impact on economic growth. The investigation determined that size of private domestic saving is significantly favorable, induced by GDP per capita, financial deepening and interest rate and adversely influenced by inflation rate and real interest rate. Result also revealed that, exchange rates lagged value of total private saving, interest rate spread, private sector credit, public sector credit and economic growth have positive effects. The study recommended that, government could play role to decrease unemployment rate and to improve saving, for the development of economic growth in Nigeria.

Nathanael and Eriemo (2014), discussed the macroeconomics determinants of bank deposit in Nigeria and concluded that, previous price level and interest rate have substantial favorable effect, with deposits in Nigerian Banks. Ojeaga and Odejimi (2014) also selected Nigerian Banking Sector and elaborated the effect of interest rate on deposits of bank, by using quartile regression estimation method. The result showed a prominent positive association, between interest rate & bank deposits and a significant relationship between income & interest rate, was also noticed.

Ostadi and Sarlak (2014), explained the effective factors on the absorption of bank deposits, to increase the relative share of Isfahan Sepah Bank. Their result reflected an adverse relation of inflation rate, on bank deposits and a prominent positive effect of interest rate and money supply, on bank deposits. Mashamba et al. (2014), analyzed the relationship between banks' deposit interest rate and deposit mobilization in Zimbabwean Commercial Banks, through an

empirical study. They concluded that, there is a significant and positive association between bank deposits and deposit interest rate, in Zimbabwe Commercial Banks.

Siaw and Lawer (2015), followed a co-integration approach and examined the determinants of bank deposits in long run and short run in Ghana. The result revealed that, bank deposit has adversely affected by inflation and growth in money supply in short run, whereas bank deposit has positively affected by growth in money supply and negatively affected by inflation and deposit interest rate in long run.

Boadi, Li and Lartey (2015), studied the determinants of Bank Deposits in Ghana, with the reference of interest rate liberalization, by taking deposit function as dependent variable, whereas real treasury bill rate, real saving rate, exchange rate movement and gross domestic product as independent variables, by considering inflation as controlled factor with the help of ordinary least square (OLS) estimation, via E-views. The result revealed that, 78% bank deposit in Ghana, affected by interest rate liberalization and GDP and an adverse relation between saving rate and real Treasury bill rate.

Hassan and Makinde (2016), investigated the relationship between interest rate and bank deposit in Nigeria, by using Ordinary Least Square Method multiple regression technique. They selected Commercial Bank Deposits (CBD) as dependent and interest rate & Gross Domestic Product (GDP), as explanatory variables. The result, showed a negative relationship between interest rate and commercial bank deposits that explained that, the commercial bank deposits do not affected by interest rate in Nigeria.

Mushtaq and Siddiqui (2017), studied the effect of interest rate on bank deposits in Islamic and Non-Islamic economies, by using panel ARDL (Auto-regressive Distributed Lag) method and considered 23 Non-Islamic and 23 Islamic countries data, for the period 1999-2014. They elaborated that, there is no effect of interest rate on bank deposit in Islamic countries, whereas there is a positive relation between interest rate and bank deposit in Non-Islamic countries.

METHODOLOGY

RESEARCH DESIGN & DATA

The study is based on secondary data, which has been taken from annual reports of SBP & World Bank. Deposit of Banks is the dependent variables of the study, which has been extracted from the annual report of SBP from the additional note section, because of the specification of description in Pakistani rupees, that is local currency to reduce the effects of other variables. Interest rate is the independent variable of our study, whereas saving has also been included as dependent variable, in another model. The study is based upon model design.

MODEL I

Deposit interest rate is considered significant, for the bank deposit therefore, in the study we are analyzing the effect of deposit interest rate on bank deposit of Pakistan, by the following model.

$$BD = \beta_o + \beta_1 IR + \varepsilon$$

Where BD is the bank deposit, which consists on deposits of schedule banks & other financial institutions, β_o is the constant term in the model, $\beta_1 IR$ is the deposit interest rate and ε is the error term in the prescribed model.

MODEL II

In this model deposit interest rate is considered significant, for the savings therefore, here we analyze the effect of

deposit interest rate on savings of Pakistan, by the following model.

$$S = \beta_o + \beta_1 IR + \varepsilon$$

Where S is the savings, β_o is the constant term in the model, β_1 IR is the deposit interest rate and ε is the error term.

RESEARCH HYPOTHESES

Hypothesis I- Ho: There is no significant relation between Interest Rate and Bank Deposit.

$H_{A:}$ There is a significant relation between Interest Rate and Bank Deposit.

Hypothesis II- Ho: There is no significant relation between Interest Rate and Savings.

$H_{A:}$ There is a significant relation between Interest Rate and Savings.

STATISTICAL ANALYSIS

Least Square Regression method has been applied, with the help of E-views statistics software, to find the relation between Interest Rate and Bank Deposit & Savings for two separate models. Before regression, a descriptive analysis has been evaluated, to know the behavior of variables through E-views.

