Capturing the stock price movements at Karachi Stock exchange: Are macroeconomic variables relevant?

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Stock market is a greatly important type of financial system of an economy; and development of the stock market plays a vital role in the development of financial system and economy on the whole. This study builds the ARIMA model to identify the relevant macroeconomic variables that cause stock price movements. This study finds a negative and significant impact of inflation and exchange rate on the stock prices and a positive but weak impact of economic growth on the stock prices at Karachi Stock Exchange. The relationship of money supply with stock prices however, was found to be positive but insignificant. This study on the whole confirms the propositions of arbitrage pricing theory. By employing a larger data set, this study provides insight regarding the stock price behavior in response to the macroeconomic variables which could help the investment analysts and policy makers to device their strategies according to the desired outcomes.

Key words: Karachi stock exchange, macroeconomic variables, ARIMA model, arbitrage pricing theory.

INTRODUCTION

The stock market is supposed to play an important role in the economy, in the sense that it mobilizes domestic resources and channels them to productive investments. However, to perform this role, it must have significant relationship with the economy. Capital markets are key elements of a modern market based economic system, as they serve as the channel for flow of long term financial resources from the savers of capital to the borrowers of capital. Hence, efficient capital markets are essential for economic growth and prosperity. With growing globalization of economies, the international capital markets are also becoming increasingly integrated. While such integration is positive for global economic growth, the downside risk is the contagion effect of financial crisis, especially if its origin lies in the bigger markets.

As for the effect of macroeconomic variables such as money supply and interest rate on stock prices, the efficient market hypothesis suggests that competition among the profit-maximizing investors in an efficient market will ensure that all the relevant information currently known about changes in macroeconomic variables are fully reflected in current stock prices, so that investors will not be able to earn abnormal profit through prediction of the future stock market movements (Chong and Koh, 2003). Therefore, since investment advisors would not be able to help investors earn above-average returns consistently, except through access to and employing insider information, a practice generally prohibited and punishable by law, there should be no stock broking industry, if one were to believe the conclusions of the EMH.

Stock market is a critical cog in the wheel that smoothen the transfer of funds for economic growth. Broadly speaking, stock exchanges are expected to accelerate economic growth by increasing liquidity of financial assets and making global risk diversification easier for investors promoting wiser investment decisions. In principle, a well functioning stock market may help the economic growth and development process

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in an economy through growth of savings, efficient allocation of investment resources and alluring of foreign portfolio investment. The stock market encourages saving by providing households having investable funds, an additional financial instrument, which meets their risk preferences land liquidity needs better, in fact provides individuals with relatively liquid means for risk sharing in investment projects (Agrawalla, 2006).

Stock market activity is prone to vary with the macroeconomic fluctuations as these fluctuations directly affect the investor’s sentiment as for how much lucrative would it be to invest in stocks? What if opportunity cost to invest in the stock would surpass its returns? The investor weights all the available options for their attractiveness to make his investment strategy. The earlier work on the stock market activity however, focused mainly on the company specific variables as explanations of the stock price variation. In late 1970’s, Stephen Ross developed arbitrage pricing theory of asset pricing, proposing that expected return of an asset or security could be determined by the macroeconomic factors. With the advent of this theory, the research on the asset pricing focused on the macroeconomic variables as well. The macroeconomic variables which are considered important in this regard are inflation, money supply, industrial production, and exchange rate. Moreover, efficient market hypothesis proposed by Eugene Fama in 1960’s also advocated that stock prices are related to the fundamental macroeconomic indicators. The hypothesis also suggested that the prices at the stock market reflect every piece of substantial information that could affect the stock price in any way including the company specific factors, market factors and economic factors. This theory however, could not withstand, effectively, the criticism on the inefficiencies found by empirical evidence (Shiller, 1981). Yet, the importance of the macroeconomic factors in determination of the stock market activity has been proven by many studies. There is however, lack of evidence with regard to macroeconomic determinants of stock market activity in Karachi Stock Exchange of Pakistan.

Karachi Stock Exchange is the largest stock market of Pakistan which serves as a catalyst for the performance of stock markets around the country. It has been nominated many times as the best performing stock market of the world during the last decade. The puzzle regarding the impact of stock macroeconomic variables on the stock price is still unsolved despite the extensive literature on the topic. This research used the ARIMA modeling to identify the macroeconomic determinants of the stock market activity in the Karachi stock exchange.

