

Stock Market Response to Policy Announcement: Evidence from Banking Sector of Pakistan

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Abstract

Monetary policy announcement is important decision which affects the economy. The aim of this study is to identify the impact of monetary policy announcement on stock market in Pakistan for financial year 2014-2015. This is the unique year for studying the impact of announcement on bank's stock prices, as interest rate has been changed in 4 monetary policies while it remained stable in other announcements. This specific feature can help to uncover the phenomenon. Event study approach has been used to analyze the impact of policy announcement on stock returns. The event window of 15 days is constructed with -7 (pre announcement days) and +7 (post announcement days) while 0 is the event day. All commercial banks is the population of study and sample size of 14 commercial banks listed in KSE 100 index. Around the event window, abnormal returns calculated by taking difference of actual return and expected return. Market model is used to calculate the expected returns. Aggregated abnormal return AAR and cumulative abnormal returns CAAR are calculated to find the impact with in event window and across the events window. The results show significant impact of all monetary policy announcements on banks stock returns.

Keywords: Monetary Policy Announcement, Stock Return, Event Study, Banking Sector, KSE 100 Index

Introduction

Stock exchanges are the special markets where already held securities are traded. It is the part of financial markets. Financial market expands the system of financial institution and financial intermediaries. Financial institute circulate the fund from business unit, individual, banks, firms to investors. Generally financial markets classified into capital markets and money market. Capital market is market where long term financial instruments are traded. Capital market is part of financial system which connects the borrower and lender in transfer of fund and makes investment. It deals with the long terms securities issued by public companies and government Stock exchange, banks, leasing firms all are the included in capital market and financial institution (Neale & Pike, 2003).

In Pakistan, stock exchanges play vital role in economic growth and enhanced the capital formation. Stock exchange provide platform to the investor for buying and selling of securities Three main stock exchanges working in Pakistan namely Karachi stock exchange, Lahore stock exchange and Islamabad stock exchange. Karachi stock exchange is largest and fast growing stock exchange established in Sep 18, 1947 (Ali 2014). It is considered best performing stock exchange in Pakistan. Karachi stock exchange lunched KSE 100 index in 1991 which consist top 100 companies on the basis of market capitalization. There are multiple factors which influence the stock market performance. Monetary policy is one of such factor. Monetary policy announcement is important decision which affects the economy. The main objective of monetary policy is to maintain the monetary stability, control level of inflation and increase in employment (Rahman & Mohsin, 2014).

SBP announces monetary policy and conduct regular monetary policy meeting from the 2005 onwards (Rahman 2012). The announcement of monetary policy directly influences the economy. Monetary policy committee announces policy after two months for proper implementation and monitoring the policy rate to control the level of inflation. Monetary policy is efficient mechanism of economic information and have significant role in the economic growth. Central bank controls targeted inflation through monetary policy and choose monetary policy instrument with some flexibility. Interest rate is main policy instrument in order to achieve the policy objectives. Changes in policy rate effect the banking stock returns (Khalid, 2005). When policy rate decreases, banks advances tend to increase which lead to more profit and dividend payments. Kuttner (2005) identified increase in interest rate affects the cost and cash outflow of firm due to which firm profit decrease and ultimately impact on stock performance. T (2005) determined the relation between monetary policy and stock prices. The empirical results show monetary policy effect the stock prices in different way and stock return affected due to drastic change in policy rate.

This study is aimed at investigating the impact of monetary policy announcement on stock returns of

banks in Pakistan. Given the importance of macroeconomic variables and monetary policy impact on the stock prices volatility, it is interesting to see stock market response to policy announcements for financial year 2014 - 2015 where interest rate decreases in various announcements. The study determines the response of banks stock returns to policy announcement by using SBP interest rate. Interest rate is the price paid by borrower for using money. It is basically paid for use of money and set for specified period which is mostly on annual basis (Ali, 2014). The study is analysing the impact of monetary policy announcements for financial year 2014-15 by using event study approach.

1.1 Research Objective

The study is aimed to investigate the impact of policy announcement on stock prices of banks in Pakistan. The main objective of study is

- To determine the behaviour of bank's stock prices in response of monetary policy announcement by state bank of Pakistan

1.2 Research Question

The major research question of study is:

- How do banks' stock prices respond to the announcement of monetary policy by State Bank of Pakistan?

1.3 Significance of Study

This study will be helpful for investors, bankers, policy makers, academia and practitioners who are interested in studying the behaviour of bank's stock prices in response of policy announcements. It will provide knowledge and information related to monetary policy announcements to investors. Investors need to know the behaviour of stock prices in response to monetary policy for better decision making in their investment. The study determined volatility in bank's stock prices in response of monetary policy regarding financial year 2014-2015. This is the unique year for studying the impact of announcement on banks' stock prices, as interest rate has been changed in 4 monetary policies while it remained stable in other announcements. This specific feature can help to uncover the phenomenon. Finding of study will notify the investors regarding the changing policy rate effect on stock prices of commercial banks in Pakistan. The results also provide feedback to monetary policy authorities for proper implementation of policy rate as a regulator of monetary policy.

