Information Management and Business Review
Vol. 2, No. 6, pp. 267-275, June 2011

A Multifactor Model of Banking Industry Stock Returns: An Emerging Market Perspective

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Abstract: The purpose of this study is to examine the stock returns variation to specific macroeconomic and industry variables by applying multi-factor model. The firms of banking industry were selected for this study on the basis of data availability, profitability and performance on the Karachi Stock Exchange. The data for the selected firms and economic variables obtained for the period of 10 years. Descriptive statistics performed for the temporal properties and GARCH model was used to analyze the risk and return relationship. The tests were applied on the stock returns of each firm and on the data set of the entire industry to generalize the results. The results reveal that market return is largely accounts variation in stock returns, however the inclusion of other economic variables has added to the explanatory power of the model. It is also found that industry stock returns are more responsive to changes in economic conditions than firm level stock returns.

Key Words: *Stock Market, Stock Returns, Macroeconomic Variables, Banking Industry, Multifactor Model*

1. Introduction

There is a long history about the determinants of stock returns in the empirical capital market research literature. The literature suggests that different variables are potentially important in explaining the variations in stock returns. In addition to the traditional equilibrium based model, a number of multi-factor asset pricing models have been developed. These models are based on the assumption that the stock returns are generated by a limited number of economic variables or factors (Opfer and Bessler, 2004). These factors include market return as well as other various factors, which are grouped into industry-wide factors and economic factors. Two theories are very important in explaining the stock returns variation, one is called Capital Asset Pricing Model (CAPM) and the other is known as Arbitrage Pricing Theory (APT). CAPM has come under increasing scrutiny due to its inability to explain fully the pricing of risky assets in recent years. A well known alternative to a single risk based models is the multifactor approach. A multifactor model can be either from an arbitrage pricing theory (APT) or from a multi-beta CAPM perspective. Theses models attempt to answer the questions whether the market return is the only factor that explains stock returns variations and the question then is: what extra-market factors should be considered as likely candidates when investigating stock returns volatility?

One way of further investigating this phenomenon is to take an industry- based perspective, that is, to examine separately key industries within the economic sector. One such case is that of the mining sector by Ball and Brown (1980) who find that mining stocks in the Australian equity market exhibited anomalous stock return behavior. Specifically, they find that mining companies are considerably riskier than industrial companies without earning a commensurate risk premium. Faff and Chan (1998) apply a multifactor model consists of the market factor, gold prices, interest rates and exchange rates on stock returns of Australian gold industry over the period of 1979 to 1992. They find that market factor and gold prices are the factors that explain significant variations in stock returns. Recently there is a realization about the importance of using conditional means and variance in financial data in econometric analysis of financial markets. Since risk-averse investors need to forecast asset returns and their volatility over the period of investment. Merton (1980) argues that researchers should consider heteroskedasticity when forecasting expected returns. Literature shows that the class of generalized Auto Regressive Conditional Heteroscedasticity (GARCH) models (Bollerslev, 1986, 1990) successfully captures asset returns and volatility by allowing the means of asset returns to depend on their time-varying variance as well as other contributory factors.

Pakistan economy has been one of the leading economies in the world in terms of its growth rate during the last decade. There are number of factors that have contributed towards this rapid growth. The more liberal policies of the government, not only has amplified the investment within the country, the inflow of foreign investment has gone up manifold in recent years. Pakistani industries and stock market have become a rewarding place for domestic and foreign investors and it is flourishing very rapidly in recent times. For a little over a decade now, the Pakistani stock market has been undergoing a profound transformation, the steps taken by the policymakers have helped in building up the confidence of local and foreign investors and stock market has shown outstanding performance and huge trading activities in recent years. The Karachi Stock Exchange (KSE) is the largest and leading exchange of the country. The KSE 100 Index which was mere 1,000 points in late 90s now has jumped over 12,000 points in year 2008. Similarly economy has also shown positive growth as economic indicators have grown up during the period under study because of some earnest steps taken by the government. These include improvement in the economic fundamentals, stability in the exchange rate, reduction in interest rates by banks, payment of the expensive foreign loans, large scale mergers and acquisitions, increase in Pakistan's coverage by large international brokerage firms and investment banks. The policies on privatization, liberalization and deregulation have encouraged private investments which also has a profound effect on the economic activities in the country. Corporate earnings and growth opportunities, particularly in the telecommunication, banking and financial sectors, have been excellent, prompting foreign investors to extend their activities in these sectors (Economic Survey of Pakistan, 2003-2008).

