Empirical Analysis of Investors Sentiments of KSE Stocks; the role of volatility in the investor sentiments in the Stock Market: A Case of Karachi Stock Exchange

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Abstract

Objective Financial models and theories portray the frame work for an individual investor regarding the investment. As the behavioural finance and its modelling with the conventional financial modelling are the emerging problems for the researchers that how they link the two different avenues that make possible for the investor to reduce the risk and maximize the return.

Design/methodology/approach-This study is based on to find the instigations which plays a key role of investment process in the financial market and we use the closing price, firm volatility, industrial volatility, market volatility and firm capital, for achieving this end we uses the CLMX approach by bifurcating the total stock return and their associated volatilities into three components namely, firm, and industry and market volatility and study the common stock market regarding investors sentiments. We can consider these factors as a key determinant of investment which compels an investor to invest in Pakistani stock market.

Findings-This empirical study verifies that the idiosyncratic risk can be bifurcated to three sub components again and these components have the impact on the investor's sentiments but this study concludes that in KSE the investors' sentiments are directly effect by the firm volatility only. This clearly indicates that the investors give the more weight age to the firm risk regardless to the industrial or market risk so the major contribution in the risk factor is the firm associated risk and its return in the form of dividends or capital gain. While the investors do not give the proper weight age to industrial and market risk as they only focus the market share of the company.

Keywords: CLMX model, investor's sentiments

Introduction

Financial models and theories put forward policies and strategies for an individual investor regarding his/her investment decision. These strategies are used to maximize the returns that depended upon preferences and constraints. For the last three decades, research in the financial investment find new avenues by including the psychologists to study the behavior of different investors. Behavioral finance modeling together with the conventional financial modeling link the two different avenues for the investor to reduce the risk and maximize

the return. As behavior varies from individual to individual and may not be consistent, for that reason there has been a great lacking of empirical evidence to confine/restrict sentiment and measure explicit sentiments.

With the advent of the electronic media especially internet/intranet, the prices of stock have shown tremendous upward and downward trends. In the late 1990s, the investor sentiments were in peak and then dramatic decline in the prices of different stocks and security triggered various stock market crashes in different time period. Conventional financial models are unable to explain sudden fluctuations in the prices. These standard financial models measure sudden fluctuations according to their own framework and constrains. Behavioral finance gives the appropriate weight of investor sentiment in financial market. In behavioral finance investor sentiment means expectation about future price of security, which is not augmented by fundamental (Glaeser, Kallal, Scheinkman, & Shleifer, 1991).

Black (1986) found that investor's sentiments play a negative role in the sense that a security is not traded at its fundamental values. According to De Long, Shleifer, Summers and Waldmann (1990), the price of the security is set by the sentiments and sentiment free investors competition in the stock market. They further stated that the prices of securities of those firms, having tangible assets, stable dividends payout ratio and long profit earning history, are not affected by the investor sentiments. According, bullish and bearish market set a roadmap for decision makers.

In a well-diversified portfolio, idiosyncratic volatility has a negligible role in the stock price determination, while the other volatilities such as firm's specific can be tackled. The systematic risk or market volatility has a major role in the fluctuations of the return and investors sentiments towards investments (Rubinstein, 2002). Beside low idiosyncratic volatility in a well-diversified stock portfolio, shareholders analyze to appreciate the cash circulation or perhaps high risk personal assets not necessarily on the stand-alone risk, even so the factor regarding risk assets properly diversified stock portfolio. Nevertheless, it is commonly accepted that this income risk has to be paid out with a greater return. Keeping consistent with this particular reality quite a few types of resource charges have been planned that claim to explain in addition to anticipate the chance in addition to returning buy and sell off.

The type of diversification and its associated cost, Capital Asset Pricing Model (CAPM) and its variants helps shareholders to examine high risk assets and therefore get there to its right returning (Ippolito, 1989;Maharaj, Galagedera, & Dark, 2011). Your style forms around the stock portfolio principle in addition to forecasts that all shareholders retain the current market stock portfolio throughout balance that is certainly just about every resource is actually placed equal in proportion to its current market worth (Rubinstein, 2002).

CAPM describes the relationship between risk (systematic or unsystematic)and expected future returns. The idea behind CAPM is that investors are to be compensated through the time value of money and risk associated with the particular security held by investor. CAPM model has been used in the several empirical studies for the assessment of the idiosyncratic risk of different securities and their returns. Couple of studies properly considered weightage to different nature of securities according to their time of maturity, exposure to absorb risk and the future returns for holding the required securities for effective diversification of the portfolio (Fama and MacBeth, 1973;French, Jeffery, Pirie, & McBride, 1992).

During the last two decades, emerging markets have drawn considerable attention associated with foreign investors. These market also boosting troubles associated with the way how to diverse these markets as they exist in developed places. The actual foreign investors hoping to know, what is the principal threat? Whether these markets are useful and if not necessarily subsequently what's are the options which will be avail, (Bekaert, 1994).