1.4 Limitations of Study

The major limitation of study is that it focuses only policy announcement impact on banks stock prices but there are some other factors like inflation, terrorism, political instability affect the stock prices which are beyond a scope of this study. The study mainly focuses on banking sector of Pakistan so results could not be generalized for all sectors of economy.

2. Literature Review

2.1 Introduction

The study finds the impact of monetary policy announcement on the stock returns of commercial banks listed in KSE 100 index. In Pakistan stock market play vital role in economic growth. There are certain factors which effect the stock market, monetary policy is one of such factor. Monetary policy is the process in which monetary authority of country control money supply in the economy (Chudary, Qamber & Farooq, 2012). Financial market play important role to achieve the monetary policy objectives. Financial market expands the system of financial institution and financial intermediaries. Generally financial markets classified into capital markets and money market. Capital market is market where long term financial instrument are traded. Economic growth of country depends on the proper functioning of financial market. (Nalea & Pike, 2003).

2.2 Theoretical Literature

Various theories are undertaken in the past studies to investigate different announcement impact on stock market most commonly efficient market hypothesis to test the market efficiency and other is signalling theory used in various studies regarding to different announcement impact on stock market.

2.2.1 Efficient Market Hypothesis

In 1970 professor Fame proposed efficient market hypothesis. According to efficient market hypothesis (EMH) the stock prices fully reflect all the relevant financial information. Efficient market hypothesis (EMH) categorize into three level weak form efficiency, strong form efficiency and semi strong form efficiency.

2.2.2 Signalling Approach

Miller and Rock, (1985) proposed signalling theory, the theory states that due to the information gap between the management and investors some time companies used different announcements as a signal to convey the information to the investors and general public like dividend announcement. Other announcement included

monetary policy announcement in which change in interest rate give signal and influence the stock market.

2.3 Review of Empirical Studies

Monetary policy is efficient mechanism of economic information and have significant role in the economic growth. A number of studies has conducted regarding to monetary policy announcement impact on stock market. These factors like Macroeconomic variables interest rate, inflation, exchange rate effects on the stock market volatility. Empirical evidence of studies show mixed results. Bernanke and Kuttner (2005) investigated the reaction of stock market in US economy to changes in monetary policy. Unexpected change in monetary policy affects the stock market in short and long term and its affect vary from industry to industry for instance in telecommunication sector have significant impact while utilities and energy sector not significantly affected to change in monetary policy. The study finds unanticipated change in monetary policy expected high return in stock market.

Ahmed, Akhtarzaman and Barua (2006) evaluated the effect of contractionary monetary policy on the stock prices and assets prices. The empirical results show there is short term effect of policy shock on the stock prices and assets prices. Arnold and Vrugt (2006) discussed the relation between macroeconomic uncertainty and stock market volatility in US stock market by using SPF survey from the period of 1969 to 1996. The results show significant relation between stock market and macroeconomic uncertainty and during recession stock market volatility increase. Economic reality captured more likely in time period at which macro factors are more important.

The study of Chen (2007) determines the relation between macro and non-macro factors in china hotel stock return. The results show both macro and non-macro factor have significant impact on hotel stock returns. Gupta and Basu (2007) investigated the weak form of market efficiency in Indian stock market from the period of 1991 to 2006. Different tests use to analyse the stock market efficiency by using two stock market index BSE and NSE. The empirical evidence rejected the weak form of market efficiency in Indian stock market.

Acikalin, Aktas and Unals (2008) highlighted the relation between macroeconomic variable interest rate, inflation GDP and current account balance with stock market return in Istanbul stock exchange. The results show stable long term relation between stock market returns and macroeconomic variables GDP, interest rate, exchange rate and current account balance. J.Vaz (2008) study determined the impact of interest rate on stock returns of major commercial banks in Australia covering the period of 1990 to 2005 by using event study methodology. The results show unexpected interest rate have no negative impact on bank returns.

Gay (2008) analysed the relation between stock prices and macroeconomic indicator exchange rate, oil prices in BRIC countries by using ARIMA model. Empirical results found there is no significance relation between oil prices, exchange rate with stock prices in Brazil, Russia, India, and China. Study also found weak form of efficiency of market.

Kim and Nguyen (2008) determined the impact of monetary policy announcement on banks returns in Australia and US for the period of 1998 to 2006. The empirical evidence shows policy announcement surprises affects the both stock returns and volatility. Mohammed and Ibrahim (2008) study investigate the impact of bailout announcement impact on stock prices of bank listed in Nigerian stock exchange. Event study approach used to analyse the impact on stock prices in response of bailout policy. The empirical evidence shows positive response of stock prices to bailout announcement and before announcement significant positive cumulative abnormal return on stock.