The services sector has provided the much needed support for maintaining a relatively high growth rate for the economy. The financial sector has performed exceptionally that has helped the economy to remain closer to higher growth track. In Pakistan there is a remarkable progress in improving the health and soundness of the financial sector over the last decade. During that period of transformation, the financial sector of Pakistan has evolved into a more progressive and dynamic module of the economy, both in response to the financial sector reforms and to the growing financing needs of an expanding economy. The growth in real and financial sector of the economy has raised different macroeconomic indicators over the period, like consistent inflationary pressure, growth in money supply and increase in industrial production. There is historical turnaround in Pakistani stock market during that period which has performed remarkably well. This is an implicated situation for the researchers and academicians inviting them to investigate the inference of economic growth in the stock market development. More specifically the interrelationship of economic variables and stock market performance should be analyzed to devise an improved economic policy to sustain the economic growth in the country. This study is a step forward in this direction and provides a measurement of stock returns variation caused by various economic factors at firm and industry level. The outcomes of this study can be useful to understand the interplay of economic variables and stock returns variation.

2. Literature Review

Stock returns are highly sensitive to both fundamentals and expectations. Studies have shown that as a result of financial deregulation, the stock market becomes more receptive to domestic and external factors. The external factors affecting the stock return would be stock prices in the world economy, price controls, political events, inflation, interest rate and the exchange rate etc. The internal factors can be a type of investment vehicle, quality of management, type of financing etc. Capital Asset Pricing Model (CAPM) was a basic technique used to determine risk and return related to a particular security. The single index model was developed by Sharpe (1963). This was the main feature as well as the basic limitation of this model that it was using only the market return as a single factor to determine security return. This problem had led to alternative model to explain the stock returns variation called the Arbitrage Pricing Theory (APT). The Arbitrage Pricing Theory was emerged as an alternative to CAPM, based on a much lesser number of assumptions about the stock market character as compared to CAPM. Multi-factor asset pricing models were generally based on the assumption that stock returns were influenced directly or indirectly by a number of different economic factors. Chen et al. (1986) applied an APT model to test the significance of various factors in explaining security returns. The results specified that the following factors were significant in explaining the variability of a security return: spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between returns on high- and low-grade bonds. Pari and Chen

(1984) conducted a study on 2090 firms for the period 1975 to 1980 using APT model and their findings suggested that price volatility of energy, interest rate risk and market index had an influence over stock returns.

A study was conducted in Canada investigating the relationship of stock returns, inflation and real activity. The findings suggested that there was an inverse relation between real stock returns and inflation in Canada (Cozier and Rahman, 1988). Dwyer and Hafer (1990) determined the impact of a variety of domestic and external economic factors like interest rate, industrial production and exchange rate, on stock prices in five industrial countries using monthly data from 1973-87. The findings of the study suggested that domestic interest rate was the only variable that was consistently significant to stock prices. Luehrman (1991) evaluated the impact of exchange rate changes on the values of two industries i.e., automobile and steel industries. He found that the depreciation of home currency causing adverse effect on the value of both industries. Sill (1995) recognized that U.S. stock market excess returns were significantly explained by the factors like industrial production, Treasury bill rates and inflation. Similarly Madura and Zarruk (1995) examined the sensitivity of banks stock returns to interest rate movements. Their sample was consisted of 29 banks of British, Canada, Japan, German and U.S. and data period was from Jan 1988 to Apr 1993. They found that interest rate risk varied among countries, which they partly attributed to difference in country specific bank regulations and managerial traditions. Whereas Bae and Duvall (1996) applied a multi-factor CAPM by using selected economic and industry variables which provided additional power in explaining the variability of U.S. Aerospace stock returns over a single factor model using the market index alone. Several other studies also confirmed that factors other than the market do explain the variability of stock returns that was multi-factor model and it was a better tool in explaining the variability of stock returns.