Investor's sentiments in capital market can be measured directly and indirectly. Trade volume of stock market and the closing prices of stocks are used as a proxy for investor's sentiments in the indirect method for future analysis. Mehmood and Hanif (2014) established a relationship between investors sentiments and market trends by using the total trading volume as a proxy for the investor sentiment. Newell, Peng, & De Francesco (2011) found that stock market trading volume highly influenced the sentiments of individual investor. The price of the security in stock exchange is positively correlated with the trading volume (Cochrane & Piazzesi, 2002).

The main objective of this paper is to identify the role of volatility and idiosyncratic risk in the investor sentiments regarding the stock performance for firm, industry and market and predicting the return and behavior of stock in emerging market.

Methodology

Population

The segmentation of capital market in Pakistan is non-securities market with different established commercial banks. The other well developed financial institutions and

specialized banks consist for agricultural development, for industrial development and small scale businesses besides these three stock exchanges are also contributing in the capital market that are Karachi Stock Exchange (KSE) Ltd, Lahore Stock Exchange (LSE) Ltd and Islamabad Stock Exchange (ISE) Ltd.

The no of major sector of Pakistan economy is approximately consists of 34 sectors and the major contribution in the capital market is coming from three stock exchanges, Karachi stock exchange KSE 100 Index is the largest among the other ones as it is the oldest stock exchange, Islamabad stock exchange 30 index and Lahore stock exchange 30 indexes. There are 638 listed firms as on June 30, 2001. The Firms portfolio market capitalization in KSE is approximately Rs. 2,945,784.51 million. The main source of the data is taken from Karachi Stock Exchange. KSE has a prominent role in the capital market of Pakistan as it was the oldest stock exchange.

Sample

The study is based on panel data and we calculate idiosyncratic volatility and stock return from KSE financial data. Panel data is a combination of time series and cross sectional data in which information varies not only with the passage of time but also across the sections. The relevant data is collected from Karachi Stock Exchange and Business recorder web site. The data is from June 2010 to June 2014 of five years' data.

We take one hundred and thirteen firms as a sample taken from all important sectors including banks and insurance companies as they play a significant portion in capital of KSE. We also take the Treasury bill rate from the State Bank of Pakistan web site and monthly bulletin of State Bank of Pakistan that has been considered as a risk free rate of return and KSE 100 Index as the market rate of return.

CLMX approach for measuring idiosyncratic risk

Average market volatility:

$$MKT_t = \hat{\sigma}^2_{mt} = \sum (R_m - \mu_m)^2$$

Where the subscript t denotes the month and μ_m is the average monthly return of Value weighted stock index KSE over R_m .

Industry volatility Weighted Average:

We are using equation 6 for volatility in i_{th} industry, by taking the variance of residual for each month and cancellation of the covariance impact between different industries we have to average of over all industries. By taking the average of weights of each industry in market give the following measure of average industrial volatility i.e.

$$IND_t = \sum w_{it} \sigma^{\wedge 2}{}_{\varepsilon it}$$

Firm volatility Weighted Average:

We are using the residuals equation. First we calculate the variance of firm-specific residuals. Then we use the given equation:

$$\sigma^{\wedge 2}{}_{\eta jit} = (\eta jit - \eta^{-} jit)^2$$

In the next step we calculate the weighted average firm specific volatility of individuals firms within an industry:

$$\sigma^{\wedge 2}_{\eta it} = \sum_{j \in i} w_{jit} \sigma^{2}_{\eta jit}$$

In the final step take the average of over all industries to calculate a measure of firm specific volatility weighted average and cancel out the firm specific covariance.

$$Firmt = \sum_{i} w_{it} \sigma^{\wedge 2}_{\eta it}$$

Model:

$$\boldsymbol{CPS = \beta_1 + \beta_2 MV + \beta_3 IV + \beta_4 FV + \beta_5 FC + \mu_i}$$

Where dependent variable in the model is

CPS= Closing price of the Share

And explanatory variables are

MV= Market Volatility

IV= Industrial Volatility

FV= Firm Volatility

FC= Firm Capital

$\boldsymbol{\mu_i}$= Residual term

We use some transformational techniques in the model because our data is penal data and also reduce the effects of outliers.

The above said model is linear regression model and we estimate the values of betas through generalized linear regression model.

$$\boldsymbol{Ln(CPS_t/CPS_{t-1}) = \hat{\beta}_1 + \hat{\beta}_2\, MV + \hat{\beta}_3\, IV + \hat{\beta}_4 FV + \hat{\beta}_5 Ln(\frac{FC_t}{FC_{t-1}}) + \mu_i}$$

Where

$\mathrm{Ln}(\mathrm{CPS_t}/\mathrm{CPS_{t-1}})$ = natural log of percentages of the current closing prices with the proceeding closed prices.

$\mathrm{Ln}(\frac{\mathrm{FC_t}}{\mathrm{FC_{t-1}}})$= natural log of percentages of the current value of firm capital with the proceeding value of the firm capital. While all others explanatory variables are same given in the above model.

