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Impact of Monetary Policy on Pakistan Stock Exchange 100 Index Return

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Abstract:

Investment return is always important for investors. Investment return plays a vital role in the life of any business. There are many factors, which have a significant influence on the Stock market such as interest rate, foreign exchange rate, cash reserve ratio, inflation, money supply and many more. These factors affect the overall market efficiency. Therefore, the overall purpose of this study is to identify the impact of monetary policy and macroeconomic variables on the stock exchange. Most of this research consisted of quantitative analysis of data. Secondary data was used in this research. The secondary data have been taken from the StateBank (SBP) official website, Business Recorder, Trading Economics and Pakistan Stock Exchange official websites. The data of variables (discount rate, cash reserve requirement CRR, exchange rate,) have been taken from State Bank of Pakistan SBP official websites. The data on the KSE 100 index return, inflation and Money Supply have been taken from Business recorders, trading economics and SBP websites. To identify the impact of different variables on stock exchange the data were analyzed through software like SPPS. Through SPSS regression and correlation tests were applied to the data. The overall methodology supported the hypothesis. The discount rate showed a negative impact on KSE 100 index. It is recommended that every investor should be cautious before making an investment and should deeply and carefully analyze the factors that have a significant influence on stock returns.

Keywords: Stock returns, monetary instruments, macroeconomic variables, correlation, Regression.

1. Introduction:

1.1 Background of monetary policy:

Monetary policy is a practice through which a country's monetary authority controls and manages the circulation of money, usually focused on a rate of interest for a prosperous and healthy economy. Monetary policy is also termed as the expansion and contraction of money by implementing a discount rate policy in the country. By expansion policy economy gets a boost because the money supply increases rapidly in this process than routine. Expansion policy is implemented when a monetary authority wants to cope with

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unemployment during the recession period by lowering the discount rate which in turn provides easy credit opportunities that will attract business expansion and employment opportunities. And finally turns prosperous economy. While contraction policy is a process in which the discount rate increases which means contraction or shrinkage of the money supply to slow down inflation to avoid deterioration of asset worth. Monetary policy is something else than fiscal policy. Fiscal policy refers to taxation, government borrowing and spending while in monetary policy the main concern is to discount rate, cash reserve ratio and exchange rate which have a significant impact on the stock market (Chen, S., Chu, X. and Qu, Q. 2022).

1.2 Monetary policy developments:

On July 1, 1948, the State Bank of Pakistan came into existence. At the time of partition, Pakistan had no banking system of its own. Quaid e Azam Mohammad Ali Jinnah kept the foundation of the State Bank as a central bank of the newborn country Pakistan on an emergency basis to run the economy and to cater for the needs of the vital banking system in the newborn country. So, the State Bank of Pakistan SBP at first took serious measures to develop the banking system in Pakistan. In 1949 National Bank of Pakistan NBP was brought into existence as a national bank and representative bank of SBP. State Bank of Pakistan uses careful credit control actions such as the obligation of low margin need as an instrument of monetary policy. Public borrowing expands and increases when the discount rate is low. SBP kept the discount rate at a low % during the decade of 1970-80 to increase public borrowing and to persuade expansion in banking credit to provide finance to the private sector and public sector as well. In August 1963 Quota system was introduced. According to that Quota system banks were allotted a quota every quarter about half of their statutory reserves with the State Bank. In 1972 many alterations were commenced. National Credit Consultative Council was established. The purpose of the setup of the National Credit Consultative Council was to flourish agriculture and industry on a small scale and the development of prior sectors by providing bank credit. (Bissoon, R., Seetanah, B., Bhattu-Babajee, R., Gopy-Ramdhany, N. and Seetah, K. 2016).

A mandatory Zakat deduction of 2.5% was implemented as an Islamic tax on saving accounts and other assets (as mentioned by Shariah). In 1981 PLS (profit & Loss sharing) accounts were commenced in the commercial banks. Mudaraba and Murahaba mode of financing was introduced under Islamic Banking. Banking reforms were witnessed in the early 90s which were based on credit management. The autonomy of the State Bank of Pakistan (SBP) was given more power by amending the SBP Act 1956 in 2002. Section 9B was introduced in the amended SBP Act which shows the position and task of the Monetary and Fiscal Policies Coordination Board. (Yan, N. 2019)

1.3 Financial sector of Pakistan:

The financial sectors of Pakistan have been practising lots of reforms over the last three decades. The initiation and establishment of stock markets for foreign investors and the implementation of market-based instruments like discount rates and monetary policy are the two major upshots of those reforms. There is an intelligent boost resulting in the inflows of investment by the opening of stock markets in Pakistan (Chu. v, Nguyen. 2019). Monetary policy has an impact on stock prices via balance sheet channels and wealth

effect channels by Bernanke, (Chu. v, Nguyen 2019). Monetary policy is framed by the central bank of the country to provide facilities for economic growth and to control the delivery and quantity of money, a government always tries to pressure and control economic association with its political purposes. These purposes are mainly for the achievement of macroeconomic stability (Saeed et al 2014).

Monetary policy is governed by the central bank of the country. Fiscal and monetary policy makes the stock market risky and sensitive. However, the ratio of surprising monetary and fiscal policy varies from economy to economy. Monetary and fiscal policies are the two sensitive tools utilised to assist and regulate the economy (Saeed et al 2014). The nature of the stock market is a secondary market where the trading of different types of securities takes place. Initially, securities are the exchange process of money or resources. In the stock market, there are huge prospects for investment for investors. Any type of fluctuation in the stock exchange index provides grounds for trouble and interruption for macroeconomic variables (Chancharoenchai, K., Dibbooglu, S. & Mathur, K. 2005). Exploring the factors that influence the stock market has been a critical issue for researchers and researchers still trying to explore the factors that influence the stock market. Inflation, discount rate, industrial production index, gross domestic product, export, exchange rate, foreign exchange reserve, money supply and unemployment are the major and core variables that have causality along the prices index of the stock market Chang, Y., Yeung, C., & Yip 2000). (Chancharoenchai, K., Dibbooglu, S. & Mathur, K. 2005) says in his concluding remarks that fluctuation in macroeconomic variables directs to change in the overall structure of the stock exchange index.

