EFFICIENCY IN STOCK MARKET

A CASE STUDY OF KARACHI STOCK EXCHANGE

BY

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INTERNATIONAL INSTITUTE OF ISLAMIC ECONOMICS

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DEDICATED TO

MY PARENTS

ABUL KALAM AND HAFIZA KHATOON

ABSTRACT

This study aims at investigating the role of information on stock market. The role of information related to semi strong form efficiency is examined. The headlines of front page of daily "Business Recorder" and daily "Dawn" are taken as information and daily volume and return as market activity. All variables are chosen from Business Recorder and Dawn, because Business Recorder is more business and economic oriented while other is political. This is the information of two different perspectives i.e. economic and political. The daily data is used which reflect the spontaneous and immediate effect. Correlation of Coefficient and Univariate Regression are used as methodology.

The raw data on number of daily news items as information creates many problems such as some news are already anticipated, daily news does not differentiate between anticipated news and unanticipated news and some news are repeated for more than one day. To overcome this problem information variable is constructed as difference between numbers of daily news items and its twenty-day moving average. This constructed variable captures unanticipated elements in news. Returns are obtained by taking first difference of natural logarithms of daily KSE-100 index. The daily trading volume is obtained by taking first natural logarithms of volume and then subtracting it from its twenty day moving average.

The result indicated that surprise news as well as total numbers of news are negatively related to trading volume and market returns. The relationship is robust in case of trading volume but not with market returns. However, the observed relationship between news and market activity is not particularly strong. This shows the difficulty in linking volume and volatility to observed measure of information. At the same time it indicates the importance of factors other than public information in driving the stock market activity.

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CHAPTER-1

INTRODUCTION

CHAPTER - 1

INTRODUCTION

The efficient market hypothesis deals with the effect of information on equity prices. Any information, which is relevant to market, is spontaneously reflected in the stock prices. As a result the past prices cannot predict the future prices. In other words the changes in future prices depend only on the arrival of information. Efficient market hypothesis examines this type of consequences on trading activity. A lot of research work investigated such studies i.e. Mitchell and Mulherin (1994), Berry and Howe (1994), Rozeff and Kinney (1976), Atiken and Bassu (1991) and Fama (1965). However one of the main issues in these studies are the measurement of information. Different researchers consider different news in different situation as information. French Roll (1986) and Haris (1986) used intraday news as information. They also differentiate between public information and private information. Damondaran (989) considered informational trend in the day of the week. Mitchell and Mulherin (1994) took the public available news as information. Berry and Howe (1994) used the arrival of news during trading activity as information. In order to minimize this bias we use the broad measurement of resources of information. These informations are political news, financial news and macroeconomic news.

Rationale for the Study:

My interest grew as a result of my regular observing the fluctuation in stock market very closely. I wonder why the market fluctuate so quickly and how far information particularly daily information plays its role in making stock market volatile. I could not find the answer to my questions as little work has been done on the impact of daily information on Pakistan stock market. Most of the studies carried out on Karachi Stock Exchange focused on the comparison of prices between Pakistan equity market and international market (Uppal: 1993), volatility of stock return (Khilji: 1993 and Farid and Ashraf: 1995), existence of speculative bubbles (Ahmed and Rosser: 1995), validity of Random Walk model (Hussain: 1997), day of the week effect (Hussain: 2000),

relationship between stock prices and volume (Ali: 1997) and relationship between risk and return (Ahmad and Zaman: 1999). The rationale of my study is to find the answer to these questions (i) how information is incorporated in stock market (ii) what is the impact of information on stock market.

The present study would be important from three perspectives. First, it would provide a direct test of semi-strong form of efficient market hypothesis in context of an emerging stock market that of Pakistan. Second, it can be used to check the importance of private information i.e. both insider information and the information that is generated during the process of trade in Pakistan's stock market. Thus providing a base for future work on the microstructure of the market. Third, it will help discern the relative importance of different categories of information a result that may be interest to stock traders.

Paradigm:

My research paradigm is quantitative, as I have to manipulate statistical data for my finding. For this purpose I collected the data on volume, KSE-100 share price and information from daily Dawn and Daily Business Recorder. To collect data on "information" I gathered news that made headlines of front page in the national newspapers such as daily "Business Recorder" and the daily "Dawn". However I had some difficulties to measure the publicly available information from said news papers i.e. which news is important as information because all news are not important regarding to the trading activity. Moreover some news may be expected news. This type of news may not have impact on market return and trading volume if the market is efficient. Some news is anticipated news, which have zero impact on trading activity. These information create biasness in market efficiency test. To overcome this factor I have constructed the variable for information twenty days moving average deviation from average daily news. Rationale for taking daily data is that the immediate effect can be observed only through the daily data, which are missed out when weekly or monthly data used. Jun and Uppal (1994) pointed that monthly and weekly data creates spurious conclusion about the efficiency of market due to adjustment of information.

Findings:

I examine the association between information and trading activity and causal relationship between information.

I have found that at aggregate level the news surprises and number of news both are negatively related to stock market activity in Pakistan. This relationship is statistically significant in case of trading volume but insignificant in case of stock returns.

I also found the day of the week patterns in these relationships. The analysis points to the fact that in Karachi Stock Exchange public information does not play as important role in day to day variation in stock returns as the role played by private information (and non-informational reasons). The analysis points to the difficulties in finding observable relationship between public information and market activity and that this relationship may not be simple.

Organization of Study

The second chapter discusses the importance of stock price, information efficient market hypothesis and review of literature. Third chapter has two parts. First part discusses history and performance of stock market, while second part discuss the review of literature with reference to Karachi stock market. Fourth chapter provides the objectives and methodology of the study and the last section is the conclusion and recommendation.

CHAPTER-2

REVIEW OF LITERATURE

Literature on efficiency/inefficiency of stock markets is very vast. To put our model into perspective, some theoretical aspects relating to our model will be discussed first. In this context the role of information, price trends and Efficient Market Hypothesis will be discussed, followed by a discussion on empirical evidence about developed markets. The literature review with respect to Pakistan will be the last topic of this chapter.

2.1: THEORETICAL ISSUES:

Although the literature on stock price behavior discussed variety of issues, which relates to efficient market hypothesis. In the efficient market hypothesis role of information play a vital role on market prices which develops the efficient market. Modern theory of finance provided two basic elements about efficient market hypothesis: the role of information and prices.

2.1.1: ROLE OF INFORMATION:

Great sensitivity to information is a crucial feature of the shares market. Share markets differ from other types of the market. Security markets mostly depend on information supply. Information communications in shares market have traditionally made the fullest use of current technology to a greater degree than are found in most other markets.

The question arises whether news announcement and information and trading practice are the sources of market volatility. This question reattracted attention in the literature since the stock market crash of 1987. Our interest in this question is because we want to find out how the over all activity of Karachi Stock Exchange is affected by information. The volatility can be measured using fluctuations on KSE-100 index.

In product market, the efficient market implies best use of scarce resources, whereas in financial markets the market efficiency implies full utilization of all available information. Efficient financial markets reflect quickly about relevant information. For example if the corporation reports higher profit than expected profit, the prices of its shares traded in stock market will immediately reflect this information.

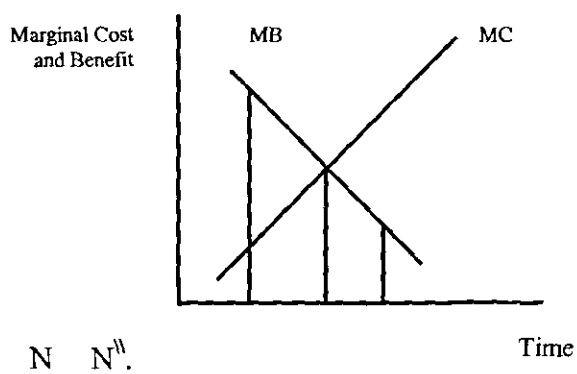
Information is treated as valuable commodity. It can increase the consumer's satisfaction, producer's profit and the economy's efficiency. As a consumer, individuals want to know the best quality of commodities and shops that provide the commodity at lowest prices. As a producer, he/she wants to know the lowest input prices, the latest production

techniques, technology and untapped sources of demand. As an investor he/she wants to know the investment that will give the best return.