Ekanayake, Rance and Halkides (2008) determined the impact of federal fund target rate effect on stock prices of 30 listed companies in Dow Jones industrial average's (DJIA). Federal fund target rate announcement impact analyse by using event study methodology on daily stock prices for the period of 1996 to 2007. The empirical evidence shows significant impact on stock prices. Increase in federal fund target rate have negative impact on the stock prices and its effect will positive when federal fund target rate decrease.

Gregoriou, kontonikas, MacDonald and Montagonli (2009) determined the impact of monetary policy on British stock market. The empirical result show expected and unexpected interest rate has negative and significant impact on stock market. Results also show that it can be positive during the financial crises.

The study of Rigobon and Sack (2001) determined the impact of monetary policy on US stock market. The response of stock market to monetary policy identified by using heteroskedasticity techniques. The results show stock market react significantly in response of monetary policy announcement in US stock market. Different macroeconomic variables also affect the stock market performance. Hasen and Javid (2009) discussed the impact of macroeconomic variables, interest rate, inflation and exchange rate impact on Pakistani equity market returns for period June 1998 to June 2008 by using co integration and granger causality analysis. The results showed a negative relation between interest rate, exchange rate on equity returns while inflation and money supply has positive impact on equity returns.

Jawid and Haq (2009) studied the effect of policy rate and exchange rate on the stocks prices of banking industry. The results show the long run negative significant relation between interest rate and stocks prices. It is

suggested to investors that they should invest in stock market when the interest is highly volatile.

Alam (2009) examined the relation between interest rate and exchange rate by using monthly data of 15 developing and developed countries. The overall results show negative relation between interest rate and stock prices. Dhar and Chhaochharia (2009) determined the stock split and bonus issues announcement impact on the Indian stock market. Capital assets pricing model (CAPM) and various test used to analyzed the data and find the abnormal returns on stock prices. The results show significant impact of both events stock split and bonus issue on stock market and find Indian stock market is efficient in semi strong form.

Akbar and Baig (2010) study highlighted the stock prices reaction to dividend announcement and test the stock market efficiency in Pakistan. Market efficiency determined by using stock prices response to dividend announcement for the period of 2004 to 2007 using data of 79 listed companies in Karachi stock exchange. The empirical evidence show dividend announcement has positive effect on stock prices and study rejected the weak form of efficiency of Pakistan stock market.

Delis and Kouretas (2010) studied low interest rate environments of early mid-2001. The study used 18000 annual observation in Euro area banks for the period of 2001 to 2008 and results show that low interest rate tend to increase bank risk taking ability. Duran, Ozean, Ozlu and Unalmis (2010) found that monetary policy impact on stock market, currency and bonds by using heterokedasticity and GMM techniques. The results show decline in stock prices due to increase in policy rate results also show that financial firm share prices greatly affected to change in monetary policy.

The study of Mehndiratta and Gupta (2010) determined the impact of divided end announcement on the share prices of 15 listed companies in Indian stock market by using event study methodology. The results show significant positive relation between share prices and dividend announcement because dividend announcement is considered positive signal for shareholders. Results also supported the efficient market hypothesis EMH in which share prices instantly change in response of publically available information.

Agrawal, Srivastav and A.Srivastav (2010) determine the relation between exchange rate volatility and stock market returns. The time span taken for study from March 2007 to 2009 by using daily closing indices to capture more better and precise results. Finding of study show there is significant negative relation between exchange rate and stock market volatility.

The study of Geetha, Mohidin, Chandran and Chong (2011) highlighted the relation between expected and unexpected inflation rate, interest rate, GDP and exchange rate with the stock market in Malaysia, China and US. Various test used to determine the long and short term relation between variables. The empirical evidence shows in short run no relation between theses variable in Malaysia and US but in long run there is relation between interest rate, inflation and GDP with US, Malaysia and China stock market.

Ogbulu (2011) determined the monetary policy impact on stock prices in Nigeria by using quarterly data from 1986 to 2011. Cointegration technique has been used to find the empirical result. The results show money supply has significant impact on stock prices while interest rate and inflation have weak relation with the stock prices. Anirban and Ghatak (2011) determined bonus issues or stock splits announcement impact on stock prices to test the Indian stock market efficiency. Study found there is significant impact of announcement on stock prices. In split announcement date stock shows positive abnormal returns. Stock market response positively to the bonus announcement and show mixed results after the announcement. The results also show the Indian stock market is semi strong form of efficient.

Penning, Ramayandi and Tang (2011) analysed monetary policy shock impact on stock market and exchange rate of small open economies by using event study. Study determines during crises period monetary policy shock greatly affect the Asian economies. Raman (2012) highlighted the impact of monetary policy on the stock returns by using the event study approach. He constructed the event window of 31 days and estimation window of 250 days. The empirical results of study show significant impact on stock prices.