1.4 Impact of Govt. Policies on the Stock Exchange:

Government policies brought fruitful results on share capital market and economic functions whether the policy is fiscal or monetary both have a considerable impact (Abdalla, I. S.A, Murinde, V.. 1997). Investors, enterprises, monetary authorities and researchers are keen observers of fluctuation (up & down) in stock prices. This phenomenon is understandable in economies. Market forces like demand and supply are the two major indices that determine stock prices. In case when supply meets demand, stock prices are fixed at that point.

1.5 An Overview of an Organization under Study:

The stock exchange is an institution that facilitates brokers and investors by trading their company’s shares which are listed in the stock exchange. Stock exchange not only provides the trading facilities of companies' shares but also facilitates the trading of financial instruments like derivatives (futures, options, swaps etc.) and Term Finance certificates. The stock exchange also performs other events like payment of the company’s dividends and income. Through stock market companies can issue and redeem their shares. (Ali Farman, Baber Adeel, Sufian saeed 2014)

In Pakistan capital market works under the umbrella of the Security & Exchange Commission of Pakistan (SECP). Before 1997 Corporate Law Authority was working as a regulatory authority in Pakistan. But by replacing Corporate Law authority, the Security & Exchange Commission (SECP) was established in 1997. Three stock exchanges working in Pakistan namely, Karachi Stock Exchange (KSE), Lahore Stock Exchange (LSE) and Islamabad Stock Exchange (ISE). Karachi Stock Exchange KSE was formed in 1947, LSE in 1974 and ISE was established in 1997. Out of these three exchanges, the Karachi Stock Exchange is considered a leading exchange in Pakistan. The government of Pakistan practised industrialization policies during the decade of 1960s which caused growth in the equity market of Pakistan. But in the early 70s, worse political and administrative unrest and instability started in former East Pakistan. The circumstances had become worse day by day due to dreadful conditions in East Pakistan and the 1971 India-Pakistan War. Consequently, the state of Pakistan broke into two parts, East Pakistan separated from Pakistan and the new country Bangladesh came into existence. In 1973-74 government of Pakistan followed a nationalization policy and as a result of this policy, all private sector and financial institutions were completely nationalized or came under the control of the government of Pakistan. By acquiring that policy private sector completely vanished from Pakistan. But that policy was revered by the new government of Pakistan in 1985-86 and all private sector and financial institutions backed to their actual position.

In the early 90s, many changes in policies and operations of the stock market were observed. In 1991 several momentous actions were taken by the government such as permission for commercial banks in the private sector can work, leniency in the restrictions of foreign exchange policy, and opening of markets for foreign investors, Pakistani got permission to keep foreign currency accounts. After following the changes in policies and liberalization measures extraordinary and positive responses were witnessed in the first year of the market after opening. Due to positive steps taken by the government, fruitful results were achieved in the initial years of the opening of the market (Hussain, Z., & Sohail, N. 2011). On the other hand, 86 new companies were listed which assisted in raising the return on market shares and market capitalization. Considerable improvement witnessed in the market by size and action. Consequently, the share of market capitalization to GDP rose from 7% to 18% and 26% after two years of liberalization.

In 1995 Pakistan suffered the worst political crises and economic activities were neglected which resulted severe decline in equity markets. In August 1997 Karachi Stock Exchange KSE introduced a "Defaulting Companies Counter" for the companies involved in several defaults in the regulation of KSE for listed companies. After taking significant measures by the concerned authority the number of listed companies in the Karachi Stock Exchange KSE rose to 762 companies in 2000. In the late 90s, the turnover ratio of KSE was extraordinary and finally in 2003 it was marvellous and rose to 500%. Consequently, due to its marvelous turnover ratio Pakistan ranked first in the rest of the world. The performance of KSE was the best among all stock exchanges in the last two years.

Every organization keeps some standards on which companies evaluate their performance. The KSE 100 index is based on top blue-chip companies. These top

companies are selected from 34 different sectors on the Karachi stock exchange, for market capitalization. Two other benchmarks are the KSE30 index, which consists of 30 top free-float capitalization companies and the other one is the KSE full share index which means the market is based on the full capitalization of all companies that are listed in the Pakistan Stock Exchange PSX.

The most popular and quoted index is the KSE100 index which is based on 100 top and largest companies in the stock exchange. Every moment of share trading is recorded daily on the stock exchange. Various indices measure the progress of share prices.

Nowadays modern technology is used everywhere. In the Pakistan stock exchange, PSX trading is also done through modern technology namely the Karachi Automated trading system KATS which provides faster and speedy exchange with the least transaction cost. Only members of the exchange are allowed to trade in the Pakistan Stock Exchange.

These indices provide a scale against which investors can evaluate the progress of their shareholdings.

1.6 Research Question:

Identify the most significant variables which have a significant impact on the stock exchange.

1.7 Problem Statement:

The stock market has control over the expansion and affluence of a financial system. When stock/share prices decline wealth decreases while it raises wealth increases. When stock prices increase people's confidence often increases and they feel secure about investment which in turn causes an economic boost. Every investor wants a high return before investing in any business and it is only possible when an investor knows about all the facts and factors which may influence their decisions. There are many factors which have a significant influence on the Stock market such as interest rate, foreign exchange rate, cash reserve ratio, inflation, money supply and many more. Unfortunately, there is a lack of awareness about Stock market information and due to this companies suffer trouble and the Economy goes down. The importance is to investigate the impact of monetary strategy on the equity market. That's why the researcher wanted to research on the above-mentioned ground.

To investigate the factors that have significant & remarkable influence on the stock exchange because there is a lack of awareness about Stock market information. Due to this investors feel a dilemma about their decision.

1.8 Objective of the Study:

- The main purpose of this study was to inspect the association between monetary instruments and Stock exchange.

- To apply some statistical tools to data to find out the correlation among dependent and independent variables.