Like other economic goods, information is scarce. Individual can obtain it only if one is willing to incur the cost. Other problem of information is imperfect foresight. The need for information is unlimited, but resources needed to produce information has alternative uses. The process of producing information is called information search. The efficient information search rule is the information collected until the Marginal Cost of searching information is equal to the Marginal Benefit of search generated by information.

The efficient information search rule predicts that one will continue to search for additional prices as so long as the added cost of further search is less than the expected benefit of lower price. The marginal benefit of search declines with search efforts. Once all data are known, the marginal benefit of search is zero. Whereas marginal cost of search increases with search efforts. More information can be acquired only at increasing marginal cost of search.

A decreasing marginal benefit of search and an increasing marginal cost of search suggest that the most efficient amount of search lies some where among zero information and complete information. Figure # 1



According to the efficient market information search rule, the most efficient level of search efforts is determined by the intersection of MCS and MBS at point N. Because at $N^{\prime}$, MCS >MBS, it means it pays to reduce the search effort. At $N^{\prime\prime}$, MBS >MCS that shows that it pays to continue the search efforts.

Zero and complete information also exists. If there is no benefit to be obtained from search or if marginal cost of search is greater than marginal benefit at every level of

search, then efficient level of search is zero. There are two factors that affect the benefit and cost of search: price of goods and frequency of purchase.

Price of the goods.

Goods that are relatively expensive increase the potential benefits of further search. i.e. if a good is expensive and on the basis of information it is available at 10% less price, it means buyers are to under take a far more extensive search.

Frequency of Goods.

Goods that are purchased frequently are not required the search with each purchase , buyers are likely to know the best places to purchase product at the lower prices based on previous purchases.

Some times asymmetry in information creates the problems in the allocation of resources because it results in adverse selection and moral hazard. Adverse selection restricts the exchange quality of goods. Moral hazard encourages a change to less efficient behavior after agreement has been reached.

The information that is publicly available affects the trading activity and price behavior in Exchange Markets. In nature information follow non-random patterns that is why trading activity in stock market follow the same pattern.

2.1.2: PRICE TRENDS:

The behavior of stock prices is very hot topic among researchers for a long time. In this respects financial researchers developed various methods and models, which have been examined empirically for different equity markets. In stock market variety of factors: events, circumstances, and conditions exist which influence the day to today valuation of share price. However fluctuations in price may not make sense for the long term but, the average expectation of the investors as revealed by the trends in the price of current share, affect the flow of new investments into private corporate sector. That is why I am concerned with price behavior of the stock markets.

Price of the commodity determines the value of the commodity. Usually prices are determined in market by interaction of supply and demand in a market economy.

Price also depends on available economic and non-economic information. The economic information may be a change in interest rate, consumer price index, inflation rate or the price of oil. Non economic information can be political disputes, emergency

in the country, and other circumstances. Market participants' that is consumers and producers, use the information. Consumer use the market price for today and future decisions, e.g. if there is expectation that in future the price of commodities will increase, people will purchase the commodity now; and if the prices of commodities are expected to decrease in future, the people will not purchase now. The same is the case for supply side. If the price of a commodity is expected to increase in future, the supplier will stock the commodity, and will supply it more in future. Usually price move on the basis of rationally formed expectations.

The past price sequence continuous about the future price because the investors believe that the past patterns in stock price movement will continue as the information is slowly incorporated in the stock prices. If information is incorporated slowly, then it might be possible to earn an excessive/massive return on the basis of spotting changes in equilibrium by observing a movement away from the range of prices at which the share was trading. On the other hand, if information is rapidly incorporated in stock prices, the stock prices respond to information.

The prices of all shares, either it is non-speculative, or speculative are determined by the forces of demand and supply. The demand for non-speculative shares is heavily institutionalized and depends mainly upon, the funds furnished by the public for institutional investment, and the pressure for the expansion or contraction of bank credit, which mainly emerges from the policies of central Bank. The supply of shares depends on the new corporation financing and selling of exist shares.

However price of speculative shares fluctuates more rapidly in market. Their demand is influenced by people's savings that latter get channelized into investment, competitiveness or attractiveness of other investment and business outlook. The supply of speculative shares is potentially large, if its holders lose faith in business prospects or in the immediate future of share prices or have urgent need for money for other purposes. The share price movements depend on primary trends, secondary trends and day today variation.

PRIMARY TRENDS

Primary trends of prices are derived from fundamental forces of economic matters e.g. the stability and future outlook for business, profits by business, speculative attitude

and expectations, (market profits vs future dividends, interest rate and dividends, capital gains and loss), the availability of money for share market investment etc.

SECONDARY TRENDS

It depends on shy investors or hasty speculators who want to take advantage of suddenly and impending changes in prices or reacts in opposite direction to correct their errors.

Day-to-day variation:

Some time-share prices change from hours to hours, day today, and week to week. These changes are usually not being predictable.

The above variation is usually observed in stock markets but some times opposite trends, (i.e. good quality and stable earnings power) will tend to limit the scope of price fluctuations. There are factors that influence the share prices, but we cannot forecast them mechanically, these factors are: war, inflation, taxes, labor problems and economic conditions. At the level of individual shares, earning power, dividends, growth prospects and quality are the major factors, which determine the price of shares. One of the most important factors are the economic fluctuations i.e. boom or recession, narrow money or high powered money, surplus or deficit budget and the like forces which influence forcefully on both the demand and the supply of shares. Price movement in the stock market reflects the economic policy of the government. It measures effectiveness of management and productivity of an industry.

According to efficiency criteria about the markets hypothesis, the stock prices should only respond to the unexpected part of any announcement. It is a common belief that the market is not truly reflecting the news through the prices, sometimes it gives the misinterpretation about the receiving of economic signals, i.e. about the news of economic ability. Usually market set its price on the basis of two sources. First is the data or publication, which is issued from research departments of stock exchange. Second the own experience or judgment that passes through from on investors to another investors.

Trends in stock market are tracked using stock price indices, which are weighted average of price of basket of company stock. Modern economic theories of stock prices generally focus on the role of efficient market.

In efficient markets, there are no easy profits. Looking at yesterday's news or past patterns of prices or elections or business cycles will not predict future price movements. Thus in efficient markets, prices responds to surprises, because surprises are inherently random, stock prices and other speculative prices move erratically, as in a random walk. The current market value of a financial instrument depends on its return relative to returns to other investment with similar risk, liquidity, and information characteristics. Let the income from shares of stock be distributed in two parts: a current return and the value of expected future returns. In shares of stock our incomes comes from the dividends we receive while we hold the shares and our expected future capital gain or loss when we sell the shares. Thus P_t, the price of an asset at time t, equals the sum of the expected return on the asset, D^e, next period, t+1, plus the expected price, P^e, of the asset at t+1. To account for the assets risk, the expected return and the expected price must be discounted by plus 1 the interest rate adjusted for the risk, so the asset's current price equals the present value of future returns from holding it, or

$$P_t = \frac{D^e_{t+1} + P^e_{t+1}}{1+i} \quad \text{.....(A).}$$

Where: P_t: price of a financial asset at time t;

D^e_{t+1} : expected periodic return on the asset for time t+1

P^e_{t+1} : expected price of financial instruments at time t+1

i : interest rate adjusted for the asset's risk.

In efficient stock market, a stock's price reflects the present value of expected future dividends.

Equation (A) determine a high price or a low price of a financial asset in an efficient market. The equation (A) also suggests that price change in reaction to changes in expected future returns or risk, liquidity, or information costs associated with the instrument. This reaction occurs whether the instrument is a bond, shares of the stock, a foreign exchange contract, a future contract, options contracts, or any other financial instruments. Other sources of price fluctuations in an efficient market are shifts in interest rate and exchange rates.