Before computations of betas, our data is panel data so before running the univariate regression analysis in generalized linear regression model some problems which are frequently occurring in time series and panel data should be removed such as non-stationary issues and unit root problems.

Results& Discussions

Panel unit root

The results which are shown in the following tables 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5 and figure 4.1.6 shows the combine view of variables that are all stationary at level with intercept and linear trends as the null hypothesis states that the Closing price of shares, firm volatility, industrial volatility, market volatility and firms capital in the market have unit root means the above data is non stationary but the statistics of different tests are highly significant which are mentioned in the tables such as Levin-Lin, Breitung t-stat, Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square and PP - Fisher Chi-square so we reject the null hypothesis that the following panel data variables have the unit root problem.

Table 4.1.1: Panel Unit root test for closing price of the shares

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-136.712	0.0000	113	6648
Breitung t-stat	-9.27749	0.0000	113	6535
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-133.265	0.0000	113	6648
ADF - Fisher Chi-square	3944.63	0.0000	113	6648
PP - Fisher Chi-square	3908.04	0.0000	113	6666

Table 4.1.2: Panel Unit root test for Firms volatility

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-79.3841	0.0000	113	6658
Breitung t-stat	-37.9337	0.0000	113	6545
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-67.9088	0.0000	113	6658
ADF - Fisher Chi-square	3244.73	0.0000	113	6658
PP - Fisher Chi-square	3415.16	0.0000	113	6667

Table 4.1.3: Panel Unit root test for Industrial volatility

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-63.7573	0.0000	113	6626
Breitung t-stat	-41.3141	0.0000	113	6513
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-59.6953	0.0000	113	6626
ADF - Fisher Chi-square	2931.84	0.0000	113	6626
PP - Fisher Chi-square	3838.74	0.0000	113	6667

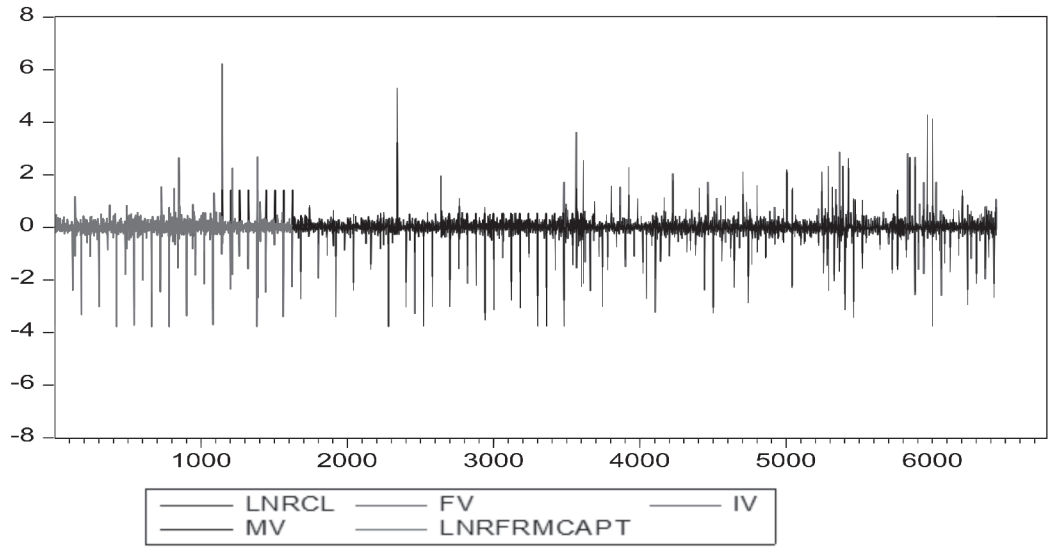
Table 4.1.4: Panel Unit root test for Industrial volatility

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-71.3101	0.0000	113	6667
Breitung t-stat	-52.2644	0.0000	113	6554
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-74.4148	0.0000	113	6667
ADF - Fisher Chi-square	3673.15	0.0000	113	6667
PP - Fisher Chi-square	3673.21	0.0000	113	6667

Table 4.1.5: Unit root test for Firms capital

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-168.044	0.0000	113	6646
Breitung t-stat	-9.11899	0.0000	113	6533
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-155.027	0.0000	113	6646
ADF - Fisher Chi-square	3847.49	0.0000	113	6646
PP - Fisher Chi-square	3733.81	0.0000	113	6664

Figure no:4.1.6



Pool and Panel models (OLS, Random effect, Fixed effect)