1.9 Significance of the Study:

Investment return is always important for investors. Investment return plays's vital role in the life of any business. Every investor wants a high return before investing in any business. Especially when investment is done on a very high scale or for public limited companies which are registered in the stock exchange. There are many factors which have a significant influence on the Stock market such as interest rate, foreign exchange rate, cash reserve ratio, inflation, money supply and many more. These factors affect the overall market efficiency. With the help of data (primary and secondary), it has provided more radiance on the problem of the present study attempted.

1.10 Scope of the Study:

The scope of this research is not only restricted to share exchange but also to Researchers, economists, policymakers and investors who are cautious about their investments and also want to know about the worth of their investment. Because monetary policy and macroeconomic variables are the key indicators of a prosperous economy and stock exchange.

1.11 Econometric Model:

$$Y= \alpha + \beta_1 (CRR) + \beta_2 (DR) + \beta_3 (ER) + \beta_4 (MS) + €$$

Where:

Y= Stock exchange, CRR= Cash reserve ratio, DR= Discount rate, ER= Exchange rate, MS= Money Supply(M2), €=Error

1.12 Hypothesis:

1. Cash reserve requirement has a significant impact on share exchange return
2. The discount rate has a significant impact on equity exchange return
3. Money Supply has a significant impact on share exchange return
4. The exchange rate has a significant impact on share exchange return

2: Literature Review

Monetary authorities need suitable variables upon which they can focus for the formulation of monetary policy (Handa 2005). Some researchers like (Chen et al, Azeez and Yonezawa) and (Antoniou et al) observed the New York Stock Exchange, the Japanese Stock Exchange and the London Stock Exchange as well. While (Dhanker and Esq) observed the Indian stock exchange, they all were trying to find out the most suitable variables that have an impact on stock returns. Finally, all researchers concluded that three factors such as macroeconomic variables, company-specific variables and stock market variables have an impact. (Clare and Thomas) found eighteen macroeconomic variables that affect stock returns in the UK stock exchange. The most significant factors

that affect UK stock returns are oil price, bank lending and default risk (corporate). The connection between macroeconomic variables and the Japanese stock exchange was examined and concluded by the researcher that inflation rate, money supply, government long-term bond, exchange rate, and call money rate are found co integrated factors with stock return (Mukherjee and Naka). Exchange rate, inflation, discount rate, money supply, foreign exchange reserves and industrial production were revealed as the key elements that bring affect on the stock exchange (Booth 1997, and Chan 2003). The diminishing trend in currency can affect the stock market (Granger, Husang and Youngs 2008). Another study found an association between money supply, reserves and exchange rate on stock return (Ibrahim 2000). The study examined the relationship between monetary policy and Pakistan's stock exchanges and revealed that monetary policy has a considerable and optimistic impact on the stock (Qayyum and Anwar 2011). An investigation in China revealed that there was a positive association between equity prices and macroeconomic variables such as money supply, exchange rate, interest rate (short term), and foreign exchange rate. The study further indicated an unconstructive (negative) connection between inflation, interest rate (long term) and equity values and the Shanghai Stock Exchange working as a sign of macroeconomic variables (Garcia and Yue 2010). It was also evident that there was a connection between equity values and macroeconomic variables in Shanghai Stock markets (Garcia and Yue 2010). During the pre-crisis period (1987-1995) and post-crisis period (1997-2001) studies were conducted to examine the relationship of stock prices with monetary instruments like exchange rates and macroeconomic variables such as inflation and money supply. The result found a long-run association during both periods. The study further concluded that the inflation rate was positive whereas the money supply had a pessimistic (negative) shock on equity values. Whereas the exchange rate showed an optimistic (positive) relationship in the pre-c catastrophe phase and a pessimistic relationship in the post-c catastrophe phase with stock prices (Asmy et al.2009). The US and Japanese stock markets were studied to explore the impact of macroeconomic variables on both stock exchanges and found similarities and dissimilarities between both stock markets (Humpe and Macmillan 2009).

2.1 Pakistan

LSE with macroeconomic variables and the study depicted the negative impact of consumer price index CPI (proxy of inflation rate) on stock return. Whereas exchange rate, industrial production and money supply M2 portrayed optimistic (positive) and considerable association with stock return. Furthermore, the study concluded that Treasury bills 3 months had irrelevant positive effects (Sohail and Hussain 2009). An investigation of macroeconomic variables, financial variables and stock returns concluded that both types of variables were the indicators of stock return movement (Ihsan et al.2007). A general investigation was conducted in the 1960s and 70s and the investigation provided evidence of a powerful relationship between money supply and equity prices. The preceding investigation also provided evidence of an association between money supply and stock prices but there was conflict found about the timings of the relationship. In Pakistan, annual data on investment, GDP and consumption from 1959 to 1999 were taken to investigate the long-term causal association between equity prices and the above-mentioned macroeconomic variables. Vector Error Correction (VER) model was applied by the researcher to the data and the result revealed that long-

term association was found along with equity prices and macroeconomic variables (Hussain and Mahmood 2001). Exchange rate, oil prices, the balance of trade and the inflation rate affect the equity return in the Pakistani stock market (Ataullah 2001).

2.1.1 Turkey

In the Turkish stock market, there was evidence of a positive association between industrial production and exchange rate with stock return. Whereas money supply showed an inconsiderable effect on stock returns (Erdogan and Ozlale 2005). Amman stock exchange in Jordan, inflation and interest demonstrated a negative impact whereas money supply M2 showed a negative effect on Amman stock prices (Al Sharks 2004).

2.1.2 India

An Indian stock market study was conducted to investigate the long-run causal association and Granger causality among equity market and macroeconomic variables like discount rate and exchange rate. For that purpose, data during the period of 1992 to 2002 were used and the Vector Auto regression (VAR) technique was used on the data. Unidirectional causality was indicated which flows from the exchange rate to the interest rate. Also, no evidence of Granger causality was found among exchange rates and stock return (Mishra 2004).

2.1.3 Tehran

In the Tehran stock exchange (TSE) study was conducted to investigate the association between the stock market and macroeconomic variables like inflation rate, interest rate (both on deposits & bonds) and gold prices. Monthly data was used from March 2008 to April 2008. To attain this purpose researcher used Vector Auto regression (VAR) and the Johansen Co-integration model. The result indicated the long-term positive and considerable association between the Tehran Stock Exchange (TSE) and the inflation rate. Whereas the result also indicated that when interest rate increases stock market activity decreases. The study further revealed that an increase in bond interest rate had no negative impact on the Tehran Stock Exchange TSE (Mashayekh et al. 2011).