Errunza and Hogan (1998) documented the macroeconomic determinants of European stock market volatility. They found that the time variation in the stock market volatility was significantly affected by the past variability of either monetary or real macroeconomic factors. Similarly, Mei and Hu (2000) developed a multifactor model to examine the time variation of real estate stock returns of some Asian countries and the USA. Short term interest rates, spread between long and short run interest rates, changes in the exchange rates with the dollar and the dividend yield on the market portfolio were the macroeconomic variables included in the study. The study concluded that the risk premium of Asian property stocks varied considerably and significantly affected by macroeconomic risk factors. Ibrahim (1999) investigated the dynamic relationship between seven macroeconomic variables (real industrial production index, consumer price index, the domestic credit aggregates, the official reserves, exchange rate and money supply variables M1 and M2) and stock prices of an emerging market, Malaysia. The results suggested co-integration between the stock prices and three macroeconomic variables-consumer price index, credit aggregates and official reserves. Fang and Miller (2002) applied a bivariate GARCH-M model to investigate empirically the effects of daily currency depreciation on the stock market returns for five newly emerging East Asian stock markets during the Asian financial crisis. The results showed that the conditional variances of stock market returns and depreciation rates exhibited time-varying characteristics for all countries. Domestic currency depreciation and its uncertainty adversely affected stock market returns across countries.

To investigate the influence of exchange rate and interest rate changes on stock returns was an important contribution towards capital market research as Joseph (2002) studied the impact of foreign exchange rate and interest rate changes on UK firms in the chemical, electrical, engineering and pharmaceutical industries for the period of 1988 to 2000. The results showed that industry returns were more negatively affected by interest rate changes than by foreign exchange rate changes. Additionally, the results at the portfolio-level were generally similar with those based on the firm-level analysis, except that the short term foreign exchange rate impact was very weak at the portfolio level. Overall, the results at the individual firm level implied that the impact of foreign exchange rate and interest rate changes had adverse effects on stock returns. Grambovas (2003) observed the interaction between exchange rate fluctuations and stock prices of Greece, Czech Republic and Hungary. The results exhibited a strong relationship between exchange rate and equity prices in Greece and Hungary. Simpson and Evans (2003) investigated the relationships between Australian banking stock returns and key economic variables of monetary policy like exchange rate and short and long-term interest rates. They used the monthly data for the stock returns, exchange rates and interest rates for the period-January 1994 to February 2002. The study found that there was no co-integration of

Australia's bank stock market returns with short and long-term interest rates and exchange rates over the period of study.

Similarly Ibrahim and Aziz (2003) analyzed the dynamic relationship between stock prices and four macroeconomic variables (Consumer Price Index, Industrial Production, Money Supply (M2) and Exchange Rate). The results of the study suggested the long run relationship between these variables and stock prices, particularly positive short run and long run relationship between the stock prices and consumer price index and industrial production. However exchange rate was negatively associated with stock prices and money supply M2 had an immediate positive liquidity effects and negative long run effects of money supply expansion on stock prices. Liow (2004) examined the time variation of Singapore real estate excess stock returns by using five macroeconomic factors. He found that the expected risk premium on real estate stock were both time varying and related to time varying conditional volatilities of these macroeconomic variables. Joseph and Vezos (2006) investigated the impact of interest rates and foreign exchange rates changes on US bank's stock returns. The study employed an EGARCH model to account for the ARCH effects in daily returns instead of standard OLS estimation methods with the result that the presence of ARCH effects would had affected estimation efficiency. The results suggested that the market return accounted for most of the variation in stock returns at both the individual bank and portfolio levels; and the degree of the sensitivity of the stock returns to interest rate and exchange rate changes was not very pronounced despite the use of high frequency data. Whereas Liow et al. (2006) employed a GARCH (1,1) estimate to analyze the relationship between property stock market returns and some macroeconomic risk factors such as GDP Growth, unexpected inflation, industrial production growth, money supply, exchange rate and interest rate for some markets namely Singapore, Japan, Hong Kong and UK. They found that the expected risk premium and the conditional volatilities of the risk premium on property stocks were time varying and dynamically linked to the conditional volatilities of the macroeconomic risk factors.