Dependent Variable: LNRCL					Random				Fixed			
Variable	Coefficient	Std. Er	t-Stat	Prob.	Coefficient	Std. Er	t-Stat	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
FV	0.159	0.019	8.164	0.000	0.159	0.047	3.386	0.001	0.163***	0.048	3.407	0.001
IV	-0.052	0.037	-1.415	0.157	-0.052	0.036	-1.460	0.145	-0.057	0.036	-1.560	0.119
MV	0.073	0.201	0.363	0.717	0.073	0.385	0.190	0.850	0.073	0.388	0.189	0.850
LNRFRMCAPT	0.587	0.006	102.270	0.000	0.587	0.018	32.353	0.000	0.588***	0.017	33.656	0.000
C	-0.003	0.003	-1.227	0.220	-0.003	0.006	-0.588	0.557	-0.003	0.006	-0.588	0.556
R-squared	0.610				0.610				0.6140			
Adjusted R-squared	0.610				0.610				0.6073			
S.E. of regression	0.184				0.184				0.1845			
Sum squared resid	228.935				2650.254				226.7144			
Log likelihood	1863.590				0.000				1896.6160			
F-statistic	2650.254								91.3192			
Prob(F-statistic)	0.000								0.0000			
Durbin-Watson stat	1.718				1.718				1.7354			

Hausman test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.00000

Hausman test basically provide the criteria for the selection of Fixed Effect model or Random Effect model results. In the null hypothesis the basic assumption of the Hausman test is "The value of FEM and REM estimation is same means that having equal estimates and no difference". Hence we will select the Fixed Effect Model under the asymptotic assumption of Hausman test. It provides an opportunity to analyze the data in cross sections with respect to time variation. Therefore, when we used pooled regression for calculating the estimates from panel type datasets they are found to be biased.

It is required to estimate random effects or fixed effects regression models, both models are also depending on the nature of the explanatory variables that are included into the estimation. If their pressers have variability with respect to time, then we use fixed effects model. Therefore, fixed effect model will be the best representative. In case when repressors are constant over time, random effects model is appropriate for estimation of the parameters.

In the study when we calculate the Hausman test for the pooled, random and fixed models we find that p-value is equal to 1.000. Then we accept the null hypotheses it means relationship exist between the unobserved person –specific random effects and the regressors. So we used fixed effects model for our all models used in our study. In Hausman test our null hypothesis we assume both estimation methods are precise and accurate hence the estimated coefficients produce same results. According to our study we accept the null hypothesis therefore Hausman test predict and support the fixed effect model over random effect model.

Fixed Effect Model

The value of Coefficient of determination R in fixed affect model is 0.61. This value indicates that explanatory variables firm, industry, market volatilities and firm capital explain 61% of total variation in the model it also indicates the goodness of fitness of the particular model. The value of Durbain Watson test is (DW=1.73), respective test reports the problem of autocorrelation in the data but the value of

DW test is approximately 2 which indicates that our data does not have the sever problem of autocorrelation.

Our first hypothesis regarding the study is "KSE Investor has rational behavior regarding the market, industry and firm volatilities" so we accept our hypothesis because this statement indicates the overall behavior of investor sentiment that which force drives the investor for the investment in the stocks the value of F=91.31 and it is highly significant because the p value is less than 0.05 which also indicates that over all behavior of investors in KSE is rational.Second hypothesis of our study is "Market volatility directly affects the investors sentiments and return of KSE investor" the value of the beta associated with market volatility is 0.073 and the p value is 0.85 which indicates that in KSE market volatility does not contribute any sentiment for investment.

Third hypothesis of our study is "Industry volatility directly affects the investor sentiment and return of KSE investor". The associated beta of industrial volatility is (-0.057) and p value is 0.119 which means industry volatility does not directly affect the investor sentiment and return of KSE investor. Fourth hypothesis of our study is "firm volatility directly affects the investor sentiment and return of the investor" the beta of the firm volatility is 0.163***and p value is 0.01whic shows the significant impact of firm volatility on investors sentiment of investment in KSE and stock return.

The last hypothesis of our study is "Firm capital directly affects the investor sentiments and return of KSE investor" the value of beta is 0.588*** and the p value is 0.000 which show that it has a significant impact on the investors sentiments and return of the investors.

Correlation matrix and Variance inflammatory table

	CL_Price	FV	IV	FirmCAPT	MV
CL_Price	1.0000				
FV	0.0871	1.0000			
IV	0.0274	0.1883	1.0000		
FirmCAPT	0.7037	0.0333	0.0336	1.0000	
MV	0.0289	0.0741	0.1527	0.0298	1.0000

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Co linearity Statistics		
						Tolerance	VIF	Minimum Tolerance
2	IV	.000[a]	-.041	.968	.000	.976	1.025	.969
3	IV	.000[b]	.018	.986	.000	.999	1.001	.998
	MV	.003[b]	.386	.700	.005	.991	1.009	.991

The correlation matrix shows the bi-variate relationship between two variables. Closing price of stock has weak relationships with firm's volatility, industrial volatility and market volatility. The relationship between closing price and firm capital is high as shown in the table no. Which is 67% but still the value is less than 70% means it is not problematic for the estimation and validation of the estimated parameters while the other correlations among the independent variables are also weak. The value of VIF also clearly indicates that our panel data does not have the problem of multi-collinearity.