2.1.4 Nigerian Countries

Another study was based on the connection between Nigerian equity prices and macroeconomic variables like external debt, fiscal deficit, exchange rate, inflation rate, industrial output and investment. Yearly data from the period of 1983 to 2007 were collected and many tests like the Granger causality test, augmented Dickey-Fuller ADF test, Vector Error Correction model (VECM) and co-integration technique were applied to the data. The result depicted a weak association between Nigerian stock prices and macroeconomic variables. The study further revealed that stock prices were not a remarkable determinant of Nigerian macroeconomic variables. Whereas during the study period, long-run association was observed between the variables (Asaolu & Ogunmuyiwa 2011). A study was conducted in the Sri Lankan stock market to investigate the association between macroeconomic variables (like exchange rate, inflation rate, money supply, and interest rate) and Colombo equity values. In support of this rationale, the researcher composed the monthly time series data during the phase of September 1991 to

December 2002 for the above-mentioned variables. The result revealed that the exchange rate and inflation rate had a negative influence on the stock prices of the Colombo stock exchange. The study further stated that an increase in the the T-bill interest rate brings a decline in stock prices because due to the increasing interest rate of the T-bill investors are attracted towards treasury securities. Whereas money supply was not found as an indicator of stock price movement. It was also evident that the Colombo stock exchange was not hedged against inflation (Menike 2006).

2.1.5 Canada

In the Canadian stock market impact of Fiscal and Monetary policy was practically investigated. In that study, macroeconomic variables like industrial production, elongated tenure & little tenure interest rates, inflation rate and exchange rate were used. Stock prices of the Toronto Stock Exchange 300 indexes were also used. The Granger causality test was applied to the data. The result revealed that inflation and interest rates were negatively associated with equity prices. However other monetary policy was not evident to associate with stock prices considerably (Darrat 1990). The relationship between the inflation rate and Canadian stock prices was studied. The result indicated a negative association between the inflation rate and stock returns (Cozier & Rahman 1988). A considerable relationship was found between interest rate, industrial production and Australian market stock returns in the long run (Kazi 2008).

2.1.6 Vietnam

Association between macroeconomic variables (money supply and industrial production) and Vietnam's stock prices. The result revealed that industrial production and money supply were significantly related to Vietnam's stock prices (Ngoc & Hussainey 2009).

2.1.7 Taiwan

In the Taiwan stock market impact of variables like money supply, GDP, exchange rate and employment rate was investigated on Taiwan Stock 50 index returns. The investigation concludes that the exchange rate had a momentous crash on equity returns while the money supply showed an insignificant effect (Singh, Mehta & Varsha 2011). The impact of macroeconomic factors on the Indian stock market was investigated. Researcher used the variables like exchange rate, Narrow money supply, industrial production, broad money supply and Bombay Stock Exchange BSE. Pathetic causality seemed from industrial production to BSE. The study further revealed unidirectional causality among equity values and money supply (Pethe & Karnik 2000).

2.1.8 New York

A study that was based on the affiliation linking equity returns and macroeconomic variables like money supply M1 & M2, consumer price index CPI, and industrial production concluded that industrial production is not the key indicator of equity return. While consumer price index CPI and M1 (narrow money) are considerably related to equity returns. The study further revealed that the power of the variables is negative on NYSE, NASDAQ and AMEX stock returns (Flannery & Protopapadakis 2002). Money

supply, inflation and interest rates can forecast the stock returns of the South African exchange market by using the data mining method (Gupta & Modise 2013).

2.1.9 Germany

In Turkish and German stock markets relationship of macroeconomic factors with stock return was examined. His study was based on eight macroeconomic variables such as import, export, exchange rate, industrial production, bond yield, interest rate, consumer price index CPI, and wholesale price index WPI. The research discovered no considerable shock of these macroeconomic variables on equity returns (Altay 2003).

2.1.10 Southeastern Asian countries (Thailand, Philippines, Kuala Lumpur, Jakarta, Korea, Taiwan)

The study was conducted and was based on six southeastern Asian countries' stock exchanges including Thailand's share exchange, the Philippine's share exchange, Kuala Lumpur's share exchange, Jakarta's share exchange, the Korean share exchange and Taiwan's share exchange. Monthly data of macroeconomic variables like inflation rate, money supply, interest rate, and GDP was used from the period of 1987 to 1996. The GARCH (Generalized Autoregressive Conditional Heteroskedasticity) approach was applied to the data and concluded that all variables have an impact on returns but their degree of impact varies from market to market. The study also provides the evidence of significant impact of inflation on monthly stock returns (Chancharoenchai, Dibbllgly & Mathur 2005).

In 13 different countries collision of monetary policy was examined on the stock prices of their stock exchanges and the study concluded that the impact of monetary policy varies from country to country due to different frameworks of monetary policy found in those countries (Ioannidis & Kontonikas 2008). Another study was accomplished to investigate the collision of financial policy on many European share exchanges. To attain this purpose researcher used the Vector auto-regressive (VAR) model on the data. The study found considerable association (Rapallo 1998). On the time series and panel data (from the period of 1999 to 2009) Regression model was applied to explore the impact of monetary policy on different sectors' returns in the United Kingdom. The study stated that different variables bring stress to equity returns (Gregorious et al. 2009).