This paper is organized as follows: summary of some of the relevant studies regarding the matter under discussion; methodology employed in this research; statistical analysis of the data collected for empirical analysis; and conclusion of the research.

LITERATURE REVIEW

Many studies have been conducted to establish the relationship between stock market activity and the macroeconomic variables. This literature review summarizes some of the important studies in this regard.

Oyama (1997) analyzed the general relationship of macroeconomic variables, that is, money growth rates (M1, M2), inflation, interest rate, exchange rate, commodity price index and US stock market index with stock price using error correction model, multi factor return generating model and revised dividend discount model. The results indicated that, liberalization policies during 1990’s triggered share prices significantly in Zimbabwe. Moreover, error correction model indicated a significant impact of money growth and T-Bill rate on stock returns.

Garcia and Liu (1999) used pooled data for period 1980 to 1995 of fifteen developing and industrial countries to examine the relationship between stock market development, using market capitalization as proxy of stock market development and macroeconomic variables of real income, saving and investment, financial intermediary development, stock market liquidity and macroeconomic stability. Using fixed effect pooled regression, they found that stock market liquidity, financial intermediary development, saving rate, and real income level are significant determinants of stock market capitalization. The research also provides that economic liberalization has a potential to drive stock market development.

Husain and Mahmood (1999) tested the causal relationship between stock returns and money supply in Pakistan. Data with regard to two measures of money supply M1 and M2 and six stock price indices; one general and five of different sectors, was gathered for the time span of June 1991 to June 1999. Co integration analysis and error correction model were estimated to establish the relationships between variables. A long run relationship was found between stock prices and both measure of money supply by means to co integration analysis. Error correction model, on the other hand, did not support the findings of co integration analysis with regard to one measure of money supply, that is, M1. For M2, an unidirectional relationship was found running from M2 towards stock price.

Husain and Mehmod (2001) investigated the phenomenon of the determination of stock price by means of macroeconomic variables of economic activity (GDP), investment spending and consumption expenditure in developing economy of Pakistan taking the years from 1960 to 1999 as study period. They applied co integration analysis and error correction estimation techniques to draw the conclusions empirically. They provided the evidence of a long run relationship between macroeconomic variable and stock
price. Further, one way causation from macroeconomic variables to stock price is also found in this investigation. Another study conducted by the Nishat (2004) examined the long term relationship of macroeconomic variables and stock price. Author used the consumer price index, industrial production index, foreign exchange rate and money supply as instructive variables. Results examined that there is a significant direct relationship between the stock price and economy. Data was taken from the Karachi stock exchange 100 index and price was taken from 1974 to 2004. Granger causality test was used by the author and it was found that industrial production index and inflation has a significant positive impact on the stock price. Moreover, it was also analyzed that interest rate has no significant impact on the stock price. Maysami et al. (2004) on the other hand analyzed the relationship between stock market indices and macroeconomic variables in Singapore. The variables used in this study were interest rate, inflation, exchange rate, money supply and industrial production. The results of error correction model provided the significance of all macroeconomic variables with regard to prediction of the overall stock market index and property index. Variables of money supply and real economic activity on the other hand were not found significant for finance index and hotel index.

A study conducted by Nishat and Shaheen (2004) provided the evidence with regard to the long run equilibrium relationship between Karachi stock exchange index and selected macroeconomic variables. Vector error correction model was employed on quarterly time series data of independent variables that is, money market rate, M1, consumer price index and industrial production index and dependent variable, that is, Karachi stock exchange index. This study found evidence of co integration between all five variables used in this study. Moreover, the most important predictors of the stock price in Karachi Stock Exchange were found to be industrial production index being a positive predictor and inflation being a negative predictor. Only the variable of industrial production is Granger caused by the stock price, except it all the macro economic variables in this study provided the causality support towards stock prices.

Gay (2008) also tried to find out the behavior of the stock price in relation to macroeconomic variables for four major emerging countries of the globe, India, Russia, Brazil and China. OLS model was applied to find out the relationship between the macroeconomic indicators and emerging economies.

Author takes the oil price, exchange rate, and moving average lags values. Results of the study show that these factors are insignificant because of the inefficient market of these economies. It was also concluded that these economies are emerging so domestics’ factors will also influence the outside factors like oil price and exchange rate.