Descriptive statistics

	LNRCL	FV	IV	FirmCAPT	MV
Mean	0.000727	0.022989	0.012502	0.000845	0.007459
Median	0.001809	0.00374	0.00252	0.006403	0.00366
Maximum	3.592736	6.20344	1.39777	5.2908	0.06252
Minimum	-4.298406	0	0	-7.023334	2.00E-05
Std. Dev.	0.294407	0.116823	0.062347	0.389499	0.011262
Skewness	-3.661364	29.64483	16.42831	-4.473872	2.890775
Kurtosis	58.38896	1309.626	336.6257	80.05529	12.49682
Jarque-Bera	881450.3	4.83E+08	31734910	1699214	34906.02
Probability	0	0	0	0	0
Sum	4.927937	155.7943	84.72641	5.726605	50.54859
Sum Sq. Dev.	587.314	92.47692	26.3393	1027.982	0.8594
Observations	6777	6777	6777	6777	6777

From the above table Jarque-Bera test is highly significant in all case; closing price of the stock, firm volatility, industrial volatility, market volatility and the value of firm capital in the market so our data does not tend to be a normal distribution. The another indication of non-normality is coefficient of skewness which is negative in the case of closing price and firm capital while having a positive skewed distribution is case of firm volatility, industrial volatility, market volatility. It is clearly defining by the above table is that on average the firm volatility is more than the industrial and market volatilities. Which means that on averagely the closing price of the stock is significantly affected by the firm volatility which is also proved in fixed effect model.

Levene's test for homogeneity of variances

Levene's Test of Equality of Error Variances[a]

Dependent Variable:CPS

F	df1	df2	Sig.
1.635	112	6666	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Firms + MV + IV + FV + LnRfirmC

In this study the Levene's test (Levene 1960) is used to test the different categories of variables have equal variances. The property of equal variances throughout the samples is called homogeneity of variance. The Levene's test can be used to verify that assumption. F statistics in the above table clearly indicates that we reject our hypothesis that the variables in the study have equal variances.

Conclusion and Recommendations

This study is based on to find the instigations which plays a key role of investment process in the financial market and we use the closing price, firm volatility, industrial volatility, market volatility and firm capital, for achieving this end we uses the CLMX approach by bifurcating the total stock return and their associated volatilities into three components namely, firm, and industry and market volatility and study the common stock market regarding investors sentiments. We can consider these factors as a key determinant of investment which compels an investor to invest in Pakistani stock market. The other objective of this study is that to establish a fact regarding the investor's financial knowledge for anticipating the risk and make planning and hedging themselves for the possible loss in future. By perceiving these three types of risks associated with investment in the stock exchange, weather this is the right time of investment or not. The implication of stochastic or deterministic trends in the financial markets helps the portfolio managers for prediction of the possible future returns of the different stocks through capital asset pricing model.

Present study is depending on the cross sectional data taken from the time period of June 2010 to June 2014 of five years' data. We take one hundred and thirteen (113) firms as a sample taken from all important sectors including banks and insurance companies as they play a significant portion in capital of KSE.

We are taking monthly data for accumulation to figure out the three particular volatilities. These risks are calculated although T-bill data is taken from diverse bulletins and web site of Stat bank of Pakistan. Overall data may be split into couples of companies.

This empirical study verifies that the idiosyncratic risk can be bifurcated to three sub components again and these components have the impact on the investor's sentiments but this study concludes that the in Pakistan the investors sentiments are directly effect by the firm volatility only. This clearly indicates that the investors give the more weight age to the firm risk regardless to the industrial or market risk so the major contribution in the risk factor is the firm associated risk and its return in the form of dividends or capital gain. While the investors do not give the proper weight age to industrial and market risk as they only focus the market share of the company. According to CLMX approach idiosyncratic risk is diversified into three components it means that there could be a more than their determinants which plays a vital role in the overall idiosyncratic risk and if it is properly identified then it will become easy to investigate more accurately regarding the investors sentiments towards risk and return and future investment. It will become the policy for the portfolios managers that if investor's sentiments are properly determined and risk is forecasted accurately then the financial market is precisely predicted in the future and investor's capital is accumulated after getting the healthy return on the investments.

Future Research

The empirical results show that in Pakistan generally, the financial market and particularly the stock market KSE are gone through under the stages of development these are not so efficient that these markets react and adjust spontaneously to absorb a phenomenon. In the well develop financial market the investors sentiment based upon financial knowledge investment experience in a particular field as well as the financial services available in the market. In Pakistan they are in the developing form so this study shows the several new avenues for future work. In business financing, if we could understand the investor's sentiment that leads us what should the pattern of security issuance and the relevance of share price in the market. In asset pricing model, the results descriptively show that, by selecting accurate models and expected future returns should be incorporated for playing a prominent role for investor's sentiment. We use monthly data as the reason is that the economy is not fully documented important information regarding the issuance of share and different companies data is difficult to obtain the important information's regarding the retain earnings and dividends are not published accurately so by taking the regular information and measuring the investors sentiment in well develop market is more beneficial for policy makers and portfolio managers that the possible future return and risks will be pre anticipated. The daily prices of the share of different companies have the great impact on the investor's sentiment. The historical or lag daily prices of the shares also contribute a major role for fixing the current prices of the shares so the future studies should include the auto regressive models for measuring the investors' sentiments and volatilities. We can also use the ARCH and GARCH models for measuring the volatilities accurately.