2.1.3: THE EFFICIENT MARKET:

Modern economic theories of stock prices generally focus on the role of efficient market. An efficient market is not only related to foreign exchange market but also relate to property and antique markets. However the decisions on security market efficiency is reached independently. Efficiency of the stock market are different to other markets on the basis of these factors: homogeneity, taste, location and information support.

HOMOGENEITY

The stock market comprises substantially a single product that claims to the future returns subject to the risk. All shares are reducible into two important variables, i.e. expected returns and risks. This feature provides a degree of comparability within the price structure of stock markets, which differentiates the stock markets from other markets.

TASTES ARE DIFFERENT

The value of security is independent of the taste. The only aspect of the shares, which might conceivably be valuable to investor's preference, is the risk return combination that can be assumed normally to have a particular value to the investors' preference. However modern portfolio theory says that the value of individual shares is directly independent of the investor's taste with respect to the risk.

LOCATION INDEPENDENCE

The values of most commodities are dependent on their physical attributes, but the values of shares are independent of location.

INFORMATION SUPPORT

It is a crucial feature of the shares market that differentiates it from the other types of the markets. Security markets mostly depends on information supply. Information communications in shares market have traditionally made the fullest use of current technology to a greater degree than are found in most other markets.

Thus the homogeneity of the products reduces the compass of the informational demand and establishes the focus of relevance on two variables i.e. risk and expected return. Taste independence reduces the range of investors potential information needs. Location independence provides the necessary motivation for seeking rapid and widespread dissemination.

In the efficient capital markets the vast numbers of stock put forth by sellers with vast demands for stock put forth by buyers can match quickly. The efficient market shows full reflection[1] of all stock prices with all known information[2] quickly and accurately[3].

Reasons for efficiency of markets:

The market can be expected to be efficient if the following conditions hold:

A large number of rational investors exist who take part actively in analyzing, valuing and purchasing and selling of stocks. The situation of market is under perfect competition where no single buyer has influence on the market.

The availability to information is free of cost for every one at any time or the time is approximately same of receiving information for every one.

Announcements are independent of each other and generated in random fashion. The reaction of investors is made promptly and accurately regarding to the new information, causing stock prices to adjust accordingly.

i- The agents of stock markets i.e. brokers, jobbers and clients observes the market closely on daily basis and take active part in purchasing and selling where they feel appropriate.

ii- Information is widely available to many participants at approximately the same time, as information is announced on radio, television, and newspaper over the country.

iii- Announcement take place in random fashion means no investors can predict when companies will announce significant new developments, when strikes will be observed where currency will be devalued and so forth.

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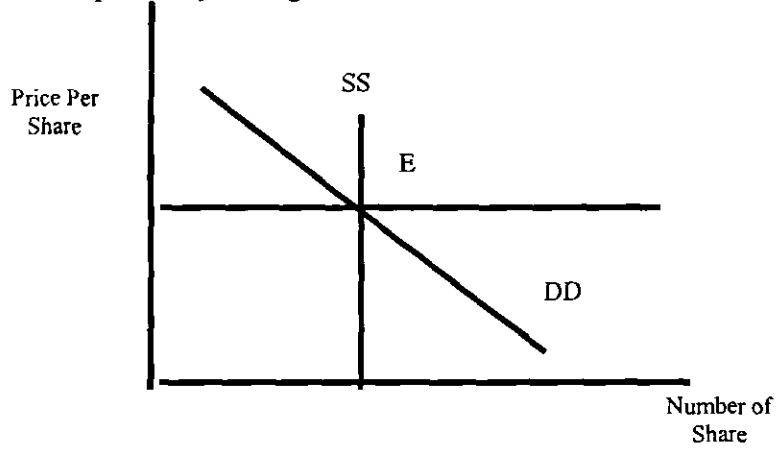
[1] It means all investors assimilate or absorb all economic and non-economic information into price regarding their decisions about purchasing and selling of the stocks. Therefore current prices of stock include all new information.

[2] In the term all known information, not only the past information is included but also current and existing information which have been announced but have not been transmitted, and all other information which have influence on the future prices or on turn over. e.g. if foreign investors are going to enter in the market, this future information will reflect in the price before actual entrance occurs.

[3] As information becomes known it must be included in the stock and reflect in the prices.

If the market is efficient, what is the degree of efficiency, what are the practical aspects for investors? In market efficiency the key point of the efficiency is the information in all of its various forms on which it depends. Information does not mean only the type of information but also speed and quality of information that is disseminated among investors. Famma (1965) discussed the efficient market in terms of efficient market hypothesis, which is concerned with full reflection of all available information in prices of stock.

The theory of efficient market is simple, logical, powerful and profound in its implications. It is also controversial, because it runs counter to our intrinsic and traditional ideas about investing. Efficient market theory exists in competitive market i.e. a situation of market where investment opportunity is possible and investors are well informed. In such markets, investors try to acquire undervalued stocks and to avoid or dispose of stocks that are overvalued. They compete with one another, and that competition tends to drive up the prices of under valued stocks and drive the prices of the overvalued stocks down. For example if stock of a certain company is under valued, investors react by buying it, pushing its price up. If the stock of a certain company is overvalued, investor's dump it, and the sell orders push its price down. This process can be depicted by the figure # 2.

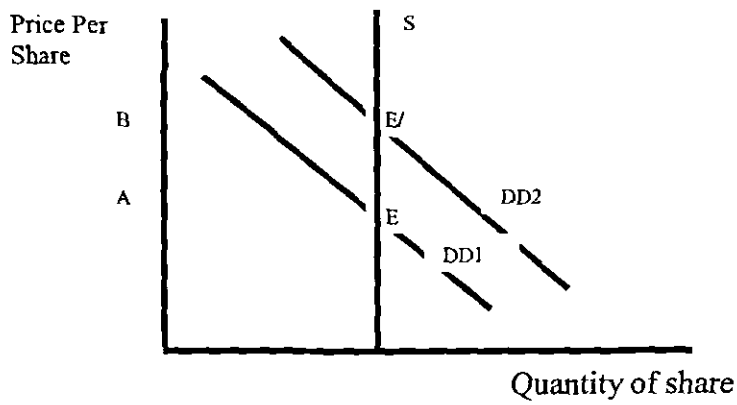


The figure shows supply and demand for a hypothetical stock. Horizontal line, shows how many shares people want to hold at different prices, and how many shares are available for holding. Vertical line shows the price per share, SS is the supply of stocks in a company at given time, indicating that the supply of stock is fixed. The numbers of shares outstanding is not affected by the price per share. If a company

considers its stocks to be priced extremely high, it may respond by issuing more stock price to raise capital. Conversely, if it feels the stock's price is too low, it may institute a buy back plan. In short run, however, the number of shares is constant. DD show the demand to hold shares. Its downward slope indicates that investor's willingness to own the stock depends on its price. The stock represents better value at lower prices. Also, a given amount of money will buy more shares at lower prices. The lower the price, the more shares investors want to hold.

Suppose stock price is at A. at this price investor consider the stock undervalued, because they want to own more shares than they actually exist. They cannot do it. The only possibility is that the investors trying to acquire the stock bid up the price. Conversely when the price is at B the stock is overvalued, because investors are unwilling to hold all the stock at that price. These disparities resolved through the market mechanism. At E there is no pressure for change. The investors want to hold all the available stock no more and no less, that is why E is equilibrium price. Competition among investors keeps prices moving towards the equilibrium. The overvalued securities are sold and under valued are bought. Such competition is effective in static and dynamic situations. When economic and noneconomic information is available; market price will quickly adjust to reflect it. The diagram (Fig. #3) can depict it.