Ali and Ahmed (2008) have established the relationship between the stock price and the economic growth. Authors used the data of KSE-100 index and data taken from 1971 to 2006. DF-GLS test was used by them first time in history. Results explained that there is a direct and significant relationship between the stock price and economic growth.

Shahbaz (2006) conducted the same study with the different model and variables and found some different results. Autoregressive distributed lag (ARDL) model was applied by Shahbaz (2006); and examined that stock price has a direct and significant relationship between the rates of inflation. Moreover, it was found that the stock hedges against the inflation in the long run but scenario is changed in the short run. It was also discussed that black economy affect the stock price in short run as well as in the long run. Data was taken from 1981 to 2006.

Sharma (2007) has worked on the speculation of the market. Author use the rate of interest, industrial production index, exchange rate, money supply and inflation as a descriptive variables. Author use the AR and MA and also remove the non stationary in the model. Results of the study found that the exchange rate, industrial production index and money supply is highly significant and has a direct relation with the stock price. Data was taken from 1986 to 2004 in the particular study.

Dimintrova (2005) worked on the exchange rate and economic policies. Author used the multivariate model in the particular study. It was found that the relation between the exchange rate and economic policy is significant. Interest parity conditions affect the stock price as well.

Ali et al. (2010) studied the impact of macroeconomic variables on the stock exchange prices in Pakistan. Time series data for the period of June 1990 to December 2008 was used for the variables of exchange rate, inflation, index of industrial production, balance of trade and general price index of Karachi stock exchange. They found co integration between variables of industrial production, inflation and stock prices at Karachi stock exchange. Moreover, Granger causality test did not indicated any bi directional causality between the independent and dependent variables.

Briggs (2009) used theory of profit maximization and took different input costs and revenues to see the impact of these factors on the Dow Jones Industrial Average. Proposing that changes in these factors impact the profitability of the firms which ultimately affects the stock price of the firms they conducted regression analysis to establish this premise. The independent variables used for the input costs in this study were real wage growth, real capital cost growth, real energy cost growth, and real transportation growth cost, while real GDP growth was also included in the model as independent variable to
account for revenue side influence on stock price. Moreover, a dummy for recession was also included in the basic regression model. Only dummy for recession showed a significant relationship on the proxy of stock price, that is, the Dow Jones Industrial Average. The results of second model which contained the dummies for different phrases of business cycles provided that real wage growth was significant in recession phrase while the variables of real transportation growth and real energy growth were significant and positive during expansion phrase.

Sohail and Hussain (2009) tried to determine short run and long run relationship between the stock price and macro economic variables for Lahore stock exchange. Data range from December 2002 to June 2008 was used for the analysis. The study found a negative long run relationship of consumer price index with stock price and positive significant relationship between industrial production, real effective exchange rate, money supply with stock price, the relationship of T-Bill rate however was found positive but insignificant. Consumer price index among all other macroeconomic variables was the most important variable with regard to its influence on stock price.

Khan et al. (2011) investigated the impact of macroeconomic variables on stock returns of Karachi stock exchange. The independent variables used in this study were inflation, exchange rate, T-Bill rate, interest rate and money supply. Applying OLS on monthly data from June 2004 to December 2009, they found that interest rate and exchange rate are negative predictors of stock returns, while inflation and T-Bill rate are positive ones. Money supply on the other hand, provided positive but insignificant association with stock returns. Moreover, Johanson co integration test revealed that co integration existed only between stock returns and exchange rate. Apart from this variance decomposition showed that the most important variable with regard to prediction of variation in stock returns was inflation. While interest rate and money supply were found to be the subsequent important variables in this regard.

Another study conducted by Zafar et al. (2011) sought to indentify the relationship between stock returns of Karachi Stock Exchange and money supply. By using the monthly data of the period June2004 to December 2009, they inferred by means of applying Johansen co integration test and pair wise Granger Causality Test that it were stock returns that influence money supply. The money supply, on the other hand was not found to have any impact on stock returns.

Mohammad et al. (2009) provided evidence regarding the impact of macroeconomic variables of exchange rate, foreign exchange reserve, whole sale price index, Industrial production index, money supply and gross fixed capital formation on stock prices in Karachi stock exchange using quarterly data from 1986 to 2008. ARIMA model was used to establish the relationships between dependent and independent variables of this study. This study provided a negative significant relationship of exchange rate and interest rate with stock price. The relation of whole sale price index however, was found positive and significant. Moreover, variables of foreign exchange reserve, industrial production index and money supply were significant at 10% with a negative sign for money supply, while the sign for foreign exchange reserve and industrial production index was positive.