References

Abuaf, N., &Jorion, P. (1990). Purchasing power parity in

the long run. The Journal of Finance, 45(1), 157-174.

Ang, A., Bekaert, G., & Wei, M. (2008). The term structure of real rates and expected inflation. The Journal of Finance, 63(2), 797-849.

Ang, A., & Chen, J. (2002). Asymmetric correlations of equity portfolios. Journal of financial economics, 63(3), 443-494.

Angelidis, T., &Benos, A. (2006). Liquidity adjusted value-at-risk based on the components of the bid-ask spread. Applied Financial Economics, 16(11), 835-851.

Angelidis, T., &Tessaromatis, N. (2008). Idiosyncratic volatility and equity returns: UK evidence. International Review of Financial Analysis, 17(3), 539-556.

Avery, C. N., & Chevalier, J. A. (1999). Herding over the career. Economics Letters, 63(3), 327-333.

Aviv, A., Chen, W., Gardner, J. P., Kimura, M., Brimacombe, M., Cao, X., . . . Berenson, G. S. (2009). Leukocyte telomere dynamics: longitudinal findings among young adults in the Bogalusa Heart Study. American journal of epidemiology, 169(3), 323-329.

Baker, M., & Stein, J. C. (2004). Market liquidity as a sentiment indicator. Journal of Financial Markets, 7(3), 271-299.

Baker, M., &Wurgler, J. (2004). Appearing and disappearing dividends: The link to catering incentives. Journal of financial economics, 73(2), 271-288.

Baker, M., &Wurgler, J. (2007). Investor sentiment in the stock market: National Bureau of Economic Research Cambridge, Mass., USA.

Banz, R. W. (1981). The relationship between return and market value of common stocks. Journal of financial economics, 9(1), 3-18.

Barber, B. M., Lee, Y.-T., Liu, Y.-J., &Odean, T. (2004). Do individual day traders make money? Evidence from Taiwan. University of California, Berkeley, working paper.

Barberis, N., &Thaler, R. (2003). A survey of behavioral finance. Handbook of the Economics of Finance, 1, 1053-1128.

Basu, S. (1977). Investment performance of common stocks in relation to their price earnings ratios: A test of the efficient market hypothesis. The Journal of Finance, 32(3), 663-682.

Bekaert, G. (1994). Exchange rate volatility and deviations from unbiasedness in a cash-in-advance model. Journal of International Economics, 36(1), 29-52.

Bekaert, G., Harvey, C. R., &Lumsdaine, R. L. (2002). Dating the integration of world equity markets. Journal of financial economics, 65(2), 203-247.

Bekaert, G., Hodrick, R. J., & Zhang, X. (2008). Is there a trend in idiosyncratic volatility?Available at SSRN 1108170.

Belsley, D. A., Kuh, E., &Welsch, R. E. (1980). Recession Diagnostics: John Wiley and Sons, New York.

Bennett, J. A., Sias, R. W., & Starks, L. T. (2003). Greener pastures and the impact of dynamic institutional preferences. Review of Financial Studies, 16(4), 1203-1238.

Berry, W. D., & Feldman, S. (1985). Multiple regression in practice: Sage.

Black, F. (1986). Noise. The Journal of Finance, 41(3), 529-543.

Brandt, M. W., Brav, A., Graham, J. R., & Kumar, A. (2009). The idiosyncratic volatility puzzle: Time trend or speculative episodes? Review of Financial Studies, hhp087.

Breitung, J., & Meyer, W. (1994). Testing for unit roots in panel data: are wages on different bargaining levels cointegrated? Applied economics, 26(4), 353-361.

Brockman, P., & Yan, X. S. (2008). The time-series behavior and pricing of idiosyncratic volatility: Evidence from 1926 to 1962. Available at SSRN 1117284.

Brown, D. P., & Ferreira, M. A. (2004). Information in the idiosyncratic volatility of small firms. Paper presented at the AFA 2005 Philadelphia Meetings.

Brown, G., & Kapadia, N. (2007). Firm-specific risk and equity market development. Journal of financial economics, 84(2), 358-388.

Brown, G. W., & Cliff, M. T. (2004). Investor sentiment and the near-term stock market. Journal of Empirical Finance, 11(1), 1-27.

Brown, S. J., Goetzmann, W. N., & Park, J. (2001). Careers and survival: Competition and risk in the hedge fund and CTA industry. The Journal of Finance, 56(5), 1869-1886.

Campbell, J. Y., &Ammer, J. (1993). What Moves the

Stock and Bond Markets? A Variance Decomposition for Long Term Asset Returns. The Journal of Finance, 48(1), 3-37.

Campbell, J. Y., Lettau, M., Malkiel, B. G., & Xu, Y. (2001). Have individual stocks become more volatile? An empirical exploration of idiosyncratic risk. Journal of finance, 56(1).

