

# The Impact of Monetary Policy on Financial Performance: Evidence from Banking Sector of Pakistan

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## ABSTRACT

Interest rate an important indicator of monetary policy always has major impact on financial sector performance. The purpose of this paper is to enlightened the monetary policy effect on banking sector stability and performance by investigating the casual relationship between interest rate imposed by state bank of Pakistan and bank financial performance taken as ROA and ROE. Highlighting the importance of monetary policy in banking sector, this study shall focus in depth over its impact on performance of banking industry of Pakistan by studying monetary transmission over the past five year (2007-2011), using interest rate as its measure. Using correlation analysis followed by ordinary Least Square regression carries the empirical analysis of the study. Firm size is taken as control variables for the study as firm size have significant impact on financial performance of banks. The finding of study reveal that interest rate taken as measure for monetary policy has significant inverse relationship on firm financial performance measured, which is measured by ROA and ROE.

**KEY WORDS:** Monetary Policy, Interest rate, Return on assets, Return on Equity

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## 1. INTRODUCTION

Monetary policy has the significant contribution to sustainable economic development by enhancing the performance of the banks. Monetary policy is the actions which undertake to influence the cost of money and credit and their availability. In Pakistan the State Bank of Pakistan (SBP) is responsible for maintaining the monetary policy. In case of open economy it is assumed that monetary policy affects the economy and primary objectives of monetary policy through two important channels which are interest rate and exchange rate. The first channel is very important on banking prospective because the change in official interest rate effect the market rate of interest both for short term as well as long term interest rate and due to this consequence the affect of interest rate on banking sector is sever. To cope with this issue the firm size matters a lot. Bank with larger size will manage it easy than the lower once.

Monetary policy in particular is of critical important in banking sector as this sector directly hit from it. Banking system is nothing but just attracting the depositor and investing their money to make further profit .During the mid 2000 era the interest rates by SBP were low and supply in economy has risen at that time. So it gave general public a chance to borrow from bank at low rates and invest money for profit. Bank shifted their strategies to asset side lending/investing such as enhancing credit limit of customer which ultimately has the positive impact on the performance of the bank. Similarly on the other hand sudden sharp turn in interest rate will affect the bank performance and this study will investigates the relationship between monetary policy and its affect on banking performance.

## 2. LITERATURE REVIEW

The banking system is an integral part of an economy's financial sector. This sector perhaps contributes the most significant amounts of money supply in a country. 'Bank' itself is a term which literally means to store or reserve. The concept has in fact been present since centuries when trusted people or parties of a tribe, group or any other form of community were entrusted to safeguard the people's precious items or piece of property. These entrusted individuals used to perform a similar function as that of a bank, that is; to reserve or look after the wealth of another while charging a meager fee. The concept however evolved to what we now know as "commercial banking". The system has evolved in the sense that instead of only performing the function of storage or keepsake, the institution in addition may re-invest some portion of the total wealth received from clients elsewhere so to earn some gain on it. Monetary policy imposed by the central bank has positive impact on bank performance(Taylor & J.B, 2009).The banking system is a vital part of an economy financial sector. Globalization and technology is

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gearing up the financial system; new products and innovation cater a large population of investor as well as regulatory authorities to meet the challenges faced by the system. One of the major cause analyzed during the financial crises 2007-2009 was the bank risk taking was the impact of monetary policy on it (Taylor & J.B, 2009). Low level of short term interest have often been as one of the indicator contributing to risk taking by the banks and ultimately the performance of the bank. (Adrian, et al 2009; Borio, et al 2008). Excess liquidity created by the loose monetary policy could encouraged banks to increase their actual risk positions in two ways .First if the interest rate is low it will impact income, valuation and cash flows which in turn revise how banks measure estimated risk. Secondly low return on investment such as government securities, complied with lower cost for obtaining new debt for investor (including financial institution) and barrower to take on more risk. This is due to contractual behavior or institution reasons (Rajan & R.G, 2005).

As there is large room over development of theoretical literature .many factor which differently impact across banks has not been considered. Dell Ariccia, et al (2010) find that a policy cut rate ,well capitalized banks will tend to increase risk taking to great extent than the other institution. (Beltratti & Stultz, 2009; Demirguc Kunt, et al 2010) indicate in their finding that the banks with greater Tier 1 capital will perform better in the initial stages of crisis. Overall, the empirical literature tends to support the view that more capital helps banks to increase their probability of survival and their profitability during crises (Berger & Bouwman, 2010).