The literature review on the topic provides many microeconomic variables as potential determinants of the stock market activity such as economic growth, money supply, industrial production index, exchange rate, inflation and interest rate; while many studies have used market capitalization as proxy of stock market development.

**METHODOLOGY**

The purpose of this research is to determine the impact of macroeconomic variables on the stock market activity. Time series data of period 1981 to 2009 was collected from world economic indicators database of the World Bank. Time series data exhibits the problem of autocorrelation so we employed ARIMA modeling technique to minimize this problem. ARIMA modeling reduced the problem of autocorrelation by making the dependent variable stationary and then autoregressive and moving average terms were also included in the model to eradicate any remaining trace of autocorrelation from the model. Furthermore, stationary of all independent variables is also ensured by mean of ADF test and differencing the non-stationary time series. Considering past studies in this regard, we considered the macroeconomic variables of money supply, inflation, exchange rate and economic growth as potential determinates of the stock price, while market capitalization has been used as proxy; stock market activity is the dependent variable in the study. The final model used in this study is as follows:

$$\text{MC} = \beta_0 + \beta_1\text{MS} + \beta_2\text{INF} + \beta_3\text{EX} + \beta_4\text{EG} + \beta_5\text{AR} (p) + \beta_6\text{MA} (q) + \epsilon$$

Where:

- **MC** = Market capitalization
- **MS** = Money supply (M2)
- **INF** = Inflation
- **EX** = Exchange rate
- **EG** = Economic growth
- **AR (p)** = Autoregressive term at lag p
- **MA (q)** = Moving average term at lag q

**Building ARIMA**

The first step in building ARIMA is to determine its order of integration of the dependent variable that is making the data stationary. The stationarity of the data is checked by means of augmented Dickey-Fuller (ADF) test; the results are shown in Table 1.

The ADF test indicated that variable of market capitalization is stationary at second difference that is, I (2). So, for ARIMA (p, d, q),
Market capitalization is a measure of the overall value of the investment in the stock market. This measure has been used as proxy of the stock market development as well as stock market activity (Garcia and Liu, 1999). It entails the overall price level of the stock market as it is measured by the market price of the all the listed companies multiplied by total number of outstanding shares. There are other proxies of the stock market price/activity in place, such as, the values of market indices and stock return of the indices (Nishat and Shaheen, 2004). We however, used the market capitalization as the proxy of stock prices/activity as it is a representative of the overall market price/activity levels and is considered more reliable.

Money supply

Money supply is the total amount of money that is in circulation in an economy at a point in time (Khan et al., 2011). The direction of the impact of money supply on the stock prices is not clear although many studies provided evidence of a strong relationship between these two variables (Nishat and Shaheen, 2004). The argument in this regard is that increased money supply increases inflation leading towards a decrease in real discount rate (Fama, 1981), that may also cause people to retain the real cash and boost spending expenses of people thus, people sell their shares and other security and causes decrease in prices of securities. Increased monetary growth and money supply, on the other hand, reduces the interest rate, that in turn reduces the cost of capital of the companies; and thus, profits of the companies are increased, that in turn had a positive impact of the stock price; so the direction of impact of the money supply on the stock price is somewhat undetermined (Mohammad et al., 2009). Friedman and Schwartz (1963) provided that increased liquidity due to money expansion induce the people to buy securities, thus prices of the security may go up due to increase money supply. Mukherjee and Naka (1995) also supported the notion that the direction of the impact of money supply is an empirical question. Some studies like Maysami and Koh (2000), Al – Tamimi (2007), and Ratananapakorn and Sharma (2007) found a positive relationship between the money supply and stock prices; other studies like Famma (1981), Mohammad et al. (2009), and Humpe and Macmillan (2009) found a negative relationship between sock prices and money supply. There is also an indication of insignificant relationship between the variables under consideration (Cooper, 1974; Nozar and Taylor, 1988). Following Mohammad et al. (2009), we also expect a negative relationship between money supply and stock prices. The variable of the money supply is very much important in determination of stock prices. The seminal work on the impact of money supply and stock prices was conducted by Sprinkel (1964) advocating the significance of money supply.
The standard measure of the money supply includes total currency in circulation and demand deposits (Zafar et al., 2011). Some authors used the logarithm of money supply as independent variable in their empirical investigations (Rehman et al., 2009; Sohail and Hussain, 2009). We also took the logarithm for the money supply in this study:

Money supply = \log (M2)

### Inflation

Inflation is a measure of the macroeconomic stability. Consumer price index is one of the most used measures to gauge the inflation of an economy (Atmadja, 2005). Inflation could be defined as the continuous and aggregate increase in the price level of commodities in an economy (Kniest et al., 1998). There is a diverge opinion on the impact of the inflation on the stock prices. Conventional school of thought following Fisherian hypothesis, argues that as the stocks provide a hedge against inflation, so the relationship between two variables should be positive (Yartey, 2008). Other school of thought opine a negative relationship as the increased relationship induce tightening of the monitory policy, that includes an increased risk free rate of interest and consequently, the discount rate in the stock valuation also rise. The effect of this increased discount rate could be neutralized by an increase in the cash flows associated with the security, which generally is not possible as cash flows do not grow at same rate as inflation does, so the demand for the security decline and price also falls down (Maysami et al., 2004). Moreover, the cost of inputs also rises due to inflation and due to pre existing contracts; it is difficult to adjust this cost rise in the short run (DeFina, 1991). Many studies provide evidence of the negative relationship between stock price / returns and inflation (Nelson, 1976; Jaffe and Mandelker, 1976; Fama and Schwert, 1977; Fama, 1981; Chen et al., 1986; Wongbangpo and Sharma, 2002). Some studies on the other hand provided a positive relation as well (Abdullah and Hayworth, 1993). Studies using both firm level and macro economic variables as determinants of stock prices also used the variable of inflation of consumer price index widely as determinant of the stock price (Al – Tamimi, 2007; Javad, 2010, Supavanjan, 2010; Al-Shubiri, 2010). All these studies indicated a negative relationship between stock price and variable of inflation. Moreover, studies conducted in Pakistan also indicated a negative relationship between these two variables (Nishat and Shaheen, 2004; Sohail and Hussain, 2009). There is also an indication of the positive relationship between these variables in Pakistan (Mohammad et al., 2009). Considering the mostly found relationship, we expect a negative relationship between stock price and inflation.

Consumer price index was used as proxy of the inflation for this study as many previous studies have used this measure in their empirical investigations. Thus:

Inflation = Consumer price index.

### Exchange rate

Exchange rate could be defined as the value of one currency in terms of other one (Shapiro, 2002; Khan et al., 2011). Exchange rate could affect the stock prices in several ways. Depreciation in the local currency would lead to the inflation and this would affect the prices negatively (Ajayi and Mouguoue, 1996). Depreciation of the local currency would also lead to the increase in the prices of the imported goods. This would lead towards the decrease in the earnings of the corporation indulged in business of imported goods(Adam and Tweneboah, 2008). Moreover, the constant depreciation in the local currency would induce the foreign investors to demand for an incentive for the depreciation of the local currency. If the foreign investor would not get the incentives, they would withdraw their investment from the stock market of that country and ultimately, the prices of the stocks would suffer. The relationship of the exchange rate and stock prices has been established by many empirical investigations (Solnik, 1987; Mukherjee and Naka, 1995; Johnson and Soenen, 1998; Wongbangpo and Sharma, 2002). Consistent with the preceding proposition, many empirical investigations have found negative impact of exchange rate on the stock prices (Ma and Kao, 1990; Mohammad et al., 2009; Ali et al., 2010; Khan et al., 2011). Sohail and Hussain (2009) on the other hand found a positive relationship between stock price and exchange rate. According to the majority of empirical investigations, we also expect a negative relationship between exchange rate and stock prices.

Consistent with previous studies conducted in Pakistan (Ihsan et al., 2007; Sohail and Hussain, 2009; Mohammad et al., 2009; Khan et al., 2011), the study used Rupees per Dollar exchange rate.

Exchange rate = Exchange rate of Rupees per Dollar

### Economic growth

Economic growth of a country is the overall measure of the economic soundness of a country; and it is very much important in the sense that it accounts for the overall performance of the all the sectors of an economy. Jackson and McIver (2004) stated that economic growth is the increase in the real gross domestic product or real GDP per capita over the long run. The GDP represents the overall output of an economy; more the output would be more the investor would be willing to invest in that economy by means of foreign direct investment in new ventures and investments in the capital market.