Carhart, M. M. (1997). On persistence in mutual fund performance. The Journal of Finance, 52(1), 57-82.

Chang, E. C., Luo, Y., & Ren, J. (2008). Investor overconfidence and the increase in idiosyncratic risk. Available at SSRN 1099269.

Cheng, F. C., Gul, F. A., &Srinidhi, B. (2012). Stock Price Informativeness, Analyst Coverage and Economic Growth: Evidence from Emerging Markets. Paper presented at the 25th Australasian Finance and Banking Conference.

Chi, L., Zhuang, X., & Song, D. (2012). Investor sentiment in the Chinese stock market: an empirical analysis. Applied Economics Letters, 19(4), 345-348.

Choi, J., &Shastri, K. (1989). Bid-ask spreads and volatility estimates: The implications for option pricing. Journal of Banking & Finance, 13(2), 207-219.

Clarke, R. G., &Statman, M. (1998). Bullish or bearish? Financial Analysts Journal, 54(3), 63-72.

Cochrane, J. H., &Piazzesi, M. (2002). Bond risk premia: National Bureau of Economic Research.

Cohen, R. B., Gompers, P. A., &Vuolteenaho, T. (2002). Who underreacts to cash-flow news? Evidence from trading between individuals and institutions. Journal of financial economics, 66(2), 409-462.

Daniel, K., Hirshleifer, D., &Subrahmanyam, A. (1998). Investor psychology and security market under and overreactions. The Journal of Finance, 53(6), 1839-1885.

De Long, J. B., Shleifer, A., Summers, L. H., &Waldmann, R. J. (1990). Noise trader risk in financial markets. Journal of political Economy, 703-738.

Devenow, A., & Welch, I. (1996). Rational herding in financial economics. European Economic Review, 40(3), 603-615.

Diebold, F. X., &Nason, J. A. (1990). Nonparametric exchange rate prediction? Journal of International Economics, 28(3), 315-332.

Durnev, A., Li, K., Mørck, R., & Yeung, B. (2004). Capital markets and capital allocation: Implications for economies in transition*. Economics of Transition, 12(4), 593-634.

Elton, E. J. (1999). Presidential address: expected return, realized return, and asset pricing tests. The Journal of Finance, 54(4), 1199-1220.

Evans, J. L., & Archer, S. H. (1968). DIVERSIFICATION AND THE REDUCTION OF DISPERSION: AN EMPIRICAL ANALYSIS*. The Journal of Finance, 23(5), 761-767.

Fama, E. F., & French, K. R. (1992). The cross section of expected stock returns. The Journal of Finance, 47(2), 427-465.

Fama, E. F., &MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. The Journal of Political Economy, 607-636.

Ferreira, M. A., &Laux, P. A. (2007). Corporate governance, idiosyncratic risk, and information flow. The Journal of Finance, 62(2), 951-989.

Fisher, K. L., &Statman, M. (2000). Cognitive biases in market forecasts. The Journal of Portfolio Management, 27(1), 72-81.

Floden, D., Alexander, M. P., Kubu, C., Katz, D., &Stuss, D. T. (2008). Impulsivity and risk-taking behavior in focal frontal lobe lesions. Neuropsychologia, 46(1), 213-223.

French, K. R., & Poterba, J. M. (1991). Investor diversification and international equity markets: National Bureau of Economic Research.

French, S. A., Jeffery, R. W., Pirie, P. L., & McBride, C. M. (1992). Do weight concerns hinder smoking cessation efforts? Addictive behaviors, 17(3), 219-226.

Freund, R. J., Littell, R. C., & Creighton, L. (2003). Regression using JMP: J. Wiley.

Fu, F. (2009). Idiosyncratic risk and the cross-section of expected stock returns. Journal of financial economics, 91(1), 24-37.

Gauss, C. F. (1809). Theoriamotuscorporumcoelestium in sectionibusconicissolemambientiumauctoreCaroloFriderico Gauss: sumtibusFrid. Perthes et IH Besser.

Glaeser, E. L., Kallal, H. D., Scheinkman, J. A., & Shleifer, A. (1991). Growth in cities: National Bureau of Economic Research.

Goetzmann, W. N., & Kumar, A. (2008). Equity portfolio

diversification*. Review of Finance, 12(3), 433-463.

Goyal, A., & Santa-Clara, P. (2003). Idiosyncratic risk matters!

Gujarati, D. N. (2003). Basic Econometrics. 4th: New York: McGraw-Hill.

Guo, H., &Savickas, R. (2006). Idiosyncratic volatility, stock market volatility, and expected stock returns. Journal of Business & Economic Statistics, 24(1), 43-56.

Guo, H., &Savickas, R. (2008). Average idiosyncratic volatility in G7 countries. Review of Financial Studies, 21(3), 1259-1296.

Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. The Econometrics Journal, 148-161.

Hsiao, C. (2014). Analysis of panel data (Vol. 54): Cambridge university press.