The study of Dewan (2012) investigated the impact of monetary policy on stock market in Bangladesh from the period of 2006 to 2012. Study also finds the effect of different monetary policy variables on the stock market performance. Inflation, repo rate, money supply and DSE index impact on the stock market determined by various econometric analyses such as Granger causality test, co integration. The empirical evidence shows inflation, money supply and treasury bill have positive impact on stock market while negative effect of repo rate on the stock market.

AL Mukit (2012) examined the impact of exchange rate and interest rate on the stock market return in Bangladesh, covering the period from 1997 to 2010. The results show interest rate has negative impact on stock prices while positive relation between exchange rate and stock prices. According to Nemaorani (2012), monetary policy has significant positive relation with the stock prices. He analysed the impact of monetary policy effect on stock prices of banks listed in Botswana stock exchange from the period of 2001 to 2011.

Wang and Mayes (2012) examined the effect of financial crises and monetary policy announcement's response on the stock market of UK and euro area by using event study. The results show financial crises effect the stock market of both UK and euro area while monetary policy announcement have negative significant

impact in stock market in euro area. Abaenewe, Zeph, Ndugbu and Michael (2012) analysed the impact of monetary policy on the equity prices in Nigerian stock exchange by using the annual data for the period 1985 to 2010. The study documented that monetary policy has no significant impact on normal equity price. The study Gospodinor and Jamali (2012) found that impact of federal fund rate on the US stock market (S& P 500) volatility. The empirical evidence shows change in federal fund rate do not significantly affects the stock market volatility. The study results also consistence with the efficient market hypothesis.

The study of Hasaan and Makinde (2012) highlight the impact of monetary policy inference on the price movement in agriculture sector, aggregate prices in Nigeria and also analyse macroeconomic indicators money supply and exchange rate inflation and interest rate influence on the prices of agriculture sector. Study determines exchange rate and money supply are main factors which influence the prices of agriculture sector in Nigeria. Least square estimation used for analysis. The empirical evidence shows money supply has significant impact on prices movement. The results show money supply influences more on aggregate prices than agriculture prices.

Naik and Padhi (2012) determine the relation between Indian stock market index and macroeconomic variable money supply, exchange rate, treasury bills, industrial product from the period of 1994 to 2011. The study result show money supply and industrial product have significant positive impact on stock prices while inflation negatively co related with stock prices. Interest rate and exchange rate have insignificant impact on stock prices in short term. Bharath and Shankar (2012) examine the stock market volatility of listed companies in response of bonus announcement in Bombay stock exchange to test the Indian stock market efficiency. Event study methodology used to analyse the data by constructing the event window of 41 days. The empirical evidence show Indian stock market is efficient in semi strong form.

Mumun, Aziz, Uddin and Hoque (2013) study determined the investor information impact on stock market returns of Bangladesh capital market. The results show specific information event has little or much less impact on Bangladesh capital market which shows week form of capital market efficiency. According to Haroon and Jabeen (2013) there is significant relation between Karachi stock exchange price behaviour and macroeconomic variable. They investigate the relation between macroeconomic variable and stock market volatility by collecting monthly data from the period of 2001 to 2011. Macroeconomic indicators show volatility in Karachi stock market.

Zafer (2013) examined the relation of macroeconomic determinants with the stock market performance by using the time series data from the period of 1988 to 2008. The results highlighted value traded and FDI have positive impact on share market while interest rate and stock market have inverse relation but in case of banking sector development, interest rate has no significant impact with the stock market performance. Moya, Lapena and Sotos (2013) examined the relation between interest rate and stock prices in Spain .The results show an inverse relation between stock prices and interest rate.

Muhammad, Lakhani, Zafer and Noman (2013) investigated the relation between real interest rate and investment by covering the period of 1964 to 2012 and also confirm the economic theory which stated inverse relation between interest rate and investment. The empirical results show significant negative relation between interest rate and investment. Study suggested the policy makers to control the interest rate to attract the investment in Pakistan.

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Kucukkocaoglu, Unalmis and Unalmis (2013) study examine the impact of monetary policy committee announcement on bank stock returns in Turkey. The empirical evidence shows conventional monetary policy and changing policy rate have significant decline in individual bank stock return. Banks response more aggressively to change in policy rate. The results show unconventional monetary policy adopted by central bank of Turkey has stopped giving the large response.

Thornton (2013) determined the impact of monetary policy announcement on assets prices. Unexpected interest rate used as proxies for monetary policy shock. Market based measure used to measure biased response of monetary policy news because market based measures and monetary policy news response at the same time. The empirical evidence shows response of monetary policy action is smaller to treasury yield when influenced is accounted..

The study of Chatziantoniou, Duffy and Flis (2013) highlights the effect of monetary policy and fiscal policy on the UK, US and Germany stock market performance. Use quarterly data for study from the period of 1991 to 2010. Structural VAR model used to analyse the results of monetary policy and fiscal policy on the multi countries stock markets. The results show both monetary policy and fiscal policy directly or indirectly affect the stock market performance. In UK stock market both policies directly affect the stock market while in case of Germany indirectly affect the stock market performance.