Fig. #2.3



At point E_1 the share market is at equilibrium. Suppose new and positive information is available in the market. This information will shift the demand curve from DD_1 to

DD_2, reflecting the altered outlook; E1 is no longer the equilibrium price. At E_1, investors want to hold amount Z, more sharers than are available. Therefore the competitive forces begin the prices adjustment, leading to the new equilibrium price at E_2.

Tests for efficiency of stock markets:

For expositional purpose efficiency tests can be classified at three levels:

1- Weak form efficiency 2- Semi strong form efficiency 3- Strong form efficiency

1.WEAK FORM EFFICIENCY TEST

Historical or previous data about prices should reflect in the current prices but on the basis of this one cannot predict about the changes in prices in future. The useful about test price data is weak form efficiency test of the efficient market hypothesis (EMH). If EMH is true then it shows that there is no relation in change in the past price and changes in the future prices, i.e., the stock price changes over time are independent. One implication of weak form efficient market is that [past history of price information is no value in assessing future changes in prices] the information of previous prices history have no value to predict the future change in the prices.

In weak from efficiency, the data on prices are incorporated into current stock prices. If prices follow non-random trend, the change in stock prices are dependent otherwise independent. So weak form EMH is related to the theory of random walk hypothesis. If new information float in the market randomly the investors observe and react immediately to it; the changes in prices are random too.

RANDOM WALK MODEL

It is limited or restrictive versions of fair game model of weak form of the efficient market hypothesis. It assumes that successive returns are independently and identically distributed over time.

In fair game model the returns distribution in various periods are not necessary identical and does not imply that returns are independent through time. It means that, a firm could be increasing its debt and risk over successive periods of time and show increasing actual returns. By this way we observe a correlation in the sequence of returns and past returns that could be used to predict the future returns. However, this information cannot be used

to earn excess return in the weak form efficient model. If the random walk hypothesis hold then weak form efficiency must be held.

In fair game model in which there is no difference between the actual return on the game and expected return before the game. Stock market is like a fair game mode, in which there is no difference between actual and expected return on stocks.

Mathematically fair game model can be written as

$r_{i,t+1} = E_t[r_{i,t+1}/V_t] + U_{i,t+1}$ .....(A)

Where $r_{i,t+1}$: Actual returns on stocks i in period t+1,

$r_{i,t+1}/V_t$: Expected returns on stock i, in period t+1, if the set of information is available.

$U_{i,t+1}$: stochastic term or prediction error on stocks in period t+1.

If the stock market is fair game then U_i, t+1 is the nonsystematic error. A nonsystematic error has three statistical properties i.e,

(a) consistency (b) independence and (c) efficiency.

(a) CONSISTENCY. The prediction error will be consistent if the expected returns given the available set of information is unbiased estimator of actual returns.

$U_{i,t+1} = r_{i,t+1} - E[r_{i,t+1}/V_t]$

$E[U_{i,t+1}/V_t] = E[\{r_{i,t+1}\} - E\{r_{i,t+1}/V_t\}]/V_t$

$r_{i,t+1} = E\left[r_{i,t+1}/V_{i,t+1}\right] + U_{i,t+1}$

$= E[r_{i,t+1}/V_t] - E[r_{i,t+1}/V_t]$

$= 0$ .....(B)

It means, if the observations are large, the prediction error will be zero, this implies that actual return is equal to the expected return on the basis of given information.

(b) INDEPENDENT.

The prediction error will be independent if it is uncorrelated with expected return

$=E[U_{i,t+1}, E\{r_{i,t+1}/V_t\}]$

$=E[U_{i,t+1}/V_t]E[r_{i,t+1}/V_t]$

$=0$.....(C)

(c) EFFICIENT.

The prediction error will be efficient if it is serially uncorrelated.

$E[U_{i,t+1},U_j]/V_t = 0$.....(D)

$E[U_{i,t+1},U_{i,t}]/V_t = 0$.....(E)

$E[U_{i,t}, U_{j,t}]/V_t = 0$..... (F)

If equation (B) to (F) hold, it means that our model is fair game model. Fair game model can be explained by this example. If we roll a die, and know that occurrence of one is 30% and after roll a die we get 30% of one then we say that this is a fair game. In stock markets the same conditions prevails. If we expect that the return on stock is 15% and actual return on stock is also 15%, then stock market is fair and efficient market hypothesis is valid, which shows that stock market will be continuously in equilibrium. It means that stock prices always equal their fair or fundamental values. Any change in fundamental values will be reflected immediately in market prices. But fundamental prices would be changed due to new information. If there is no new information, then fundamental value would not be changed. So, the best estimate of return on stocks tomorrow is the return on stocks today. This is because, even though tomorrow's return will almost certainly differ from today it differs in a way that is completely unpredictable and hence the best estimates are today's return. So, if efficient market hypothesis is true then

$E[r_{i,t+1}/V_t] = r_{i,t}$

$r_{i,t+1} = r_{i,t} + U_{i,t+1}$ .....G

The above equations show the random walk. It implies that the yield on stock tomorrow is equal to the yield on stock today plus an amount that depends on new information generated between today and tomorrow, which is unpredictable, given today's information set "V" which shows the information set conditions expectation.

2. SEMI STRONG FORM TEST:

Semi strong form tests deals with security prices, which fully reflect all publicly available information, such as earnings, dividends, stock splits announcement, new product developments, financing difficulties, and accounting changes. There is an enormous amount and varieties of public information that exist in share market. Semi strong form tests have been performed with respect to many different types of

information. There is little reason to believe that markets are efficient with respect to some information and not with respect to other similar information. For example, if markets are efficient with respect to earning announcement, they would also be efficient with respect to dividend announcements.

3. STRONG FORM TEST:

Strong form test asserts that stock prices fully reflect all information, public and non-public. If market is strong form efficient, no group of investors should be able to earn, over a reasonable period of time, excess rates of return by using publicly available information in a superior manner. For example, all nonpublic information, including information that may be restricted to certain groups such as corporate insiders and specialists on the exchange, is immediately reflected in prices. Strong form efficiency encompasses the weak and semi strong forms and represents the highest level of market efficiency.

2.2: VARIOUS TESTS OF MARKET EFFICIENCY:

If stock markets are efficient then future prices should not be predicted as shown in various notions of efficiency above. Therefore there should be no systematic way of making money from stock market. Are there any set rules and principles, which investors can use? The principles have to be workable and successful investment strategies. There is no single best market strategy. [The test for market efficiency is whether a technique will make money. Therefore it is important to discuss them in context of efficient market hypothesis.]

2.2.1: WEAK FORM TESTS

Non-random trends in stock prices show they are systematically dependent. This is in conflict with weak form efficiency prices a follow non-random trend. There are various tests, which used to test the efficient market hypothesis in weak form.

1- BUY-AND-HOLDING STRATEGY

One of the popular tests for profit earning is the buy-and-holding test. The strategy is that the shares will sell after deducting tax and brokerage fees from profit. Evans (1968) has emphasised that it will readjust to some profitable share with loss shares. It is based on performance of share during the trading period.

2-KALMAN FILTER RULE TEST:

Filter test shows the pattern of market as economic information. This information is developed and adjusted slowly. This test examines weak form evidence in which equity price absorbs any information in past price. For too rapidly profit, trading rule based on past prices. Sidney Alexander (1961) investigated this test and found excess returns from filter. Mandelbrot (1963) criticized this test on the basis of trade that could be made at exactly k% above or below the turning point. This creates the bias result. In latter study Alexander (1964) retested and obtained the profit before commission. However the market did not follow Random Walk model. His study based on equity prices and did not check the commission and dividend payment. Unlike Alexander, Fama and Blume (1966), Levy (1967a, 1967b), Jensen (1967), Jensen and Bennington (1970),Praetz (1976) and Sweeney (1988) investigated the Random Walk model with incorporation of dividends and commission and found that filter rule was not profitable. Jennergen and Korsvold (1975) found high coefficient of correlation between the successive price for Norwegian and Swedish stock market and suggested that these equities are suitable for profitable filter rules. However, the filter rule test failed when taxes and transaction cost was considered.