Huang, W., Liu, Q., Rhee, S. G., & Zhang, L. (2009). Return reversals, idiosyncratic risk, and expected returns. Review of Financial Studies, hhp015.

Ippolito, R. A. (1989). Efficiency with costly information: A study of mutual fund performance, 1965-1984. The Quarterly Journal of Economics, 1-23.

Irvine, P., & Pontiff, J. (2004). Idiosyncratic volatility and market structure: Working Paper, Boston College.

Jirasakuldech, B., Emekter, R., & Rao, R. P. (2008). Do Thai stock prices deviate from fundamental values? Pacific-Basin Finance Journal, 16(3), 298-315.

Kamali, M., Ghorbani, S., MoradiSharbabak, M., &Zamiri, M. (2007). Heritabilities and genetic correlations of economic traits in Iranian native fowl and estimated genetic trend and inbreeding coefficients. British poultry science, 48(4), 443-448.

Kearney, C. (2012). Emerging markets research: Trends, issues and future directions. Emerging Markets Review, 13(2), 159-183.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R. W. (1997). Legal determinants of external finance. Journal of finance, 1131-1150.

Lee, C., Shleifer, A., &Thaler, R. H. (1991). Investor sentiment and the closed end fund puzzle. The Journal of Finance, 46(1), 75-109.

Lee, W. Y., Jiang, C. X., & Indro, D. C. (2002). Stock market volatility, excess returns, and the role of investor sentiment. Journal of Banking & Finance, 26(12), 2277-2299.

Lux, T. (2011). Sentiment dynamics and stock returns: the case of the German stock market. Empirical economics, 41(3), 663-679.

M Zein, A., &Pano, E. (2011). ÅterköpavAktier: En jämförandestudiemellan Sverigeoch Kina.

Maharaj, E. A., Galagedera, D. U., & Dark, J. (2011). A comparison of developed and emerging equity market return volatility at different time scales. Managerial Finance, 37(10), 940-952.

Markowitz, H. (1952). Portfolio selection. The Journal of Finance, 7(1), 77-91.

Mehmood, Y., &Hanif, W. (2014). Impact of Bullish and Bearish Market on Investor Sentiment. International Journal of Innovation and Applied Studies, 9(1), 142.

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. The Journal of Finance, 42(3), 483-510.

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: why do emerging markets have synchronous stock price movements? Journal of financial economics, 58(1), 215-260.

Neal, R., & Wheatley, S. M. (1998). Do measures of investor sentiment predict returns? Journal of Financial and Quantitative Analysis, 33(04), 523-547.

Newell, G., Peng, H. W., & De Francesco, A. (2011). The performance of unlisted infrastructure in investment portfolios. Journal of Property Research, 28(1), 59-74.

Quah, D. (1992). The relative importance of permanent and transitory components: identification and some theoretical bounds. Econometrica: Journal of the Econometric Society, 107-118.

Roll, R. (1977). An analytic valuation formula for unprotected American call options on stocks with known dividends. Journal of financial economics, 5(2), 251-258.

Rosenberg, B., Reid, K., &Lanstein, R. (1985). Persuasive evidence of market inefficiency. The Journal of Portfolio Management, 11(3), 9-16.

Ross, S. A., &Zisler, R. C. (1991). Risk and return in real estate. The Journal of Real Estate Finance and Economics, 4(2), 175-190.

Rubinstein, M. (2002). Markowitz's" portfolio selection": A fifty-year retrospective. Journal of finance, 1041-1045.

Sauer, D. A. (1997). The impact of social-responsibility screens on investment performance: Evidence from the Domini 400 Social Index and Domini Equity Mutual Fund. Review of Financial Economics, 6(2), 137-149.

Shah, A., & Khan, S. (2007). Determinants of capital structure: Evidence from Pakistani panel data. International review of business research papers, 3(4), 265-282.

Shleifer, A., &Vishny, R. W. (1997). A survey of corporate governance. The Journal of Finance, 52(2), 737-783.

Taylor, M. P., &Sarno, L. (1998). The behaviour of real exchange rates during the post-Bretton Woods period. Journal of International Economics, 46(2), 281-312.

Wurgler, J. (2000). Financial markets and the allocation of capital. Journal of financial economics, 58(1), 187-214.

Xindan, L., Jining, W., &Hao, F. (2002). Investigations on the Transaction Behaviors of Chinese Individual Securities Investors [J]. Economic Research Journal, 11, 006.

Yan, X. (2009). Linear regression analysis: theory and computing: World Scientific.

YANG, C.-p., CHUN-YU, S.-t., YANG, D.-p., & JIANG, W. (2007). Survey of Investor Sentiment Index. Journal of Qingdao University (Natural Science Edition), 1, 018.

Zhang, W.-Y., Fang, L.-Q., Jiang, J.-F., Hui, F.-M., Glass, G. E., Yan, L., . . . Liu, W. (2009). Predicting the risk of hantavirus infection in Beijing, People's Republic of China. The American journal of tropical medicine and hygiene, 80(4), 678-683.