### **2.1 Dimensions of Monetary Policy**

Accurate measurement of the policy stance is an important factor for the evaluation of alternative theories of communication or sometimes for the gaining of quantitative estimate of monetary policy changes on output and inflation, (Bernanke, S, & Mihov, 1998). Monetary policy measurement is not so easy as if the monetary policy is reaching to the state of economy then it is likely to influence it at current period performance however its exogenous part will ultimate effect the result or outcome. Therefore extreme care has been taken on measurement of monetary policy.

There are a variety of empirical approaches has been used in order to measure the stance of monetary policy the traditional approach is to use a single variable like interest rate, CRR or LRR. (B. S. Bernanke & Blinder, 1992) and (Sims, 2002) in their studies consider that the federal funds rate could be a better indicator of policy rate.

The rate of interest the State sets for banks directly affects the supply of money in an economy. For instance if the interest rate is set higher, the cost of borrowing increases as a result of which less people demand money or funds. Money supply gradually decreases in the economy. This is why interest rates should neither be set too high to discourage all kinds of productive investments, or set too low to aggravate demand and circulation of money to such an extent that it becomes difficult to manage; as the former leads to reduction in economic activity and rise in unemployment, while the latter results in inflation and depreciation in value of currency (Qayyum, 2002).

### **2.3 Expansionary Vs Contractionary Monetary Policy**

Monetary policy, according to Kimberly Amadeo (2012), is used by central banks to control the amount of liquidity in the economy. Liquidity can be defined as the total amount of money circulating in a country; it may be in the form of cash, credit or even money market mutual funds. There are two types of monetary policies: Expansionary and Contractionary.

Theoretically under an expansionary monetary policy, the aim is to increase the money supply. By lowering interest rates, a general rise in the supply of money is achieved. It usually happens that as the cost of borrowing drops down, it becomes easier for people to afford loans, investments rise in the economy, which results in greater employment opportunities because people start to spend more than usual.

To the contrary, under a contractionary monetary policy the aim is to decrease the supply of money, usually this is done by the state in an attempt to counter inflation. Hence as cost of borrowing increases, loans become expensive and people borrow less. Aggregate spending drops so do investments. Moreover, due to higher interest rates, banks' deposits become more attractive as they offer better returns on savings, as a result of which, people tend to save and spend less.

So the tools of monetary policy are used by the state bank as means to manipulate and control liquidity in the economy.

In this study we will use interest rate set by State Bank of Pakistan as the indicator to measure the monetary policy over the year.

### **2.3 Dimensions of Bank Performance**

The question is how interest rates and money supply influence a bank's performance. Return on assets and return on equity are two financial ratios which are commonly used to measure a firm's performance. According to

Price Water House Coopers (2008), key performance indicators for banks is its ROA and ROE ratios as they are composed of some very important variables which can measure performance quite effectively.

### 3. THEORETICAL FRAMEWORK

The literature suggests that the monetary policy directly affect the bank performance. Monetary policy imposed by the central bank has positive impact on bank performance (Taylor & J.B, 2009). (Maddaloni & Peydro, 2011) indicates that the interest rate will lead a bank towards risk taking behavior and ultimately it is related with the performance of the bank. The quantitative measures regulate the total quantity of credit without taking into account the uses to which such credit is put. Such measures affect the economy as a whole and are non-discriminatory in character. There are three quantitative measures of monetary policy: 1) Bank rate, 2) Open market operations,3)Variable cash reserve ratio. We use interest rate as measure of monetary policy.