Thus the relationship between the economic growth and the stock prices would be positive. Much work has been done on this topic both in terms of impact of economic growth on the stock market development (Singh, 1997; Garcia and Liu, 1999) and on the stock prices (Madhavi and Sohrabian, 1991; Mukherjee and Naka, 1995; Rousseau and Wachtel, 2000; Wongbangpo and Sharma, 2002) as well. This variable has also been widely been used in the studies considering both macroeconomic and company specific variables (Al-Tamimi, 2007; Somoye et al., 2009; Al-Shubiri, 2010; Javad, 2010). All these studies, along with other studies considering only macroeconomic factors (Udegbunam and ErikI, 2001; Ibrahim, 2003; Mukherjee and Naka, 1995; Husain and Mehmoood, 2001; Chaudhuri and Smiles, 2004) found a positive relationship between economic growth and stock price. We also expect a positive relationship between economic growth and stock prices.

Following Briggs (2009) and Javad (2010), this study used GDP growth rate as proxy of economic growth.

Economic growth = GDP growth rate

### Hypothesis

The variable description discussed earlier has discussed the expected relationships of the stock prices and macroeconomic variables. On the basis of that discussion, this study would test the following alternate hypothesis:

• $H_{0}$: There is a negative relationship between stock market capitalization and money supply.

• $H_{1}$: There is a negative relationship between stock market...

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The first variable, that is, money supply, exhibited a positive but insignificant relationship with market capitalization. Thus we reject our first hypothesis $H_{a1}$ which states that there is a negative relationship between money supply and market capitalization. Theoretically, the relationship between these variables is indeterminate as there are theoretical as well as empirical justifications for the both directions of the relationships. Our found relationship is consistent with Maysami and Koh (2000), Al–Tamimi (2007), and Ratanapakorn and Sharma (2007), who found a positive relationship between the variables. The evidence of the positive relationship although is less often found in the empirical studies but it prevails in the literature. The second independent variable inflation was found significant at 5% level of significance with a coefficient of -14076.02. The negative direction of the relationship is as according to our expectations, thus we accept $H_{a2}$ stating that there is a negative relationship between inflation and market capitalization. The negativity of the relationship is the most consistent finding of many studies around the world (Nelson, 1976; Jaffe and Mandelker, 1976; Fama and Schwert, 1977; Sanders and Tress, 1981; Fama, 1981; Chen et al., 1986; Wongbangpo and Sharma, 2002;
Nishat and Shaheen, 2004; Sohail and Hussain, 2009). For third variable exchange rate the hypothesis H_{a3} postulates a negative relationship as well. The results indicated that this variable is also significant at 1% with coefficient value of -49715.12 and an expected negative sign, so we accept H_{a3}. This result is also in accordance with past literature on the topic (Ma and Kao, 1990; Mohammad et al., 2009; Ali et al., 2010; Khan et al., 2011). The last independent variable economic growth showed a positive sign with a weak significance that is, at 10% level of significance. The coefficient value for this variable was found to be 20781.48. The found positive relationship between economic growth and market capitalization leads us to accept last hypothesis of this study that is, H_{a4}. The positive relationship of between these variables is also well justified by theoretical and empirical means in the literature (Udegbunam and Eriki, 2001; Ibrahim 2003; Mukherjee and Naka, 1995; Husain and Mehmoond, 2001; Chaudhuri and Smiles, 2004).

Conclusion

The purpose of this study is to identify the macroeconomic factors that capture the stock price movements in the Karachi stock exchange. Due to time series data, ARIMA model was applied for the empirical estimation. The results indicated that four macroeconomic variables, that is, money supply, inflation, exchange rate and economic growth cause almost 80% movements in the stock price at Karachi Stock Exchange. While money supply was found insignificant, economic growth showed weak significance while inflation and exchange rate were both significant. The direction of relationship was positive for money supply and economic growth and negative for inflation and exchange rate. This study on the whole confirms the propositions of arbitrage pricing theory which states that stock prices could be modeled as a linear function of various macroeconomic variables. The findings of this study are also consistent with the literature on the topic.

This study provides the stock market analysts at Karachi stock exchange with guiding direction with regard to the importance of macroeconomic variables. As the data set employed in this study is quite large and is spanned almost over 50 years. The results provided by this study are quite reliable. This study also provides insight to the policy makers with regard to stock market reaction to the fiscal and monitory policy components. The policy makers may boot the stock market activity at Karachi stock exchange by taking appropriate measures by means of economic policy making.

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