Meinhold and Singpurwalla (1983) discussed the filter rule test in detail and gave the result that the best linear unbiased prediction if the prices are not normally distributed.

Khilji (1993) studied about the behaviour of Pakistan stock returns. He emphasized time behaviour of monthly stock returns from July 1981 to June 1992. He found the distribution of stock returns to be non-normal, positive skewed leplkertic and positive mean. He used an error correcting, first order auto-regressive model, and employed the Kalman Filter technique, the author attempted to determine the time-varying behaviour of monthly expected returns and found expected returns to be constant and equal to long term expected monthly return. However, as pointed out by author, this is a surprising result in the context of a developing economy and needs further investigation by using weekly or daily data.

3-MOVING AVERAGE TEST:

Kalman filter test had failed in capital market especially in shares market. Financial analysts proposed moving average test about efficient market hypothesis. In this

technique averages of random fluctuations and the change in the direction of the basic trends can be isolated. The trading rule is: "If the stock price moves above its moving average by a certain percentage, buy and hold it till the price moves below the moving average by a certain percentage and then sell. Usually 5 % upping and downing from the moving average prices are considered.

Cootner (1962) examined this test. He tested a forty-week moving average with a 5% presentation. He then compared to B-H strategy for the total period per week basis. He found that moving average might be profitable trading rule for long term if one can profitably invest his money during the time. James (1968), extended the moving average tests with the inclusion of averaging by the exponential smoothing. His study based on monthly data from 1926 to 1960 i.e.200 month. His results showed overall average, not intraperiod, without any attempt to assess of investing funds when a moving average long-term strategy was being used. Seelenfreund, Parker, Hume (1968), used second-degree polynomial equation to estimate price, with the coefficients updated by exponential smoothing. Smoothing factors of 1%, 5% and 10% were analyzed for their relative effectiveness. The results indicated that a B-H strategy was generally beneficial when commissions are considered.

Brock, Lakonishok and Lebarn (1992) extended moving average to four models that is Random Walk Model, the AR(1), the GARCH-M, and the Exponential GARCH and found the significance excess returns, although –out-of sample performance is less convincing. Allen and Karjalainen (1999) used a genetic algorithms to test the moving average and found that no excess profit earn over a simply buy and hold strategy.

4-RELATIVE STRENGTH TEST:

Relative Strength test is a tool for determining the market's breaking points when there is a panic selling situation, it would also use the relative strength test to ascertain, whether the market is approaching its bottom. Thus relative strength gives us the idea of a possible turning point of the stock market. It is computed by the formula:

Relative strength test = A/(A+B). ----------1

Where A = $\frac{\text{No. of points rises}}{\text{No. of days market rise/stagnant}}$ ---------- 2

B = No. of points fall ----------3

No. of days market fall/stagnant

When relative strength is 0.29 or lower---- a stock market touches the bottom. Buy downwards i.e. averaging the cost lower. When relative strength is 0.70 or higher a stock market top sells upward i.e. taking the profits gradually.

Robert A Levy (1967) tested the efficient market hypothesis on the basis of relative strength test. His result indicated high-risk security, give high returns as compare to B-H strategy. He devised a method to minimize the risk. That method he called the variable ratio plain. Jensen and Benningten (1970) investigated several relative strength rules and found that the return after transaction costs for the relative strength rules was no more than the return on the full population. Furthermore, after adjustment for risk, it was inferior to purchasing the securities.

5-SHORT INTEREST TEST

It is commonly believed that a large short position indicates future buying support for those investors who sold borrowed stock in hope of buying it at a lower price; have to buy it in the future. Thomas H. Mayor (1968) formulated four equations for this test, consisting the relationship between short interest and price including trend factors. He used the data of fourteen companies and tests the explanatory power by linear regression. In first equation he observed the aggregate market regression is positive and significant but in the second equation it was disappeared when trend factor is incorporated. In equation three, which relates to the correction for dividends, have little effects. And equation four suggests that the relation ship between stock prices and short interest is random

Mayor (1968) results were very disappointing, Hanna (1976) presented some additional evidence on short interest ratio, and the monthly number of shares sold short dividend by the average daily volume traded for the month. Hanna (1976) developed the rule that if an abnormally large number of the twenty-five short interest rationales moving in one direction, either buy or sell short the index. Based on twenty-five stocks and fifty-fifty chance binomial distribution, more than twenty ratios moving in the same direction would occur only one percent of time if the ratios were independent.

6-THE ADVANCE DECLINE LINE:

It is generally believed that the number of advancing issues minus the number of declining issues provides a good indicator of market trend. Zakon and Pennypacker (1968) tested regression on both daily data. They run simple regression between the advance decline and the Standard and Poor's average, allowing the advance decline variables to have leads and lags ± 15 time periods. The regression of the cumulative advance decline line versus the stock price averages show some correlation owing to common trends: the regression of the first difference, which determines the predictive ability of the changes in one series for changes in another, shows no such correlation coefficient significantly different from zero. Further tests of a similar nature were performed on only the data for peaks and through in advance decline line, these tests indicated a coincident relationship at best and possibly a negative relationship.

7-ODD-LOT TRADING TEST

Odd-lot statistics are purchase and sales of stock in less than round lot transactions. This type of trading presents for public not for institutions. The main founder of this test was Garfield A. Drew (1967). However, statistical test applied by Kewley and Stevenson (1969). They calculate the ratio of odd-lot purchase for 75 companies during an 82-week period from March 1965 till Sept. 1966. The time series of the ratio was tested by simple correlation for its relationship with price. The result of this procedure indicated no significant pattern. This was also confirmed by analysing the trading profits obtained form buy- and sell signals. As Drew (1967) pointed out in his reply to their article, the predictability of odd-lot behaviour is a function of the magnitude of changes in odd-lot trends, not in the actual volume of buying or selling.

8-PRICE VOLUME CHANGES

Price and volume are two most important aspects in analysis of efficient market hypothesis because the chartists watch both price and volume. For stock price pattern to be valid signals, many technicians believed that the trading volume should rise to reinforce the trend. Such reinforcement indicates buyers-or-sellers interest, and this interest might be related to a change in fundamentals. Osborne (1962) found that trading volume tends to come in bursts of interest, which is log normally distributed. He suggested, therefore, that people tend to develop more interest because it is already there.

He also noted a weekly pattern of relatively high volume during the opening and closing hours, a weekly pattern in both the odd lot and total volume and a seasonal pattern in volume. Granger and Morgenstern (1963) attempted to relate volume movements to price but after applying spectral analysis to price and volume data from the New York Stock Exchange, they found no relationship between the price movements and volume. Charles C. Ying (1966) studied the relationship between price and volume by classifying each stock's daily price and volume into one of five categories depending upon its mean price and variability during the period from Jan. 1957 to Dec. 1962. He also noted a weekly pattern of relatively high volume during the opening and closing hours, a weekly pattern in both the odd lot and total volume and a seasonal pattern in volume. He concluded that small volume is usually accompanied by either a fall or a small change in price, large volume is usually accompanied by a rise in price and large increase in volume is usually accompanied by a large change in price either up or down.

Clark (1973) used trading volume as proxy for speed of information on underlying common factor that affects stock returns and volume. He found no univariate relation between trading volume and stock returns.

Epps and Epps (1976) used trading volume as disagreement measurement as traders revised their reservation price based on the arrival of new information into the market. The greater the degree of variation among trader, the larger the level of trading volume. A positive relation present in trading volume and stock price in their model.

Copeland (1976) has worked on stock price and volume relation on the basis of arrival of chronological information. Jennings, Starks and Fellinghen (1981) have done the same work. In these studies new information flows into market and disseminated to investors one at a time. Due to sequential information flow lagged trading volume and lagged absolute stock return could have extrapolative influence for current trading volume.