2.2 Relationship between Stock Exchange and Exchange Rate / Money Supply:

Another observation among macroeconomic variables and the Malaysian stock exchange indicated that there is a considerable positive impact of consumer price index CPI and industrial production on stock prices while an inconsequential negative impact of the exchange rate on stock prices (Ibrahim and Aziz). There is an influence and impact of financial fluctuation, fluctuation in the exchange rate and political alteration on philipines stock return (Bailey and Chung). While another research showed that in emerging economies macroeconomic variables like money supply, exchange rate and world market index are the key determinants of stock return (Bilson, Brailford and Hooper). Interest rate, exchange rate and inflation proved significant factors in an economy. With the increase in the demand for exporting commodities, domestic notes devalue due to the

decline in the cost of exporting commodities (Pan et.al 2007). Data about the US stock market says when currency devalues it brings a decline in stock return as well in the short run and due to a decline in the exchange rate level upcoming inflation also increases as a result company's future performance becomes doubtful in the eye of investors which finally cause a decline in stock prices (Heinz Herman et.al 2006). In Austria, Germany, the US, France, Hungary, the UK, Poland Czech Republic and Slovakia causal relationship is evident among exchange rate and equity values since the phase of 1970-2003. The study further revealed unidirectional contributions in the long run and short run as well. In developed countries like France, Germany, the UK, the USA and Austria causality was stronger from 1993 to 2003 than from 1970-1992 (Stavarek 2005).

2.3 Relationship between Stock Exchange and Discount Rate:

Discount rates revealed considerable and negative impact on stock returns (Arellano and Bon). In any economy exchange rate acts as a financial asset, the interest rate declines when the money supply increases. Due to an increase in money supply and a a decline in interest rates domestic currency also ran down. As a result, domestic production is encouraged which in turn increases net exports and cumulative output which leads to an increase in regular price level. An expansion in monetary policy causes an increase in bank reserves and bank deposits. As a result, bank lending increases. When bank lending rises it increases investment which in turn leads to an increase in productivity. (Mishkin 1996). Interest rate network based on an alteration in money supply. When the supply of money decreases it will turn a boost in the long-term discount rate which causes an increment in the cost of capital. The above-mentioned phenomenon will decline in investment. The decline in investment causes a decline in cumulative demand resulting fall in productivity and routine price level. The two main elements of aggregate demand namely investment and consumption are affected pessimistically. Negative effect in investment due to higher cost of capital while consumption affected by stimulated fall in the utilization of durables because of high-interest rate in long term. Interest rate channels also work by inflation, as the reduction in money supply stimulates a fall in price level which consequently shows an increase in interest rate which makes investment and productivity lower (Hicks1937).

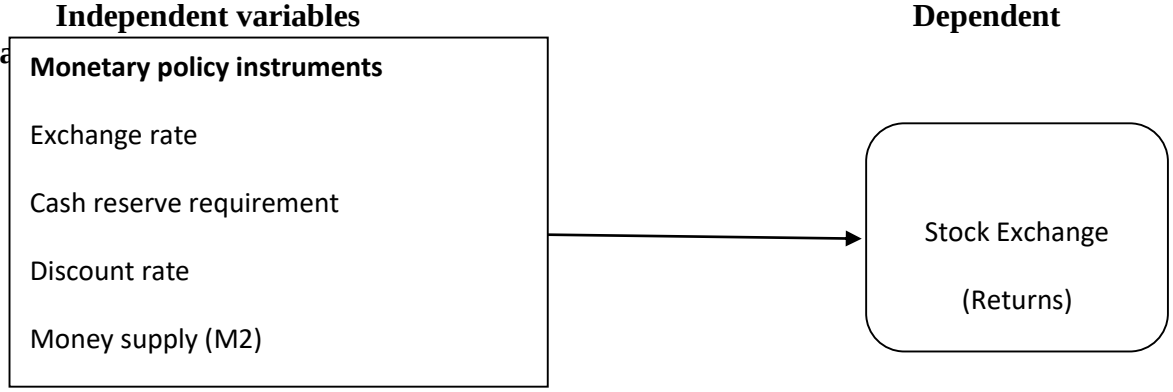
Interest rates in the short run have a significant impact on stock return (Hasan and Nasir 2008). Interest rates showed a negative correlation with stock prices (Chang, Yeung and Yip 2000). In Belgium, USA, Germany, Finland, Japan, France, The Netherlands, Canada, Sweden, Italy, South Africa, Switzerland, the UK, New Zealand, and Ireland study was done to find out the effect of discount rates on their equity gains. After applying Regression analysis results stated that there is a depressing connection between discount rates and equity gains in all the above countries (Durham 2003). Fluctuations in macroeconomic variables influence discount rates inversely as well and stock prices also decline in the US stock market when macroeconomic variables fluctuate (Bansal, Kiku, Shaliastoivh & Yaron 2014). By using 50 years of daily data from 50 different financial markets, it is concluded that inflation and interest rate (short term) were proven most important and influential indicators of increasing instability (Engle 2004). Like the values of all assets, equity values will also respond when changes occur in interest rates. The rates on the risk-free assets go when the central bank raises the interest rate and as a

result, the risky shareholders will demand higher returns. When the equity market becomes risk-averse and demands a higher premium for any level of risk then share prices will also fall (Howells & Keith 2000). In final words, it can be said that the market has very little contribution to monetary policy on the actual existing interest rate (Bernanke & Kuttner 2003).

2.4 Relationship of Monetary Policy Instruments with PSX:

A close analysis showed the connection between macroeconomic indicators and the Pakistan Stock Exchange PSX. Several significant macroeconomic variables namely consumer price index CPI, money supply, discount rate, and industrial output were tested by the researcher. Finally, researchers can conclude that industrial production has a direct relationship with stock prices and the inflation rate is conversely proportional to stock prices (Nishat and Shaheen 2004). Study shows macroeconomic variables are co-integrated with stock values in the Index. In diminutive tenure, the study proved a positive association of money supply and interest rate with equity values and a negative association of foreign exchange reserve and inflation with stock prices (Muhammad Akbar and Shahid Ali 2008). The researcher again investigated the Pakistani equity market to identify the association among share exchange and macroeconomic indicators like, exchange rate, money supply, inflation rate, money market rate, gold reserves, gold prices, oil prices and industrial production. And able to reveal that equity proceeds were optimistically pretentious by oil prices, gold prices and gold reserves. Money market rate, industrial production, money supply, and exchange rate have evident a considerable negative association with stock returns (Sulaiman et al.). KSE 100 index during the period of 1991-2008 was investigated to scrutinize the connection between macroeconomic indicators and equity proceeds. The result revealed that in the elongated tenure exchange rate, money supply, industrial production, inflation and 3 months T bills have a positive considerable effect on stock returns, on the contrary, interest rate, found a considerable negative association with the stock exchange (Sohail and Hussain). Another study showed that in the short run, there is an optimistic considerable affiliation between stock returns and money supply, on the other hand, inverse in the long run (Habib Ullah 1996).