Chiu, Ping and Wang (2013) Study examines the impact of dividend announcement on stock returns in Chinese listed companies from the period of 2006 to 2012. Study investigates market reaction to stock and cash dividend announcement using event study methodology. Results indicate that the markets react positively to the stock announcement and negative relationship between cash dividend announcement and returns. Hence results indicate that dividend announcement have significant impact on stock price.

According to Khan (2014), interest rate has impact on consumer purchasing power. Changing rate has significant impact on banks deposits because deposits mostly concerns with interest rate. Ogunbiyi, Samuel, Ihejirika and Peters (2014) examined the interest rate effect on Nigerian banking sector. The study base was based on annual data of 13 years and the results show negative significant relation between profitability and interest rate.

Yakob, Tzeng and MacGowan (2014) study examined overnight policy rate impact on stock market in Malaysia from the period of 2006 to 2011. Monetary policy committee announced 44 monetary policies during this period. Study found that daily stock return response positively after the announcement period. The results show there is negatively relation between policy rate and stock price.

Basda and Oran (2014) re-examine the previous event studies in Turkey. The study investigates the main component and design in previous study by reviewing the 75 event studies. Mostly event studies conducted in turkey using BIST and ISE 100 index. Macroeconomic announcement and political event are mainly discussed event in various event studies investigated.

Papadamou, Sidiropoulos and Spyromitros (2014) study determined the central bank transparency and interest rate impact on stock market volatility. From the period of 1998 to 2005 forty countries central banks transparency level has been focused in this research by using panel data. The empirical evidence shows negative relation between central bank transparency and stock market volatility while positive relation between interest rate volatility and stock market volatility.

Khan (2014) study analyse the impact of interest rate on profitability of four major commercial banks of Pakistan for the period of 2008 to 2012. The result indicates there is strong positive correlation between banks profitability and interest rate. The study of Singh (2014) determined the impact of monetary policy on Indian stock market by considering 15 years data. Cash reserve ratio and statutory liquid ratio used for analysis. The results show both cash reserve ratio and statutory liquid ratio negatively co related with the stock market index while interest rate and market index moving in same direction..

The study of R. and Karishna (2014) analysed the impact of change in monetary policy on the stock return in Indian stock market by using event study approach. Change in key monetary policy rate cash reserve ratio, repo rate and reserve effect on stock return for the period of 2006 to 2013 considering 14 banks stock prices. Empirical evidence shows significance impact on stock return in response of change in key rate of monetary policy. Change in monetary policy effect the Indian stock market.

A study by Genay (2014) indicated the low interest rate environment impact on banks profitability. The analysis show low interest rate decrease the profitability of banks particularly small financial institution. In (2014) Reich.G determined the impact of unconventional monetary policy on the financial institutions by using event study approach. The results show unconventional monetary policy helps to stabilize some sector and expansionary monetary policy had positive effects on the insurance companies.

Edward Attah- Botchwey (2014) Investigate the behaviour of dividend payments on share prices of selected firms listed in Ghana stock exchange for the period of 2005 to 2009. Earnings per share, Dividend, share prices and earnings before tax are analyzed by both primary and secondary data. The empirical evidence shows that as the companies increase their dividend payments share prices also increase on the other side low dividend pay-outs result in decrease share prices.

Kiganda (2014) examined the impact of macroeconomic variable inflation, GDP and exchange rate on the bank profitability in Kenya for the period of 2008 to 2012. Ordinary least square (OLS) use to analyse the impact of macroeconomic variable on the profitability of banks. The study found that macroeconomic factors inflation, GDP and exchange rate do not affect the bank profitability in Kenya. Study also determined internal control can enhance the bank profitability.

Lelissa (2014) determined internal and external factors impact on the Ethiopian commercial bank performance during the period of 1990 to 2012. Return on assets accounting measure used as proxy for measuring the bank performance. The empirical evidence show bank performance is highly correlated to internal control, credit risk control, overhead expenses and income sources of commercial bank. Macroeconomic variable GDP do not affect the banks performance but inflation is main determinant of commercial banks performance in Ethiopia.

Hussain, Zaman and Ahmed (2015) determined the relation between macroeconomic variables and stock market volatility in Pakistan for the period of 2001 to 2011 by using monthly data. Macroeconomic variables significantly affect the stock market. The results show inflation, real exchange rate and oil prices have positive impact in stock market volatility while industrial sector output and money supply negatively affect the

stock market.

As evident from survey of literature, number of studies have been done regarding to monetary policy announcement and its impact on stock returns, macroeconomic variables impact on stock market volatility however no significant study in context of banking sector has been found in Pakistan, according to best of knowledge and study. This study is aimed to fill the gap in existing literature by using daily stock prices and recent data to determine the current trend in stock prices behaviour in response of policy announcement.