DESCRIPTIVE STATISTICS

Table 1

	INTEREST_RATE	LOGDEPOSIT	SAVINGS
Mean	5.718067	19.10457	15.15787
Median	5.973	19.29928	14.166
Maximum	8.681	19.73236	21.296
Minimum	1.634	18.23739	11.085
Std. Dev.	2.343571	0.476287	2.942884
Skewness	-0.424222	-0.4605	0.838815
Kurtosis	1.820223	2.041493	2.682052
Jarque-Bera	1.319833	1.10436	1.822207
Probability	0.516895	0.575693	0.40208
Sum	85.771	286.5686	227.368
Sum Sq. Dev.	76.89258	3.175897	121.2479
Observations	15	15	15

Descriptive statistics shows that, 15 observations are analyzed and found positive mean of all variables, which are interest rate 5.718067, log deposit 19.10457 and savings 15.15787. Savings has the highest maximum value 21.29928 & interest rate has lowest maximum value 8.681000 and savings has the highest minimum value 11.08500 & interest rate has lowest minimum value 1.634000. The highest standard deviation is of savings 2.94 % and log deposit has lowest standard deviation that is 0.47%. All variables have Kurtosis less than 3, whereas p-value of Jarque-Bera shows the normal distribution of all variables, having p value more than 5%.

LEAST SQUARE REGRESSION ANALYSIS FOR MODEL I

Table 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.233	0.229287	79.52037	0
INTEREST_RATE	0.152425	0.037282	4.088368	0.0013
R-squared	0.562507	Mean dependent var		19.10457
Adjusted R-squared	0.528854	S.D. dependent var		0.476287
S.E. of regression	0.326924	Akaike info criterion		0.725389
Sum squared resid	1.389433	Schwarz criterion		0.819796
Log likelihood	-3.440419	Hannan-Quinn criter.		0.724384
F-statistic	16.71475	Durbin-Watson stat		0.994762
Prob(F-statistic)	0.001281			

The regression result shows that, interest rate is significant and affected positively bank deposit, that is having p value 0.13%, which is less than traditional level of significance, 10%. R-square is the coefficient of variance that shows 56% bank deposit changes, due to interest rate. The p-value of F-statistics is also significant as it is less than 10% and describes the effectiveness of interest rate on whole population of bank deposit rather than the analyzed sample statistics.

LEAST SQUARE REGRESSION ANALYSIS FOR MODEL II

Table 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.29176	1.11344	19.12251	0
INTEREST_RATE	-1.072722	0.181047	-5.925095	0.0001
R-squared	0.729768	Mean dependent var		15.15787
Adjusted R-squared	0.708981	S.D. dependent var		2.942884
S.E. of regression	1.587575	Akaike info criterion		3.885858
Sum squared resid	32.76512	Schwarz criterion		3.980265
Log likelihood	-27.14393	Hannan-Quinn criter.		3.884852
F-statistic	35.10675	Durbin-Watson stat		0.902766
Prob(F-statistic)	0.00005			

The regression result of model II reveals that, interest rate is strongly significant with p value 0.01% that is less than level of significance 10%, but the relation of savings and interest rate is negative. R-square shows that, savings is influenced 73% by interest rate and the p-value of F-statistics is also significant, that defines the usefulness of interest rate on all savings.

CONCLUSION & RECOMMENDATIONS

Based on statistical analysis, our findings of both models reveal the following relationship between variables:

- Interest Rate positively affects Bank Deposit

- Savings is adversely affected by Interest Rate

Therefore, our both null hypotheses have been rejected, due to significant relationship between variables.

However, The Model I contain a positive relation, but low R-Square of 56% with comparison to R-Square of Model II, that is 73% with a negative relation, that elaborated the savings has strongly & negatively affected by interest rate.

According to our study, we suggest that, interest rate would be a motivator for bank deposit and people tend to deposit more, when there is a high interest rate, but the savings is not responding positively, due to interest rate in Pakistan. Therefore, policies should be made accordingly to increase the national savings. An effective monetary policy could be helpful for it and government needs to educate and attract people, towards overall savings. However, further studies could be done by taking other influential variables and study their behavior, and a long-time series may change the results.

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APPENDIX

Table 4

Year	Deposit	Interest Rate	Savings
2002	83,252,798.00	3.6	20.218
2003	94,696,571.00	2.35	21.296
2004	109,938,519.00	1.634	18.293
2005	139,256,079.00	2.596	17.786
2006	144,167,705.00	4.174	15.696
2007	244,468,295.00	5.308	14.273
2008	353,997,788.00	6.918	11.085
2009	189,846,166.00	8.681	12.033
2010	192,799,361.00	8.145	13.577
2011	240,752,779.00	8.226	14.221
2012	268,086,404.00	7.979	13
2013	334,545,865.00	7.172	13.881
2014	371,240,440.00	7.265	13.698
2015	260,895,968.00	5.973	14.145
2016	247,428,877.00	5.75	14.166