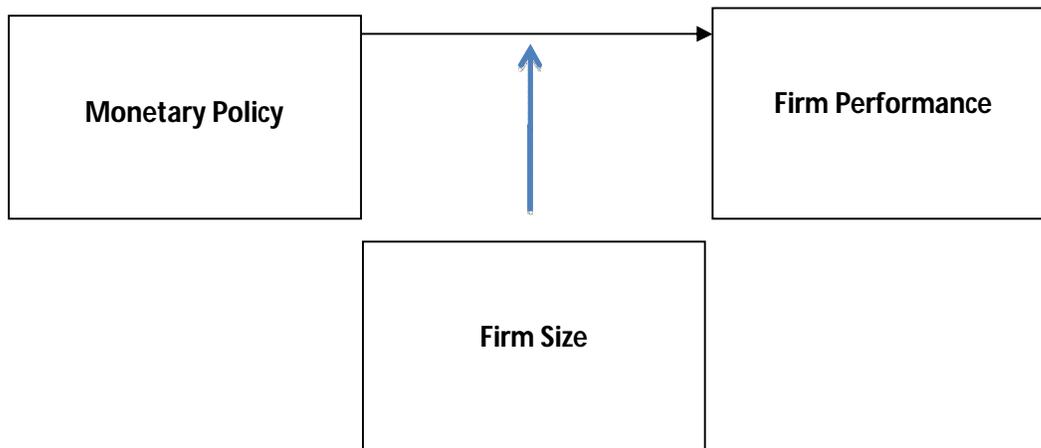
This study investigates the question, how interest rates and money supply influence a bank's performance? Financial performance of the bank is subject of Shareholder or stakeholder interest so it can be calculated from the return on investment perspective and earnings ratios usually consist of two ratio which are ROA(return on asset) & ROE(return on earning).

According to Price Water House Coopers (2008), key performance indicators for banks is its ROA and ROE ratios as they are composed of some very important variables which can measure performance quite effectively. Firm size in this study is used as control variable,

Figure 1: Theoretical Model

Independent Variable

Dependent Variable



Source Adopted: (Maddaloni & Peydro, 2011; Taylor & J.B, 2009)

#### 3.1 Hypothesis Development

The literature suggests that the monetary policy directly affect the bank performance. Monetary policy imposed by the central bank has significant impact on bank performance(Taylor & J.B, 2009). Maddaloni and Peydrò, (2011) indicates that the interest rate will lead a bank towards risk taking behavior and ultimately it is related with the performance of the bank. Based on the forgone literature review the hypothesis for the study is as follows

**H1: Monetary Policy has negative effect on financial performance of the bank?**

### 4. RESEARCH METHODOLOGY

#### 4.1 Sample & Data Collection

It is well established from the literature that the monetary policy has the significant relation with firm value. In this study we examine whether variation in monetary policy is associated with the difference in banks value. To explore the relationship between monetary policy and banks performance, ROA and ROE is used as valuation

measure of banks. The sample of 20 banks representing the financial sector in Pakistan is selected on the basis of availability of data. The annual reports from 2007-2011 is used as data collection for valuation of banks are used. To measure the monetary policy SBP interest rate ranging between 2007-2011 obtained from the SBP website. Firm size is used as the control variable in this study.

**4.2 Model specification & Variable measurement**

To test the association between monetary policy and firm performance, interest rate is used as the measure of monetary policy. Banking theory recognizes interest rate as the one of the most significant factor in contributing bank performance. The evidence from bank stock returns support the view that banks are always exposed to interest rates and ultimately exposed to monetary policy. Yourougou, (1990) finding suggest that there is a significant negative effect of interest rate on bank returns. Return on asset and return of equity is used as measure of financial performance of bank. The following Ordinary Least square models are developed for empirical analysis of impact of monetary policy on banks financial performance.

$$ROA = \beta_0 + \beta_1 IR + \beta_2 F\_SIZE + e$$

$$ROE = \beta_0 + \beta_1 IR + \beta_2 F\_SIZE + e$$

Where

- IR= Interest Rate (Log of Interest rate)
- ROA = Return on Asset (Net Income to Total Assets)
- ROE = Return on Equity (Net profit to Shareholder funds)
- F\_SIZE = Size of the Firm (Log of Total Asset)

**5. EMPIRICAL RESULT AND FINDINGS**

**5.1 Correlation Analysis**

Table 1 shows the correlation analysis between firm performance and independent variable. The correlation findings reveal negative significant relationship of firm performance with the change in interest rate. The correlation between ROA that is measure of firm performance and interest rate, which is measure of monetary policy, is (r = -0.769552) and similarly the correlation between ROE and interest rate is (r = -0.713088) having negative association between them. The result of the correlation matrix is supported by the study conducted by (Yourougou, 1990). Their finding suggest that there is a significant negative effect of interest rate on bank value. The correlation of control variable with dependent variable is (r =0.641896 & r = 0.543698) respectively shows that the firm size has the significant impact on firm value, greater the size of the firm capture more market value.