Hyde (2007) conducted a study at the industry level to investigate the sensitivity of stock returns to market, exchange rate and interest rate shocks in France, Germany, Italy, and the UK. While the market exposure was the most significant factor; the study found that significant levels of exposure to exchange rate risk in industries in all four markets. Interest rate risk was significant only in Germany and France. Butt et al. (2010) and Butt and Rehman (2010) studied the impact of macroeconomic variables on stock returns of Pakistani industries. The results reveal that market return was largely responsible for the stock returns variation; however the inclusion of other macroeconomic variables added explanatory power in describing the stock returns variation. This study contributes to existing literature by analyzing the impact of economic variables on stock returns of banking industry using GARCH model in an emerging Asian market. Therefore it is important to find out whether stock returns in Pakistan respond similarly or differently to economic variables.

3. Method

Data: The 15 firms related to banking Industry selected for this study are the top performers at KSE 100 index. The economic variables include Market Index (KSE 100 Index), Consumer Price Index (CPI), Risk Free Rate of Return (RFR), Exchange Rate (Ex Rate), Industrial Production Index (IPI), Money Supply (M2) and Banking Spread (BS). KSE 100 Index is the measure of market return; CPI is a measure of inflation, RFR represent the yield on 6 month Treasury bills and a measure of interest rate and the Rupees/dollar exchange rate as a measure of the foreign exchange rate. Industrial Production Index is the measure of real output in the country, Money supply to the economy is measured by M2 and banking spread (BS) is industry specific variable (The difference between lending and depositing rate). The data for each of the firms' closing monthly stock prices and the KSE 100 index was obtained from the websites of Karachi Stock exchange and Business Recorder. The data for economic variables was obtained from Federal Bureau of Statistics, State Bank of Pakistan and various editions of Economic Survey of Pakistan. Banking Industry consisted of private and privatized banks (formerly nationalized). The data for the firms was taken for the period of 120 months i.e., from Jul 1998 to Jun 2008 as the data for most of the firms was not available before 1998 because most of the banks either established or privatized and subsequently enlisted at Karachi Stock Exchange after that date. So including data before Jul 1998 would not been feasible and therefore, the whole research was reduced to a maximum period of 120 months. The data for all variables was monthly. The studies like Ibrahim (1999),

Patra and Poshakwale (2006) and Liow et al. (2006) used monthly returns to capture long-term movements in volatility, to avoid the effects of settlement and clearing delays which were known to significantly affect returns over shorter sampling intervals and to avoid spurious correlation problem. Moreover, the choice of monthly data was constrained by the fact that the most of the economic variables under study were available at monthly intervals.

Procedure: Monthly returns were calculated for all variables in order to find out the effect of economic variables on stock returns instead of stock prices. This also helped in eliminating the problems related to non stationary variables. The returns were calculated as the logarithmic difference between the two consecutive prices. The industry returns were also calculated as an equally weighted average of the returns of the all firms of each industry. The model, which was used, consisted of monthly observations of seven independent variables. The independent variables were described in some details below along with the Multifactor Model to be tested.

$K_{it} = b_0 + b_1 KSE_t + b_2 CPI_t + b_3 RFR_t + b_4 IP_t + b_5 ExR_t + b_6 M2_t + b_7 BS_t + e_{it}$----- (1)

The dependent variable K_{it} represents the monthly stock returns of the firm i, for month t. The b_i measures the sensitivity of industry stock returns to each independent variable. There were seven independent variables, which were to be tested. Six of them were macro economic variables, Market Return (KSE), change in Consumer Price Index (CPI), Risk Free Rate of Return (RFR), growth in Industrial Production (IP), change in Exchange Rate (ExR), growth in Money Supply (M2) and the BS was industry specific variable.

Statistical Tests: The analytical framework in this study, to examine the relationship between stock returns and economic variables was the Arbitrage Pricing Theory (APT). The analytical framework was directed theoretically by a multifactor model implied under APT. The selection of variables for multifactor model in this study was based on the evidence available in the empirical literature that seemed to identify market return, inflation, interest rate, money supply, exchange rate and industrial production as some of the principal determinants of stock market returns. Before examining the interplay between stock returns and macroeconomic variables, the stochastic properties of the data were investigated. As a first step descriptive analyses were performed to find out the temporal properties of the data. In the second stage variables were tested for unit root to establish the order of integration by employing Augmented Dickey Fuller Statistics developed by Dickey and Fuller (1979). ADF test was applied on all variables at their return. Once the order of integration was established for each variable, the next step was to evaluate the impact of economic variables on stock returns. The financial literature suggested that the stock returns and economic time series exhibited conditional heteroskedasticity and that a GARCH specification was appropriate for capturing the presence of time-varying volatility. After creating a multi index model, GARCH technique was used to determine which of the independent variables had a significant impact on the dependent variable i.e., stock return. Analyses were carried out separately by using stock returns of each of the firms' returns as the dependent variable. Moreover multi-index model was also tested by taking industry return as a dependent variable.