Lakonishok and Smidt (1989) examined the role of tax on current volume then test to past stock price changes. They found weak relation for tax related trading motives and strong for non-tax related trading motives.

Delong, Shleifer, summers and Wladmann (1990) use noise-trading model and test the causal relation between stock returns and trading volume. They found a positive informal

relation. The stock returns to volume is reliable with the positive reaction to trading strategies of noise traders on the basis of past stock price movements.

All of the above literature developed the linear relation between stock returns and trading volume. However there is also possibility of non-linear relation between volume and stock prices. Hinich and Patterson (1985), Scheinkman and Lebaron (1989), Brock, Hsieh, and LeBaron (1991), Hsieh (1991) have examined the non-linear relation between trading volume and stock prices Jones (1992) developed significant non-linear relation in in trading volume and returns. He also found significant univariate relation between nonlinear trading volume and nonlinear prices. Brock (1993) developed a non-linear conjectural noise-trading model of stock returns and volume in which rapid stock price movements and volatility bursts are related to volume movements across different groups of traders. His model is based on trading behaviour where estimation errors made by traders are correlated. Campbell, Grossman, and Wang (1993) build up a model, with two classes of risk-averse traders, which have proposition for the autocorrelation properties of stock returns as a nonlinear function of trading volume. They discover empirical support for their models forecast that stock return autocorrelations turn down with trading volume. LeBaron (1992), Duffee (1992), Campbell, Grossman, and Wang (1993) found non linear relation between stock returns and trading volume. Hiemstra and Jones (1994) used the linear and nonlinear Granger causality tests to inspect the dynamic relation between stock returns and trading volume. They investigated evidence of significant bi-directional nonlinear causality between returns and volume.

9-LINEAR RELATIONSHIPS BETWEEN LAGGED PRICES:

This method-examined change in prices was linearly related over time. It examined the correlation between past price changes and future price changes. The regression line is

$$P_t - P_{t-1} = a + b\,(P_{t-1-T} - P_{t-2-T})$$

The term 'a' measures the expected change in price unrelated to the previous price change. The term 'b' measures the relationship between previous price change and the next price change. If 'b' could be no different from zero suggesting no relationship between the previous price change and next price change, and yet there may be a non-linear relationship between successive price changes. In the process of the equation the

researcher obtain the coefficient of correlation. The square of the correlation show the goodness of fit, which explains the fraction of the variation of today price change, explained by the next day price change. Because the square of coefficient of correlation is important as a measure of explanatory power, most researchers do primarily the correlation coefficient in the Random Walk test of the equation. Kendall (1953); Granger and Morgenstern (1963); Fama (1965); Dryden (1970); Solink (1973) proved the presence of Random Walk model in developed countries market. Fama (1965) proved the Random Walk Model with strong evidence in daily data of stock prices in the New York Stock Market.

In under-developing countries where stock market is known as emerging market show the weak validity of random walk model. Malaikah (1990), and Ayber (1992) proved the invalidity of Random Walk Model in Saudi Ariba, Kuwait Turkey stock Market. Hussain (1997) studied the Random Walk model in Karachi Stock Market. He applies coefficient correlation and frequency distribution model to test the same. His result indicated the positive relation between stock returns that shows the sluggish adjustment with new information. Regarding frequency distribution the return in KSE is not attribute able to normal distribution. On the basis of two results i.e. present price could not predict the future price and no happening of normal distribution in stock returns, the author forecast the absence of Random Walk model in Karachi Stock exchange

10-RUN TEST

It examined the sign of price change. Designate a price increase by +ve and a price decrease by -ve if price changes were positively related, it would be more likely that a + was followed by a + and a – by a -, than to have reversal in sign. This would mean that an investigator analyzing a sequence of correlated price changes would expect to find longer sequences of +'s and –'s than attributed to chance. Thus, + - - - - + + + 0 has four runs, a run of one + run of three –'s followed by a run of three +'s followed by a run of no change. If there were a positive relationship between price changes, there would be more long sequences of + and - than could be attributed to chance and fewer runs. If there was a negative correlation, then there should be too many short

sequences or too many runs. Since run test depends only on sign, they are insensitive to whether price changes are being used or long price changes or rates of return.

11-SHORT-TERM CORRELATION TEST:

This test examined the correlation between the price changes from transaction to transaction. This test was first introduced by Niederhoffer and Osborn (1966) and found a number of departures from randomness and also found that the reversals in price changes (a decline followed by an increase) was two to three times as likely as a continuous of the same price change. In this test the investors can place two types of orders: limit or market. A limit order to buy is an order to buy shares if it falls below a certain price. A limit order to sell is an order to sell if it rises above a particular price. Limit orders are kept on a specialist's books until they are executed. A market order is an order to purchase a stock at the lowest selling price or to sell at the highest buying price of another investor. It is executed by either matching with another market order for the opposite side of the transaction or by matching it with the most attractive limit order.

2.2.3: SEMI STRONG FORM EVIDENCE

Weak form tests, of both the statistical and trading rule type, are numerous and almost unanimous in their findings. Semi strong form are numerous and more diverse in their finding provided that the market adjust to new public information rapidly. It tests the speed of price adjustment to public information. This test also suggests that lags do occur in the adjustment of stock prices to certain information.

1- STOCK SPLIT:

Fama, Fisher, Jenson, and Roll (1969) study the long run effects of stock splits on return. In this method the company's stock returns are examined to determine the impact of a particular event on the stock price. The methodology involves using a cumulative abnormal returns based on index model of stock returns. In index model a market factor and a unique company factor determine the security returns.

Company unique returns are the residual error terms representing the difference between the security's actual return and that given by the index model. In other words, after adjusting for what the company's return should have been, given the index model, any remaining portion of actual return is an abnormal return representing the impact of a

particular event. The cumulative abnormal return is the sum of the individual abnormal returns over the period of time under examination.

Angel (1997) argued that splits are intended to move relative ticks to desired levels. Several empirical studies provide indirect evidence that is consistent with an increase in relative tick size as a motivation for splits. Desai and Jain (1997), Fama (1969), Lakonishok and Lev (1987), and others document that splits occur after stocks have experienced significant price increase or equivalently, after relative tick sizes have decreased considerably. Angel (1997) showed that there is far less dispersion internationally in relative tick sizes that in stock prices. Schultz (2000) provided evidence that market is making more profit following splits. In strong form evidences effective spreads increase for all trade sizes for almost all stocks. Moreover the increase in effective spreads appear to be accompanied by modest declines in some of the costs of making markets. In weak form evidence trading errors decline following splits. This declining errors suggesting that fewer trades are negotiated and that negotiation costs decline following splits.

2- MONEY SUPPLY CHANGES.

Money supply influences on economic activity as well as stock prices. Several studies assessed the growth of money supply and stock prices and found that anticipated money supply growth rates are reflected in stock prices. If the changes are unexpected, they are reflected in price almost immediately on the disclosure of the information necessary to assess the situation, Therefore, the market appears to be semi strong efficient with respect to changes in the money supply.

The original work in this view was done by Sprinkel (1964). Using the data from 1918 to 1960, he established a strong relationship between stock prices and money supply in the US market. His result based on graphical analysis. Rozeff (1974) conducted an extensive study and concluded U.S. stock market is efficient with respect to monetary policy. Kraft and Kraft (1977) found no causal relationship between money supply and stock returns in the United States. Ho (1983) examined the casual relationship between money supply and stock returns for six Asian-Pacific countries (Australia, Hong Kong, Japan, Philippines, Singapore, and Thailand). Using monthly data and

employing minimum Final Predication errors, he found a uni-directional causality from money supply to stock price for Japan and Philippines but bi-directional causality for Singapore. Habibullah and Baharumashah (1996) used a two-step trivariate co-integration approach to check whether money supply and output can be used to predict stock prices. Using monthly data on these variables they found that in Malaysian Economy outputs, money supply and stock markets are not co-integrated. However, in a later study Habibullah (1998) found the evidence of causality between money supply and stock returns in Malaysian economy. Hussain and Mahmood (1999) investigate the relationship between Money supply and prices in Pakistani Stock Exchange. They used monthly data of M_1 and M_2 as money supply and general index of stock price and five sectoral indexes from June 1991 to June 1999. They apply the co-integration and error correction model and found a long run relation between money supply (M_1 and M_2) and stock prices. They also suggest the short run effect of M2 on stock prices. The result suggests that the stock market is not efficient with respect to money supply.