**Table 1**  
**Pearson Correlation Matrix (N=100)**

	F_SIZE	IR	ROA	ROE
F_SIZE	1.000000	0.310163	0.641896	0.543698
IR	0.310163	1.000000	-0.769552	-0.713088
ROA	0.641896	-0.769552	1.000000	0.794938
ROE	0.543698	-0.713088	0.794938	1.000000

**5.2 Regression Results**

Table 2 and Table 3 reports an estimate of econometric equation through regression line by using Ordinary Least Square (OLS) model. According to confidence interval approach, the probability value (P <.05) value signifying the relationship between firm rate of return and interest rate but t-statistics (t = -2.294947) suggesting the inverse relationship between ROA and interest rate. Table 3 shows the regression result of return of equity with log of interest rate, used as measure of monetary policy. According to confidence interval approach in Table 3 the probability value (P= 0.0398) and t-statistic (t= -2.084264) shows the significant inverse relationship of log of interest rate over return of equity. The result depicts the notion that shareholder always perceive interest rate while investing in the firm. If the rate of interest is higher they will seize their investment and vice versa.

The empirical result conclude the significant negative impact of monetary policy on return of asset and return of equity a measure of firm performance .The increase in interest rate imposed by the state bank of Pakistan, will result in decreasing the financial performance of the company. The notion is supports by the research work of

different authors that increasing interest rate always reduces the investment and borrowing activities that are the core aspect of bank performance. (Yourougou, 1990)and (Huybens& Smith; Choi, Smith & Boyd,1996)  
 The value of R-Square listed on both tables,(Table 2 and Table 3) is0.77 and 0.74 for ROA and ROE respectively reveals that only 23 % and 26 % deviation in interest rate are cause by other factors and these performance variables are best fit for model. F-test value is very significant in both tables showing that the model is best fitted with the data. The value of Durbin test is just above 2 showing that there is almost no serial correlation among the variable. Hence the statistical result supports the hypothesis H1 that monetary policy have negative impact on firm performance when interest rate is taken as a measure of monetary policy which is also inline with the findings of previous studies (Maddaloni & Peydro, 2011).

**Table 2**  
**Ordinary Least Square (OLS) regression result of ROA on interest rate and control variables (N=100)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.840758	0.069475	12.10162	0.0000
IR	-0.048096	0.002133	-2.294947	0.0239
F_SIZE	0.022642	0.006304	3.591552	0.0005
<b>R-squared</b>	0.772552	Mean dependent var		1.089710
<b>Adjusted R-squared</b>	0.767862	S.D. dependent var		0.055976
<b>S.E. of regression</b>	0.052358	Akaike info criterion		-3.031877
<b>Sum squared resid</b>	0.265914	Schwarz criterion		-2.953722
<b>Log likelihood</b>	154.5938	F-statistic		8.076057
<b>Durbin-Watson stat</b>	2.072368	Prob(F-statistic)		0.000570

**Table 3**  
**Ordinary Least Square (OLS) regression result of ROE on interest rate and control variables (N=100)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.855988	0.069171	12.37496	0.0000
IR	-0.043244	0.000117	-2.084264	0.0398
F_SIZE	0.021160	0.006275	3.372318	0.0011
<b>R-squared</b>	0.754943	Mean dependent var		1.089710
<b>Adjusted R-squared</b>	0.737106	S.D. dependent var		0.055976
<b>S.E. of regression</b>	0.052596	Akaike info criterion		-3.022814
<b>Sum squared resid</b>	0.268334	Schwarz criterion		-2.944659
<b>Log likelihood</b>	154.1407	F-statistic		7.565641
<b>Durbin-Watson stat</b>	2.080008	Prob(F-statistic)		0.000884

## 6. CONCLUSION

The association between monetary policies and firm performance has been examined over the last few years. However the limited studied focused on banking industry of Pakistan. This study will provide literature on the monetary aspects of banks performance in the contextual setting of Pakistan. This paper extend and contributes to impact of monetary policy by taking its dimension of interest rate over the banks return on asset and return on equity by offering the empirical evidence on its impact on firm performance. The result of this study shows that the interest rate is negatively associated with bank performance. Our empirical finding are similar to literature as studies by (Maddaloni & Peydro, 2011) and (Yourougou, 1990).The study also posits some limitation regarding the sample size as it uses the only 20 banks for the period of five year for empirical analysis. This sample can be extended toi the other sector of economy for generalization of results and second limitation that it only uses the interest rate as measure of monetary policy, its other measure can be incorporated for further investigation.

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