4. Results and Discussion

This section describes the results of the analytical process applied in this study. Results of the study are discussed in the light of previous studies to draw practical implications on the basis of risk and return relationship ascertained.

Results: The descriptive statistics of macroeconomic variables indicate that ΔCPI, ΔExRate and ΔM2 variables are positively skewed, whereas ΔKSE, ΔRFR ΔIPI and ΔBS series are negatively skewed but all with higher than normal kurtosis i.e. these series are leptokurtic. The values also show that ΔBank of Punjab, ΔPrime Bank, ΔUnion Bank, ΔMy Bank, ΔMeezan Bank, ΔKASB Bank, ΔPICIC Bank and ΔSaudiPak Bank variables are positively skewed whereas ΔAskari Bank, ΔBank Al Habib, ΔFaysal Bank, ΔMCB Bank, ΔMetropolitan Bank, ΔSoneri Bank, ΔNational Bank and ΔIndustry series are negatively skewed but all series are leptokurtic with higher than normal kurtosis. The results show that the values of skewness and kurtosis for all series are not significantly different from zero and 3 hence data series are not seriously departing from normality. The results of ADF test for unit root relating to all variables indicate that t-statistics for all data series are significantly less than 5% critical values ($p<.05$), rejecting the null hypothesis of unit root, therefore all the series are stationary.

Table-1 Results of GARCH Model: Banking Industry

Dependent Variable	Constant	KSE	CPI	RFR	IPI	ExRate	M2	BS	ARCH	GARCH	R^2	F-Stat	p-value
ΔAskari Bank	0.0124	**0.8134***	-1.9732	0.1555	-0.0273	-0.8993	-0.3774	0.1302	**-0.0858***	**0.9484***	0.4058	7.4455	0.0000
ΔBank of Punjab	0.0312	**1.7404***	**-5.7007***	**0.2845****	-0.0919	0.6373	**-2.1835***	0.1012	**0.1826****	**0.7800***	0.4787	10.0084	0.0000
ΔBank Al Habib	0.0231	**0.4409***	**-3.6068***	0.0616	-0.0494	-1.0076	-0.3991	0.1469	0.0452	0.1681	0.2373	3.3905	0.0007
ΔFaysal Bank	-0.0004	**0.8975***	-2.0008	0.0767	0.0622	-0.5657	0.3336	0.0177	0.0791	**0.6494***	0.5469	13.1565	0.0000
ΔMCB Bank	0.0021	**1.2736***	-0.2172	**0.1713***	-0.0109	1.1040	-0.4308	0.0878	0.2429	0.1316	0.6389	19.2854	0.0000
ΔMetropolitan Bank	0.0271	**0.4336***	**-3.8595***	0.1298	-0.0326	-0.1942	-0.3660	0.0509	-0.0374	**0.8941***	0.1828	2.4382	0.0115
ΔPrime Bank	0.0106	**0.9016***	**-2.7053****	0.1143	-0.0758	-0.2280	-0.3480	0.1530	-0.0305	**0.9452***	0.3795	6.6653	0.0000
ΔSoneri Bank	-0.0050	**0.7483***	-1.7767	0.0578	-0.0610	-0.4097	0.3172	0.0293	**0.1739****	**0.6875***	0.3200	5.1298	0.0000
ΔUnion Bank	0.0045	**0.9464***	**-3.5863****	0.0578	-0.0840	0.7749	-0.2330	0.0887	0.0134	**0.9103***	0.2995	4.6601	0.0000
ΔMy Bank	0.0200	**0.4593***	-1.5276	-0.0888	0.0308	-0.8193	-0.2065	-0.0713	**-0.1154***	**1.0675***	0.1839	1.6445	0.1111
ΔMeezan Bank	0.0118	**0.4488***	-1.8180	0.0260	-0.1685	-0.1904	0.2406	-0.0044	**-0.0557***	0.5615	0.2246	2.1140	0.0338
ΔKASB Bank	0.0148	**0.4723***	-0.5999	-0.1305	-0.0782	1.5602	**-1.2077***	0.0511	**1.0150***	-0.0023	0.1625	1.4161	0.1904
ΔNational Bank	0.0292	**1.3372***	**-2.4726***	**0.3083***	-0.0219	-0.8665	**-1.6588***	-0.0600	-0.0758	**1.0824***	0.5754	9.8940	0.0000
ΔPICIC Bank	-0.0215	**0.9051***	1.9790	-0.1600	-0.1276	0.6731	0.1726	0.0527	-0.0784	**1.0660***	0.3239	3.4972	0.0008
ΔSaudiPak Bank	0.0196	**0.6518***	-1.3899	-0.1689	**-0.2479***	-1.9054	-0.3293	0.1247	0.2586	0.3800	0.2602	2.5679	0.0102
ΔIndustry	0.0178	**0.8479***	**-2.7864***	0.0646	-0.0690	-0.2161	-0.4874	0.0695	**-0.0724***	**1.0513***	0.6278	18.3862	0.0000