2.5: Theoretical Framework/Research Model:



(Fig 1.Ali Farman, Baber Adeel, Sufian saeed 2014)

3. Methodology

This research is both Quantitative and Qualitative. A study was conducted to examine affiliation among stock returns of the KSE 100 index and variables like Discount rate, Cash reserve ratio CRR, and Money supply M2. Data from all the above-mentioned variables were used from the period 2011 to 2021. Monthly data of all variables were taken from different sites and sources. Data of the KSE 100 index return was extracted from the business recorder site. While the data of other variables (inflation rate, money supply M2,) and monetary instruments (discount rate, foreign exchange rate and cash reserve requirement) were taken from different sites such as State bank official sites, trading economics and handbook of statistics on Pakistan economy.

Descriptive statistics were applied to find out the Mean, Median, Mode, and Standard deviation and after that, Correlation and Regression tests were applied to data through SPSS software. Through the correlation method, one can know about the association or relationship of two variables between each other. Correlation results may be positive or negative. Interdependency or association of two variables can be determined by correlation. When changes in one variable occur, the change in the value of other variables may also occur. By Regression analysis, we can find out the effect or impact of one variable on another variable. Regression may be defined as the dependency of one variable on another variable.

4. Data Analysis and Results

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
KSE100Index	130	4840.37	32131.28	1.3033E4	6725.31143
Cash Reserve	132	5.00	9.00	5.6136	1.11648
M2	128	2623.70	10410.80	5.6065E3	2261.19876
Exchange Rate	132	57.29	107.49	78.0299	16.35151
Discount Rate	132	7.50	15.00	10.7273	2.13102
Valid N (listwise)	126				

Table 1 shows the mean and standard deviation of the dependent and all independent variables. The mean value of the cash reserve requirement is 5.6136 and the standard deviation of CRR is 6725.31143 while the average discount rate DR is 10.7273 and the standard deviation is 2.13102.

4.1 Correlation:

In the Correlation matrix Pearson's correlation, (r) value is significant which shows the strong, weaker, negative and positive correlation among variables. The (r) value ranges

from positive to negative Each r value tries to embody the actual correlation value in the population which is ρ. Whenever the r value is larger we are more assured that there is a correlation. The correlation matrix of this study shows the relationship and direction among dependent and independent variables. The independent variable CRR (cash reserve requirement) r-value is -.092, which shows a negative correlation with the KSE 100 index return. It means that if CRR increases in value the dependent variable KSE 100 index decreases due to negative correlation. The second independent variable Money supply M2 r-value is .860, which is a strong positive correlation with the dependent variable KSE 100 index. This means that if Money supply M2 increases in value the dependent variable KSE 100 index increases significantly in value due to a strong positive correlation. The third variable Exchange rate r-value is .703, which also shows a strong and positive correlation with the dependent variable KSE 100 index, and the correlation says if the Exchange rate increases in value the dependent variable KSE 100 index also increases significantly in value due to the strong positive correlation. The final independent variable discount rate r-value is -.086, which shows a negative correlation with the dependent variable KSE 100 index return. It shows that if the Discount rate DR increases in value the dependent variable KSE 100 index decreases due to a negative correlation with KSE 100 index.

Table 2. Correlations

		KSE100Index	**Cash Reserve**	**M2**	**Exchange Rate**	**Discount Rate**
KSE100Index	Pearson Correlation	1	-.092	.860	.703	-.086
	Sig. (2-tailed)		.297	.000	.000	.328
	N	130	130	126	130	130
Cash Reserve	Pearson Correlation	-.092	1	-.369	-.458	-.031
	Sig. (2-tailed)	.297		.000	.000	.720
	N	130	132	128	132	132
M2	Pearson Correlation	.860	-.369	1	.957	.244
	Sig. (2-tailed)	.000	.000		.000	.006
	N	126	128	128	128	128
Exchange Rate	Pearson Correlation	.703	-.458	.957	1	.415
	Sig. (2-tailed)	.000	.000	.000		.000
	N	130	132	128	132	132
Discount Rate	Pearson Correlation	-.086	-.031	.244	.415	1
	Sig. (2-tailed)	.328	.720	.006	.000	
	N	130	132	128	132	132

In the Study discount rate, cash reserve requirement, money supply M2 and exchange rates were independent variables while the KSE 100 index was the dependent variable.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962[a]	.926	.923	1878.66027

a. Predictors: (Constant), Discount Rate, Cash Reserve, M2, Exchange Rate

Model summary (simple Linear Regression Goodness of Fit): This table is very important and shows the measures of how well the overall model fits. R square is the share of inconsistency (variance) in the dependent variable, which can be forecasted from the independent variables. Every independent variable (predictor) explains some inconsistency in the dependent variable by chance when predictors are added to the model. The value of R square is .926 in this research. Therefore, the value of R square after multiplication is 92.6 %. This depicted that 92.6 % of inconsistency (variance) is explained by the variables that are in the Regression equation, which is a very good range. While the remaining 7.4 % variation is caused by the variables not included in the study.

Table 4. ANOVA[b:]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.320E9	4	1.330E9	376.804	.000[a]
	Residual	4.271E8	121	3529364.399		
	Total	5.747E9	125			

a. Predictors: (Constant), Discount Rate, Cash Reserve, M2, Exchange Rate

b. Dependent Variable: KSE100Index

In this study, the F value in the mean square model is (1.330E9) divided by the mean square residual (3529364.399) yield F=376.804 the ρ value associated with this F value is (.000) which is very small and statistically significant. So it can be concluded that the independent variables Discount rate, Cash reserve requirement, exchange rate and money supply M2) are reliably forecast as the dependent variable (KSE 100 index).