2.4 Research Hypothesis

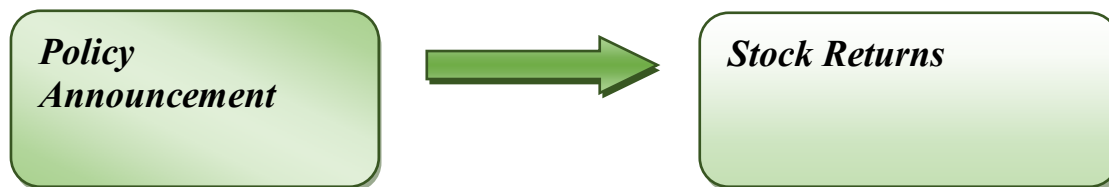
H₀: There doesn't exist a significant relationship between policy announcement and banks stock prices in Pakistan

H₁: There exist a significant relationship between monetary policy announcement and banks stock prices in Pakistan

2.5 Proposed Conceptual Framework

Conceptual frame work is graphical representation of variable which are being studied in research. It is important research tool planned to help out the researcher to extend understanding of situation. Conceptual frame work set the foundation and relates the concept. It is developed from the theory and show the relationship among variables.

Description of variable used in the study is as follow



In this study policy announcement is an independent variable and stock return is dependent variable. The study.

In this study two variables, event of monetary policy used as independent variable and stock returns used as dependent variable to determine the impact of monetary policy on stock market. During financial year 2014-2015 six monetary policy announced by State Bank of Pakistan in which policy rate change in 4 announcements and remain stable in two announcements this specific future help to determine the impact of these specific events of monetary policy on banks stock returns. The response of stock market to policy announcement depend the economic significance of the event information Stock return depends on the adjustment of prices made by companies in response of event.

3. Research Methodology

This section contains procedures and method use to analyzed the impact of monetary policy announcement event on the stock returns of commercial banks listed in KSE100 index. Event study methodology is used to determine the impact of monetary policy on stock returns of banks.

The section also included research approach, research method, and research design, research strategy used in the study and also included table consist of banks names use and monetary policy announcement dates.

3.1 Population and Sample of the Study

The population of this study is the commercial banks in Pakistan. The sample size is 14 commercial banks listed in KSE 100 index. This category holds major portion of assets and deposits of banks in Pakistan and therefore can be true representation.

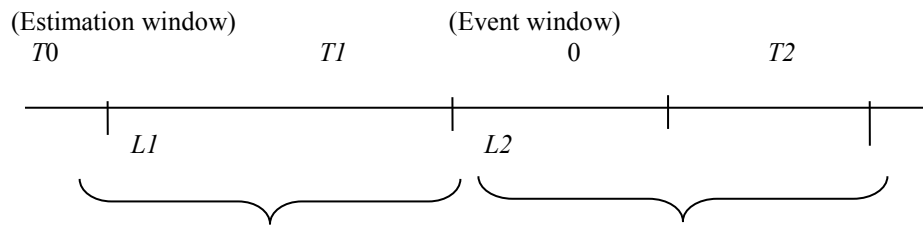
The list of sample bank used in the study is summarized in table 1

3.2 Process of Event Study

The study is aimed at investigating the impact of policy announcement on the stock prices of commercial banks in Pakistan. The behaviour of stock prices in response to announcement will be analysing by using event study methodology.

Event study is used in finance and economics to determined the some event impact on stock price. The main steps include in event study process is to construct the event window and estimation window. The 15 days event days window is used in the study-7 pre announcement days+7 days after announcement of monaterly policy and 0 is considered as event day. The time line of study included estimation window and event window used in the study shown graph in below

Time line for study



3.4 Data Analysis Techniques

In this research, response of monetary policy on stock prices measured by using two stage approach. The first step is to calculate the parameters alpha, beta by using actual return of securities and market return. These parameters used in calculation of expected return and expected return used to find the abnormal return.

The expected return is calculated by using market model. In the second step these parameter are used to find the abnormal returns stage. Policy announcement day is defined as event day. The Pre- announcement period includes +7 days prior to monetary policy announcement date and post announcement period include -7 days after announcement of monetary policy announcement. The event window of 15 days is constructed in this study.

The average abnormal returns AARs are calculated to find the average behaviour of selected company's returns, CAARs is sum of average abnormal returns, to find the impact of monetary policy on +7 days and -7 days (Mackinlay, 1997).

In this study, market model is used to measure the stock returns that is related to market movement. Market model was developed and suggest by Sharpe (1963).

In this research study conducted, the market model event study methodology has been employed to measure the effect of monetary policy announcements and its impact on the stock price.

Mathematically it can be expressed as

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \text{ for } i = 1 \dots N$$

Where

$E(R_{it})$ = Expected return on security 'I' during time period 't'

α_i = intercept of dependent variable, constant

β_i = Beta coefficient of its security

R_{mt} = Market return on index during time period 't'

ϵ_{it} = Error term with mean zero and standard deviation which is constant during time period 't'

Abnormal returns

The abnormal returns are difference between actual returns of security and expected returns. The average of abnormal returns determines the pattern of abnormal returns of all selected banks and cumulative average abnormal return to find the impact of policy announcement on stock returns in short runs. The abnormal returns are calculated by following simplified regression model is used to measure the return on each security.