** Significant at the 0.1 level, * Significant at the 0.05 level

The stock market performance of Banking Industry is analyzed by applying GARCH model at the firm and industry level. The results demonstrate similar response of stock returns at firm and industry level since almost all models are significant ($p<.05$) except for My Bank and KASB Bank ($p>.05$). However industry stock returns display greater exposure (Higher values of R^2 and F-Statistics) to economic variables than most of the firm level returns. Moreover, National/privatized banks like Bank of Punjab, MCB Bank and National Bank stock returns are more sensitive (greater values of R^2 and F-Statistics) to changes in economic conditions than most of the private banks. GARCH term is statistically significant ($p<.05$) whereas ARCH term is insignificant ($p>.05$) for most of the firms; this indicates that stock returns of Banking Industry show time varying characteristics more in terms of lag variances and less in terms of lag of the squared residuals. Market Return is the only variable significant ($p<.05$) and positively related to stock returns of all the firms which is the clear indication of the influence of market return on firms and industry stock returns. Industrial Production Index, Exchange Rate and Money Supply variables are insignificant ($p>.05$) and negatively related to stock returns whereas Risk Free Rate and Banking Spread are positively related to stock returns though the impact is insignificant. Consumer Price Index is negatively related to stock returns of the firms but the impact is statistically significant in some of the models. The results reveal that rising inflation, growing industrial production, declining value of Pak Rupees against US$ and greater money supply contribute negatively where as growth in Market Return, increase in Risk Free Rate and augmentation in Banking Spread contribute positively to stock returns of Banking Industry.

Discussion: The relationship between stock returns and economic variables is analyzed at the firm and industry level. The results of GARCH model demonstrate similar response of stock returns at firm and industry level, since almost all models have produced significant results. However, industry stock returns have displayed greater exposure to economic variables than firm level stock returns. It is also evident from the values of R^2 and F-statistics that stock returns of national/privatized banks are more responsive to changes in economic variables than private banks. GARCH term is statistically significant for most of the

firms; this demonstrates the time varying characteristics of stock returns volatility of different firms in the industry. Therefore conditional volatility of stock returns is a function of lag variances. The time varying characteristics of conditional volatilities of stock returns was early documented by Liow (2004) and Liow et al (2006). Market Return is the only variable significant and positively related to stock returns in all models. This suggests that the market return accounts for most of the variation in stock returns both at the firm and industry level and growth in market return positively influence the stock returns. Faff and Chan (1998), Joseph and Vezos (2006), Hyde (2007) and Butt et al. (2010) found that market return accounted for most of the variation in stock returns.

Consumer Price Index is insignificant and negatively related to stock returns of most of the firms. This suggests that rising inflation in the country adversely affects the stock returns of most of the firms. The findings of the studies conducted by Cozier and Rahman (1988), Ibrahim (1999) and Spyrou (2001) also found an inverse relation between inflation and stock returns. Risk Free Rate is used in this study as a measure of interest rate. The results describe that Risk Free Rate is positively related to stock returns of most of the firms though the impact is insignificant. So, increase in T-bill rates (interest rates) in the country positively influences the stock returns. Whereas Madura and Zarruk (1995) and Joseph (2002) studied the interest rate sensitivity of stock returns and the results described that stock returns were negatively affected by interest rate changes. The different response of banking industry stock returns to changes in interest rates as compared to earlier studies can be attributed to nature of industry since increase in interest rates can contribute positively to the income of Banking Industry. Although market return accounts for most of the variation in stock returns which is evident from the results of this study, however, inclusion of other macroeconomic and industry related variables has added additional explanatory power in explaining the stock returns variation. Most of the models produced significant results which is an indication of the fitness of the models. The response of stock returns to changes in economic variables other than the market return is different across the firms and is significant in many models. The usefulness of the multifactor model was early documented by Pari and Chen (1984), Chen et al. (1986), Bae and Duvall (1996), Faff and Chan (1998) and Butt and Rehman (2010).