Coefficients[a]: Table 5

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	11614.605	2468.795		4.705	.000
	Cash Reserve	938.318	192.756	.154	4.868	.000
	M2	5.123	.332	1.711	15.443	.000

Exchange Rate	-326.128	51.861	-.782	-6.288	.000
Discount Rate	-637.381	109.032	-.202	-5.846	.000

a. Dependent Variable: KSE100Index

The Regression equation.

KSE 100 Index= 11614.605 + 938.318CRR + 5.123M2-326.128ER-637.381DR

This calculation informs the relationship between dependent and independent variables. This calculation signifies the quantity of rise in the KSE 100 index, forecasted by the rise in the independent variables.

Standardized regression coefficients are the coefficients that you would get if the predictors and the resulting variables were standardized before the analysis. Since all of the predictors are standardized, they are calculated in similar units, so the standardized regression coefficients help contrast the dimension of the coefficients crosswise variables. Since the variables are calculated in standard units, a one-unit change matches up to a one-standard deviation change. For the variable Cash reserve requirement, we will conclude that the coefficient by saying for one standard deviation increase in cash reserve ratio i.e. .154 increase in KSE 100 index. Same as it is if one standard deviation increases in money supply M2 i.e. 1.711 increases in KSE 100 index. If one standard deviation increases in the Exchange rate i.e. -.782 decreases in the KSE 100 index and finally if one standard deviation increases in the discount rate, we will expect -.202 decreases in KSE 100 index.

For the null hypothesis, testing t value and two-tailed based on p values. Based on the two-tailed test, each ρ value is compared with the alpha value (which is 0.05). coefficients having ρ value less than or equal to the alpha value are significant and the null hypothesis will be rejected. The last column of Table 5 analyzed that the ρ value of the Cash reserve requirement is .000, which is less than the alpha value, which is statistically significant. The ρ value of money supply M2 is .000 which is also less than the alpha value and shows significance while the third variable Exchange rate's ρ value is again .000 and shows significance. Finally, the variable discount rate's ρ value is .000, which is statistically significant. Based on the values, the hypothesis was rejected and we can conclude that a relationship exists between the KSE 100 index and all independent variables.

5. CONCLUSION

Results showed that changes in all independent variables such as discount rate, exchange rate, money supply M2 and cash reserve requirement impact stock market returns. As result revealed that the KSE 100 index return negatively reacts when the discount rate and Cash reserve requirement CRR increase. While positively and significantly responding when the Exchange rate and Money supply M2 increases. This result tells that for the investors end increase in the Exchange rate and money supply M2 are fruitful because both showed a significant and positive impact on the KSE 100 index return. An increase

in Cash reserve requirement is not fruitful. An increase in Discount rate brings an average impact on stock return. An increase in cash reserve requirement and discount rate is not good for banks because when both these variables are increased banks will have a smaller amount of funds for lending. Conversely, if the discount rate and cash reserve ratio decrease banks will have sufficient funds for lending which results efficient effect on stock prices, which is a very positive and fruitful sign for economic development and investors as well.

5.1 Recommendation:

- It is recommended that before making a decision investors should not only consider the monetary instruments like (discount rate, cash reserve requirement, exchange rate and money supply M2) but also consider some other variables.
- Investors should have sufficient information about changes in monetary policy before making a decision making in a stock market context.
- It is recommended that investors should not place their investment immediately Whenever the State Bank of Pakistan SBP increases the discount rate and Cash reserve requirement CRR because an increase in the discount rate brings a minor decline in KSE 100 index return.

References

Abdalla, I. S.A, Murinde, V.,. "Exchange rate and Stock Price interactions in emerging financial Markets: Evidence on India, Pakistan, Korea and the Philippines." Applied Financial Economics 7 (1997): 25-35.

Ali Farman, Baber Adeel, Sufian saeed. "Impact of monetary policy on stock returns; Evidence from manufacturing sectors of Pakistan." Basic Research Journal of Business Management and Accounts 3(2) (2014): 28-38.

Antoniou, A, I. Garette and R Priestley. "Macroeconomic variables as common persuasive risk factors and the empirical content of the Arbitrage Pricing Theory." Journal of Empirical Finance 5(3) (1998): 221-240.

Arellano, M and S.Bond. "Some tests of specification for panel data: Monte Carlo evidence and an application: Review of economic studies." 58 (1991): 277-297.

Asaolu, T.O, and Ogunmuyiwa, M.S. "An Econometric Analysis of the impact of Macro Economic variables on Stock Market Movement in Nigeria." Asian Journal of Business Management 3(1) (2011): 72-78.

Azeez, A.A and Y. Yonezawa. "Macroeconomic factors and the Arbitrage Pricing Theory in the Japanese stock market: Japan and the world economy." 18 (2006): 568-591.

Bernanke, B and Kuttner N. "What explains the stock markets Reaction to the Federal Reserve Policy." The Journal of Finance LX (2005): 1221-1257.

Bilson, C.M, T.J, Brailsford and V.J Hooper. "Selecting Macroeconomic variables as Explanatory factors of emerging Stock market returns." Pacific-Basin Finance Journal 9 (2001): 401-426.

Bissoon, R., Seetanah, B., Bhattu-Babajee, R., Gopy-Ramdhany, N. and Seetah, K. (2016) Monetary Policy Impact on Stock Return: Evidence from Growing Stock Markets. Theoretical Economics Letters, 6, 1186-1195. doi: 10.4236/tel.2016.65112.

Chancharoenchai, K.,Dibbooglu, S. & Mathur, K. "Stock Returns and the Macro economic Environment prior to the Asian Countries." Emerging Finance and Trade 41 (2005): 38-56.

Chang, Y., Yeung, C., & Yip. "Analysis of the influence of Economic indicators on Stock Pricing using Multiple Regression." Exchange Organizational Behavior Teaching Journal, 2000.

Chen, S. S. "Does Monetary Policy have asymmetric effects on Stock returns?" The Journal of Money, Credit and Banking 39(2/3) (2007): 667-688.

Chu. v, Nguyen. (2019) "Pakistani Broad Money supply and Stock price behaviour." J. Asian Dev. stud 3.