Abnormal return = actual return - expected return

The abnormal returns are computed by following model:

$$AR_{it} = R_{it} - E(R_{it})$$

Where

AR_{it} = Abnormal return

R_{it} = Actual returns on security

The abnormal returns for individual security are averaged for each day surrounding the event day i-e +7 days before and -7 days after the event day. The AAR is the average deviation in actual return of security from expected return. The following model is used for calculating average abnormal returns AARs:

$$AAR_{it} = \frac{\sum_{i=1}^N AR_{it}}{N}$$

Where,

i = no of securities in the study

N = total no of securities in portfolio

t = the days surrounding the event day

The abnormal return around the all event widow calculated by taking difference of actual returns and return and expected return.

3.5 Cumulative Abnormal Returns

Cumulative abnormal returns is sum of all abnormal returns, it is used to examined the impact of event in small

runs because the response of stock returns cannot capture immediately it can be calculated by using CAR cumulative abnormal return.

The model used to calculate the CAAR is:

$$CAAR = \sum AAR_{it}$$

The cumulative average abnormal return gives the information about average behaviour of selected companies' stock response. If the stock market is efficient than AARs and CAARs close to zero. In this study:

$$AARs = -0.0097 \text{ and } CAAR = -0.56654$$

These are aggregate values of abnormal return and cumulative abnormal returns. These values of AAR and CAAR show the stock market efficiency.

Parametric T test is used to find the significant or insignificant impact of monetary policy on stock returns. The 1.96 level of significance if t values greater than 1.96 then show significant impact and if t value less than 1.96 it will shows insignificant response of stock.

$$t = CAAR / S.E$$

CAAR=Cumulative Average abnormal return

Standard error calculated as:

$$S.E = \sigma / \sqrt{n}$$

Cumulative average abnormal returns and standard error used to find the t values to determine the significance or insignificance of event on stock returns.

4. Data Analysis Results and Discussion

The impact of monetary policy announcement on the stock returns of banks is investigated in this study. The study use event study methodology in which the event window of 15 days included -7 (pre-announcement days), +7 (post announcement day) and monetary policy announcement day is considered as event day.

Daily closing prices of banks used in this study to find the abnormal returns around the event window. Six monetary policy announcements during financial year 2014-2015 announced by SBP are taken as event.

The AAR shows the average response of all selected banks, to monetary policy announcement. During six monetary policies during financial year 2014-2015 impact on selected commercial banks from Karachi stock exchange 100 index. The abnormal returns on stock prices shows the impact of monetary policy announcement on stock prices of bank.

The average of abnormal returns determines the pattern of abnormal returns of all selected banks and cumulative average abnormal return to find the impact of policy announcement on stock returns in short runs and t statistic shows the significance and insignificance of monetary policy announcement on the stock returns which is shown in table 4.

The abnormal returns during six announcement of monetary policy with in event window of 15 days, -7 before event day +7 days after announcement day and 1 event day of monetary policy in following tables

Table

Average Abnormal Returns, Cumulative Average Abnormal Returns &t-values

Days	ARR	CAAR	T-values	Results
-7	-0.00165	-0.00165	-2.94996	SIG
-6	-0.00254	-0.00419	-7.49112	SIG
-5	0.004429	0.000239	0.427298	INSIG
-4	-0.00696	-0.00672	-12.0162	SIG
-3	0.004005	-0.00272	-4.85582	SIG
-2	-0.0021	-0.00482	-8.61032	SIG
-1	0.004331	-0.00049	-0.86711	INSIG
0	-0.00058	-0.00107	-1.90407	INSIG
7	-0.00683	-0.0079	-14.1151	SIG
6	0.009947	0.002052	3.668682	SIG
5	-0.00688	-0.00483	-8.63177	SIG
4	0.000578	-0.00425	-7.59839	SIG
3	0.003745	-0.00051	-0.90287	INSIG
2	0.014998	0.014493	25.9114	SIG
1	-0.00426	0.010233	18.29514	SIG
-7	-0.00242	0.007813	13S.96852	SIG