5. Conclusion and Recommendations

Conclusion: The results of the study provide some insight about the relationship of economic factors and stock returns and the pattern of the behavior of stock returns at the firm and industry level. On the basis of the above results and discussion following conclusion can be drawn:

The stock returns response to economic forces is almost similar at the firm and industry level. However, industry stock return has more pronounced variation against economic variables than firm level stock returns. The conditional volatility of stock returns is a function of lag variances. It is also concluded that market return is the most significant and positively related variable to stock returns and it accounts for most of the variation in stock returns both at the individual firm and industry level. Other independent variables are significant to stock returns occasionally; the lack of a significant relationship of the variables other than market return can be attributed to the fact that KSE follows a random walk. On the basis of results it is concluded that rising inflation in the country adversely affecting the stock returns. Risk Free Rate is positively related to stock returns of most of the firms. So, increase in interest rates in the country is positively influencing the sock returns of banking firms. The results also conclude that increasing banking spread contributes positively to the stock returns both at the firm and industry level. Industrial Production Index maintains negative and insignificant relation to stock returns largely; the negative relationship between stock returns and real output depicts that investment diverts from the stock market to real activity as a result of its expansion in the economy. Exchange Rate is insignificant but negatively related to stock returns of most of the firms, the depreciation of Pak Rupees against the US$ cause adverse effect on stock returns. The results also substantiate that although market exposure is the most significant factor to stock returns, the inclusion of other macroeconomic and industry related variables has added additional explanatory power in describing the stock returns variation of Banking Industry. The significant results are an indication of the fitness of the models and provide justification for the inclusion of independent variables in the study. The nature and intensity of the relationship between stock returns and economic variables other than the market return is

different across the firms and is significant in many cases. This also documents the usefulness of the multifactor model as compared to a single index model.

Recommendations and Future Implications: On the basis of the results and subsequent conclusions, following are some of the recommendations for the stakeholders of the capital market in Pakistan and some suggestions for the further research in this area. Although stock returns are predominantly influenced by market returns at KSE, however other economic factors have also shown some significance at the firm and industry level so both individual and institutional investors must consider these economic indicators while investing at KSE. The value of Pak Rs. against US Dollar is consistently declining over the period which adversely affects stock returns. Therefore measures should be taken to stabilize the currency of the country. It will be a confidence building measure for the investors and will help them to make better decisions based on some accurate forecasting of financial assertions. Interest rate is an essential device available to Govt to intervene in the financial system of the country. Though, rising interest rates in the country contribute positively towards stock returns of Banking Industry, it can result in higher cost of debt for investors. Which can limit the investment expansion; therefore, therefore, maintenance of an appropriate rate of interest in the country will help and motivate investors to grab investment opportunities. Escalating inflation in the country not only affects the stock returns; it also results in higher consumption and lower savings among the individuals. The mounting prices of essentials in the country deter availability of resources for investment purposes. The stability of prices is required to encourage individual and institutional investors and to provide them a conducive environment for the investment.

The inclusion of banking spread in multifactor model as a measure of industry variable has not produced significant results. In future some other industry related factors like measures of profitability, liquidity and cost of raw material etc. can be considered. The nature and intensity of the relationship between economic factors and stock returns is tested through GARCH model that has produced significant results. The model is able to explain variation in stock returns, however some other techniques can be considered for further investigation of stock returns volatility. The study tests multifactor model at the firm and industry level by taking 15 firms from one sector of the economy and imparts a new avenue for the researchers, the work can be extended by considering other sectors. The model of this study comprises of 6 macroeconomic variables and one industry related variable. This list can be further enhanced by using the data of certain economic indicators, which are yet not easy available.

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