3- DIVIDEND ANNOUNCEMENT:

Market also predicated the dividend announcement; unexpected dividends changes assessed the market efficiency. When earning of the firm changes the dividend also changes. That is why the dividend conveys the significant information. There are various studies regarding the dividend announcement, which have impact on the stock market activity. Lintner (1956), Darling (1957), Brihain (1966) and Friend and Blume (1970) have developed the positive relation to the payment of dividends and stock prices. If dividend with earning increases the demand of share increase consequently and the price of the share increase. Petit (1972) and Watts (1976) formed a model of dividend policy. Watts (1976) relates change in dividends to the level of previous dividends and earnings. He dichotomised the firms into two groups: the firms whose dividend are above the average and the firms whose dividends are below the average. Examining the excess returns for these two groups to investigate the effect of unanticipated dividend changes. Pettit (1972) tackled dividend announcement by splitting the firm not only by dividend but also by earning. The results of both researchers (Petit 1972, Watts 1976) were same. They found market adjustment to the announcement of dividends rapidly. Miller and

Rock (1985) motivate that dividend announcement effects occurring because dividends can serve the role of revealing both current and future earnings. Benartzi (1997) study about the evidence on the link between dividends and earnings information yields mixed results. He reports that current dividend increases provided if any information about future earnings changes. Studies of market reactions are less than conclusive regarding the link between dividend and earnings information. Kane, lee, and Marcus (1984) find that both current dividends and current earnings convey information when they are announced simultaneously. Penman (1983) finds that dividend changes carry little information once one controls for management future earnings forecast. To meaningful compare the results of these two studies or other studies is difficult because of the differences in their methodologies and empirical design. To a large extent the lack of conclusiveness is caused by difficulty of designing an experiment that is capable of yielding compelling results.

Conroy, Eades, and Harris (2000) study the pricing effects of dividend and earnings announcements. Share prices reactions are significantly affected by earnings surprises especially management forecasts of next year's earnings. Current dividend surprises have no material impact on stock prices in Japan, which is alike, the result to Modigliani and Miller's (1958).

4- REACTIONS TO ANNOUNCEMENT:

The major world events also impact on stock prices. In an efficient market the adjustment of stock prices to such announcements should be rapid, preventing investors from earning excess returns as the information becomes publicly available. Stock prices were examined prior to the announcement and at the market opening following announcement as well as on the following two days.

Schwert (1981) studies the specific news information and stock prices. He took macroeconomics announcement as information and found weak relations to stock prices.

French and Roll (1986). They differentiate between public information and private information. They use univariate regression between variance of stock returns per hour during trading periods to be 13 times that for mid week holidays and over 70 times per hour variance during weekends. They give three reasons about fluctuations in trading

hours i.e. public information is greater during public hours; private information is generated during the trading hour by investors and pricing errors during trading increase the volatility. In their investigation stock return volatility be present within intraday.

Harris (1986). He investigates that a large price movements occur with first 45 minutes of first day of the week. He used transaction data and studies the intraday patterns. Though French and Roll (1986) find large variance, due to large movements with first 45 minutes of trading day. The reason is that the arrival of information in stock market stopped. Using transaction data from December 02, 1981, to July 31, 1983, Haris finds that for relatively large firms, the negative effect is apparent for Friday close to Monday open but for smaller firms it is apparent during trading on Monday. He finds however that for all firms the first 45 minutes of trading on Monday generate returns significantly below those during the first 45 minutes other days of the week.

Ariel (1987) has found that market index returns over the period 1963 to 1981 are higher in the first half of calendar months than in the second half.

Damodaran (1989) worked on the information trend in the day of the week to stock returns. He found that the weak impact of the pattern of the day of the week to stock return regarding dividends and earnings.

Haugen, Talmor and Torous (1991). They couldn't build up any relation between news information and movement in stock returns.

Mitchell and Mulherin (1994) attempt to see the impact of public information and stock market activity. They use the news stories per day published by Dow Jones on the broad tape Wall Street Journal as informational proxy variable. Their work based on weekend information and intraday information period. They conclude that the systematic trend in the arrival of information by the day of the week, month and for off days. They also determined a statistical significant positive relation between information and trading volume and comparatively week relation to stock returns.

Berry and Howe (1994) investigate the relationship between the arrival of public information during trading and market activity. They construct the trend of arrival of public information flow in intraday market activity on the basis of news release by

Reuters New service via North American securities News wire per unit time. The span of data they used is May 1990 to 1991. They obtain the result that the flexibility in arrival of information and having s seasonal ties patterns in intraday flows. They also examined the relation between the public information variable and intraday market activity and find the significant relation between trading volume and insignificant relations to market returns.

Chan, Jegadeesh and Lakonishok (1996) and Fama (1998) discussed different anomalies regarding information. They found that stock prices did not adjust instantaneously to announcement owing to Value effects, Momentum effects and Size anomalies. Marck, Yeng and Yu (2000) suggested that stock markets in emerging economies are less useful as processors of economic information than stock market in advance economies. The function of an efficient stock market is to process information, and thereby guide capital towards its best economic use. If stock price movements in emerging economies are mainly due to either politically driven shifts in property rights or noise trading, the invisible hand in stock market allocate capital poorly, thereby retarding economic growth.

CHAPTER-3

CAPITAL MARKET IN PAKISTAN

This chapter has two parts. In the first part I will briefly review the importance of capital markets in the content of Pakistan, its main constituents and transaction procedures. These last mentioned factors have direct bearing on the degree of efficiency of stock market. In the second part we will summarize almost all the published research literature on Pakistan's stock markets from 1992 to 2000. Related to my research questions, as they will enhance my understanding about the nature of work that has been done on stock market. Further I can be benefited from their findings.

Part-1

Capital market is very important in economic development. Inefficiency of capital market is one of the most serious limiting factors in underdeveloped countries. In the view of many experts capital market occupies the central and strategic position in the process of economic development of a country. Financing for development projects and creating proper incentives for economic enterprise cannot take place without well-organized capital market.

In the perspective of economic conditions of Pakistan the government planners are aware that over the next decade it will become exceedingly difficult to (i). fund public capital expenditures, especially for public enterprises through government budgetary allocations because of fiscal constraints. (ii). Meet the expected of increase in the flow of foreign commercial loans, because of mounting external debt servicing problems: (iii). Rely on increasing supply of external aid fund because of the budgetary uncertainties in the developed countries. In the foreseeable future, only foreign investment can fill a portion of the gap left by reduced external flows. In the light of these structural, financial and attitudinal changes the achievement of high rate of growth by Pakistan will significantly depend on the development of domestic capital markets (i) to mobilize increased domestic resources to bridge the projected investment-savings gap and (ii) to efficiency allocate scarce capital resources to the most productive investment projects.

Without having fully developed equity market, Pakistan will not be able to increase the availability of equity funding and move toward more balanced capital structures. The development of capital markets in Pakistan; aside from easing the burden of government funding and mobilising savings for productive investment would also establish a platform for raising tax revenues in the future.

The capital market consists of the suppliers and users of capital funds in the form of long-term assets and securities. In Pakistan, the main suppliers of long-term credit to the private sector are NDFC, PICIC, NIT, ADBP, ICP and other specialized financial institutions and development banks. Besides, nationalized commercial banks, foreign banks and scheduled banks also provide long-term finance to financially sound and well-established clients.