-6	0.000741	0.008554	15.29332	SIG
-5	-0.00127	0.007284	13.02275	SIG
-4	0.002957	0.010241	18.30944	SIG
-3	0.010539	0.02078	37.15166	SIG
-2	-0.00063	0.02015	36.02531	SIG
-1	-0.00225	0.0179	32.00263	SIG
0	-0.00026	0.01764	31.53779	SIG
7	-0.00071	0.01693	30.26841	SIG
6	-0.00123	0.0157	28.06935	SIG
5	0.005806	0.021506	38.44964	SIG
4	-0.00171	0.019796	35.39241	SIG
3	0.005531	0.025327	45.28104	SIG
2	0.000617	0.025944	46.38415	SIG
1	0.01004	0.035984	64.33423	SIG
-7	0.000674	0.036658	65.53924	SIG
-6	0.00139	0.038048	68.02436	SIG
-5	-0.00478	0.033268	59.47841	SIG
-4	-0.01425	0.019018	34.00146	SIG
-3	-0.01074	0.008278	14.79988	SIG
-2	-0.00275	0.005528	9.883271	SIG
-1	-0.0006	0.004928	8.810557	SIG
0	-0.00385	0.001078	1.927309	INSIG
7	-0.00683	-0.00575	-10.2838	SIG
6	-0.01188	-0.01763	-31.5235	SIG
5	-0.00221	-0.01984	-35.4746	SIG
4	0.003182	-0.01666	-29.7857	SIG
3	-0.00593	-0.02259	-40.3877	SIG
2	-0.0015	-0.02409	-43.0695	SIG
1	0.004414	-0.01968	-35.1779	SIG
-7	-1.50157	-1.52125	-2719.77	SIG
-6	-1.2858	-2.80705	-5018.6	SIG
-5	-1.07455	-3.8816	-6939.74	SIG
-4	-0.85974	-4.74134	-8476.83	SIG
-3	-0.64023	-5.38157	-9621.47	SIG
-2	-0.42876	-5.81033	-10388	SIG
-1	-0.21495	-6.02528	-10772.3	SIG
0	0.001504	-6.02377	-10769.6	SIG
7	1.496729	-4.52704	-8093.7	SIG
6	1.283519	-3.24352	-5798.96	SIG
5	1.069808	-2.17372	-3886.29	SIG
4	0.858505	-1.31521	-2351.41	SIG
3	0.640682	-0.67453	-1205.96	SIG
2	0.426765	-0.24776	-442.966	SIG
1	0.217256	-0.03051	-54.5439	SIG
-7	-8.80E-0	-0.03052	-54.5597	SIG

-6	-0.00637	-0.03689	-65.9483	SIG
-5	-0.00929	-0.04618	-82.5575	SIG
-4	-0.00447	-0.05065	-90.5492	SIG
-3	0.000741	-0.04991	-89.2244	SIG
-2	0.006855	-0.04305	-76.9687	SIG
-1	-0.00369	-0.04674	-83.5658	SIG
0	-0.01466	-0.0614	-109.776	SIG
7	-0.00893	-0.07033	-125.741	SIG
6	-0.00818	-0.07851	-140.366	SIG
5	-0.01141	-0.08992	-160.765	SIG
4	-0.00247	-0.09239	-165.181	SIG
3	0.003041	-0.08935	-159.745	SIG
2	0.00331	-0.08604	-153.827	SIG
1	-0.01956	-0.1056	-188.797	SIG
-7	-0.00155	-0.10715	-191.568	SIG
-6	-0.00299	-0.11014	-196.914	SIG
-5	0.00794	-0.1022	-182.719	SIG
-4	-0.00654	-0.10874	-194.411	SIG
-3	-0.00763	-0.11637	-208.053	SIG
-2	0.004487	-0.11188	-200.03	SIG
-1	-0.00067	-0.11255	-201.228	SIG
0	-0.00384	-0.11639	-208.094	SIG
7	-0.02803	-0.14442	-258.207	SIG
6	-0.00089	-0.14531	-259.798	SIG
5	0.002588	-0.14272	-255.171	SIG
4	0.000819	-0.14191	-253.707	SIG
3	-0.00316	-0.14507	-259.357	SIG
2	0.003696	-0.14137	-252.749	SIG
1	0.000789	-0.14058	-251.338	

Average abnormal returns, cumulative average abnormal returns t. values and results of study shown in above table. The results in above table clearly indicates the significant impact of monetary policy on average stock return of selected bank.

5. Conclusions and Recommendation

5.1 Summary

This study determined the impact of monetary policy announcement on the banks stock return in Pakistan. The widely use event study methodology is applied to find the impact of monetary policy on stock returns for the financial year 2014-2015. During this financial year 6 monetary policies has been announced by SBP in which interest rate change in 4 policies and remain stable in two announcements. These specific events help to reveal the impact of policy announcement on banks stock returns. Event study methodology is used to analyze the impact of announcement on the stock market by constructing the event window of 15 days with -7(pre-announcement days) and +7(post event days)days and one announcement day is considered as event date. The main purpose of event study is to find abnormal returns in stock market. The study finds the abnormal return by taking difference of actual and expected return and expected return calculated by using market model. The results of this study show significant impact of monetary policy on banks stock returns.

5.2 Conclusions

This Study is conducted to examine the impact of monetary policy on the stock returns of commercial banks listed in KSE 100 index. The sample population of study was 14 listed commercial banks in KSE 100 index, which cover the major portion of assets and deposits of banks and represent the almost whole banking sector in

Pakistan. The important finding of this study is to determine the abnormal return around the event announcements period which shows significance of policy announcement on the banks stock returns.

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