Clare, A.D and S Thomas. "Macroeconomic factors, the APt and the UK stock market." Journal of Business Finance and Accounting 21 (1994): 309-336.

Cozier, B.V., & Rahman, A.H. "Stock returns, Inflation and Real activity in Canada." The Canadian Journal of Economics 21(4) (1988): 759-774.

Darrat, A. F. "Stock returns, Money & Fiscal deficit." The Journal of Financial and Quantitative Analysis 25(3) (1990): 387-398.

Erdogan, E., & Ozlale, U. "Effects of Macroeconomic dynamics on Stock Return; the case of the Turkish Stock Exchange Market." Journal of Economic Corporation 26(2) (2005): 69-90.

Fama, E.F and K.R French. "Common risk factors in the returns on Stocks and Bonds." (Journal of Financial Economics) 33 (1993): 3-56.

Flannery, MJ. and A.A Protopapadakis. "Macroeconomic factors do Influence Aggregate Stock Returns: Review of Financial studies." 15 (2002): 751-782.

Ghosh, S. (2022) Political Intervention and Monetary Transmission: A Theoretical Note. Theoretical Economics Letters, 12, 451-462. doi: 10.4236/tel.2022.122025.

Hasan, A., and Nasir D.Z.M. "Macroeconomic Factors and Equity Prices; An Empirical investigation by using ARDL Approach." The Pakistan Development Review 47(4) (2008): 501-513.

Humpe, A., & Macmillan, P. "Can Macroeconomic Variables explain long term Stock market movements? A Comparison of the US and Japan." Applied Financial Economics 19(2) (2009): 111-119.

Hussain, Z., & Sohail, N. "The Macroeconomic variables and Stock Returns in Pakistan: The case of KSE 100 Index." The International Research Journal of Finance & Economics 8(2011): 66-74.

Hussain. F., and Mahmood. T. "The Stock Market and the Economy of Pakistan." The Pakistan Development Review 40(2) (2001): 107-114.

Ibrahim, M.H. "Macroeconomic variables and stock prices in Malaysia: An empirical analysis." Asian Economic Journal 13(2) (1999): 495-574.

Ihsan, et al. "Relationship of Economic and Financial Variables with Behavior of Stock Returns." Journal of Economic Corporation 28(2) (2007): 1-24.

Kazi, M. H. "Systematic risk factors for Australian Stock Market returns: A Cointegration Analysis." Australian Accounting, Business and Finance Journal 2(4) (2008): 89-101.

Mashayekh, S. Moradkhani, H.H. and Jafri, M. "Impact of Macroeconomic variables on the stock market: The case of Iran." (2nd International Conference on Business and Economics) 2011: 350-361.

Menike, L.M.C.S. "The effects of Macro Economic variables on stock prices in Emerging Sri Lankan Stock Market." Sabaragamuwa University Journal 6(1) (2006): 50-67.

Mishra A. K. "Stock Market and Foreign Exchange Market in India: Are they related?" South Asia Economic Journal 5 (2004): 209-232.

Mohammad, et al. "Impact of Macroeconomic variables on Stock Prices; Empirical Evidence in case of Karachi Stock Exchange KSE." European Journal of Scientific Research 38(1) (2009): 96-103.

Mukherjee, T.K and A. Naka. "Dynamic relations between Macroeconomic variables and the Japanese Stock market: An Application of a Vector Error Correction Model." Journal of Financial Research 18(1) (1995): 223-237.

Ngoc, L.K., & Hussainey, K. "The Impact of Macroeconomic indicators on Vietnam stock Prices." The Journal of Risk Finance 10(4) (2009): 321-332.

Nishat, D.M and Shahenn, R. "Macroeconomic factors and Pakistan Equity Market." The Pakistan Development Review 43(4) (2004): 619-637.

Qayyum Abdul, Saba Anwar. "Impact of Monetary policy on the volatility of stock markets in Pakistan."

Rizwan, M.F., and Khan, S. U. "Stock Return Volatality in Emerging Equity Market (KSE); The relative Effects of Country and Global Factors." International Review of Business Research Papers 3(2) (2007): 362-375.

Ross, S.A. "The Arbitrage Theory of Capital Asset Pricing." Journal of Economics Theory 13 (1976): 341-360.

Saeed, S. 2013 "Macroeconomic Factors and Sectorial indices: A study of Karachi Stock Exchange KSE (Pakistan)." The European Journal of Business And Management 4(17) (2013): 132-152.

Seth, R. and Kalyanaraman, V. (2017) Effect of Financial Development on the Transmission of Monetary Policy. Theoretical Economics Letters, 7, 795-813. doi: 10.4236/tel.2017.74058.

Smith, L.V and T. Yamagata. "Firm-level volatility-Return analysis using dynamic panels." 2009.

Sohail, N and Z Hussain. "The Macroeconomic variables and Stock returns in Pakistan: The case of KSE 100 index." International Journal of Finance and Economics 80(1) (2011): 568-591.

Stavarek, D. "Stock prices and Exchange rates in the EU and USA: Evidence of their Mutual Interactions ." Czech Journal of Economics and Finance 55 (2004).

Sulaiman, D.M, S. Naqvi, I Lal and S. Zehra. "Arbitrage Price Theory (APT) and Karachi Stock Exchange KSE." Asian Social Sciences 8(2) (2012): 253-258.

Yan, N. (2019) Study on the Influence of Monetary Policy on Real Estate Price in China. Journal of Service Science and Management, 12, 152-171. doi: 10.4236/jssm.2019.122011.

Zafar, M. R., & Shah, A. S. (2021). Do mergers and acquisitions significantly impact the performance of banks in the long run? A pre and post-CAMEL study of banking in Pakistan. Amazonia Investiga, 62-72. doi:https://doi.org/10.34069/AI/2021.40.04.7

Zafar, M. R., & Shah, D. S. (2021). Long Run Financial Performance Analysis of Pakistani Banks after Merger and Acquisition in Comparison with the whole Banking Industry. 13(2), pp. 70-93. Karachi: KASBIT Business Journal. Retrieved 2021, from http://kbj.kasbit.edu.pk/Vol13-2/4.pdf