The capital market in Pakistan can be divided into two main markets, viz., the stock market and securities and bonds market. The gilt-edged market is mainly confined to the State Bank of Pakistan, commercial banks and insurance companies. There is no market for corporate bonds while institutions like the State Bank, the commercial banks insurance companies; local bodies, Public corporations and provident funds hold almost all the government securities. Commercial banks are required to maintain liquidity at 18% of their assets in cash and unencumbered approved securities whereas insurance companies are required to maintain 40% of their assets in government and government approved agencies. The major market for gilt-edged securities exist only at Karachi and normally business from all over the country is referred to Karachi for execution. The banking sector is the major holder of government securities. Banks are required by law to keep a certain percentage of their assets in liquid form, including unencumbered government securities i.e., securities, which are not pledged for loans.

3.1- THE MAIN CONSTITUENTS OF THE CAPITAL MARKET IN PAKISTAN

The capital market in Pakistan is mainly made up of the following constituents.

1- The stock Exchange

2- National Investment Trust (NIT)

3- Investment Corporation of Pakistan (ICP)

4- National development Finance corporation (NDFC)

5- Agriculture Development Bank of Pakistan (ADBP)

6- Industrial Development Bank of Pakistan (IDBP)

7- Pakistan Industrial Credit and Investment Corporation (PICIC)

8- Federal Bank for Cooperatives (FBC)

9- Equity Participation Fund (EPF)

10- House Building Finance Corporation (HBFC)

11- Small Business Finance Corporation (SBFC)

The above-mentioned institutions have played a vital role in the development of capital markets in Pakistan, and accelerated assistance available to the private sector of the economy.

The capital markets are constantly facing pressures for a long time. The freezing of Foreign Currency Accounts and Independent Power Producer (IPPs) issue have put things in doldrums. Uncertainty prevailed in the market and whole economic and political scenario got changed due to it. Local and foreign investors withdrew their plans to invest in Pakistan. Various incentives and policies announced by the present government to rectify the deteriorating investment climate in Pakistan have not proved fruitful for the overall expansion of capital markets. Even after the complete modernization and restructuring of Stock Exchange including automation of trading, appointment of a full time professional MD, induction of seven outside directors establishment of Central Depository System and PACRA, (first ever credit rating agency in Pakistan) and other steps, the market has not responded positively. Even after the approval of loan/aid package by IMF and World Bank the sentiments have not changed.

3.2- HISTORY OF KARACHI STOCK EXCHANGE

The Karachi Stock Exchange (KSE) came into existence on 18th September 1947. It was later converted into a registered company limited by guarantee on 10th March, 1949.Though as many as 90 members were enrolled at that time, hardly half a dozen of them were active as brokers. Initially only 5 companies were listed with a paid up capital of Rs. 37 million.

From this modest beginning the Karachi Stock Exchange by the end of December 2000, had become a key institution in the financial sector of Pakistan, and today has a membership strength of 200 with almost 133 active members and 88 corporate members of whom 8 are publicly equities companies. Securities listed on stock exchange are 761 in which ordinary listed companies are 747, preference shares are 3 and debt securities are 11. These companies have a listed capital of Rs 235683.14 millions (US$ 3934.6 million) with a market capitalization of Rs 296143.67 millions (US$ 4944.72 millions),

and an average daily turnover of approximate 96.91 millions shares. Average daily trade value is RS. 3134.39million ($52.30m)

Dealing, Deliveries & Settlements: -

The KSE has introduced a state-of-art computerized trading system, KATS (Karachi Automated Trade System) to provide a fair, transparent efficient and cost effective market for the investors. The Exchange has also introduced two tier trading system i.e. the morning session (from 10:15 a.m. to 2:00 p.m.) and after noon session (3:00 p.m. to 4:30. P.m.) Monday to Saturday. In the morning session all scrip's listed on the exchange are traded but in the afternoon session only the less active scrip are traded. Therefore, the trading of the most active scrips is frozen in the second session. The criteria for freezing of trading in active shares are reviewed every month. Trading on the Stock Exchange falls under three categories: (i) ready counter (ii) spot transaction (iii) provisionally listed

(1) Ready Counter

This is the counter where settlements take place through a centralized clearinghouse. Transactions from Monday to Friday are settled on Wednesday in the week after and clearing date is notified in advance. The clearinghouse is operated by the Stock Exchange & this department nets out the purchases and sales and the financial obligations thereon each member/firm for a notified clearing period and issues instructions for deliveries of netted outstanding business. Payment from and to members is routed through the clearinghouse of the Exchange. Transactions relating to securities declared to be "eligible securities" by Central Depository Company of Pakistan are settled through the Central Depository System (CDS). The Clearing House procedure remains the same as outlined above except that the KSE doesn't promote physical delivery in settlement of transactions involving eligible securities; these transactions are settled in a book entry through the CDS.

(2) Spot Transactions

Spot transactions take place at least 14 days before the closure of share transfer books by a company for the purpose of distribution/meetings. Shares sold on spot basis, that is, they are required to be settled within 24 hours directly between the buying & selling members.

(3) Provisionally Listed Sector

In this sector, the date of publication of the public offers shares of companies, which make a minimum public offering of Rs. 100 million are traded on this segment. When the Company completes the process of dispatch of allotted shares to the subscribers, it is officially listed and placed on the ready counter and trading on the provisional listed counter comes to an end. During the period of provisional listing a daily clearing takes place which is monitored by the exchange. When the companies are shifted to the ready counter outstanding business is also shifted and settled through the ready counter.

KSE-100 Index

The activity of the stock market, its temperature i.e. heating and cooling and its trends can be measured by indices of market prices. The movements of major indices make portfolio decisions. KSE began with a 50-share index. As market developed and become emergent market a representative index was needed. On November 1991, in order to meet with growing trend & to give a more reflective index, the Karachi Stock Exchange revised the list of 50 companies to 100. This new index called "KSE-100", with the base point of 1000. The KSE 100-index is a capital weighted index. The composition of this index is revised periodically to reflect the changes that occur continuously as new companies are listed and the weighted of listed companies changes. The KSE-100 index was recomposed on December 15, 1994, July 2, 1995, September 10, 1996 and July 01, 1997. In 1995 the need was felt for an all share index to reconfirm the KSE-100 and also to provide the basis of index trading, should it be introduced. On August 29, 1995 the KSE All share index was constructed and introduces for general information on September 18, 1995.

Membership

Membership of the exchange was until recently restricted to individuals & partnership of individual members and their close relatives. Membership is currently fixed at 200 and new members are required to purchase an existing seat. The price for such a seat has increased substantially in recent years. The price varies according to the interaction of forces of demand and supply. The administration does not interfere with these transactions but the Board of Directors examines the qualification of prospective

members before granting admission. Approximately 140 of the members are currently active in the market.

In June 1990, The memorandum of the KSE was amended to permit corporate membership. Corporate members must have a minimum issued and paid-up capital of 20 millions. Currently there are 29 corporate members of whom 6 are publicly quoted companies. Membership of KSE is also available to foreign entities in the brokerage house. It is restricted to 60% and Chief Executive has to be Pakistani National

Publications

The Karachi Stock Exchange publishes a daily Quotation and Fluctuations List giving full details of rates & price in fluctuation during the day. It also publishes important corporate announcements and other relevant companies' news. The quotation has been bifurcated into 27 sectors and the names of each listed company have been reflected under its relevant sector.

Table 3.1
Performance of stock Market

Equities	1996	1997	1998	1999	2000
Listed Co.	782	781	774	765	762
Listed capital	202687.8	208807.4	212153.6	223027.9	236458.5
Market Cap.	471665.5	524148.9	301103.2	366669.9	382730.4
New Listed Co.	30	4	1	-	3
Total turnover	NA	NA	18497.05	31329.98	46157.59
Listed capital	12041.4	2270.0	221.0	-	2035.0
Bonus issue	2921.9	2833.7	2130.4	4242.90	5204.55
Right issue	8540.9	1292.4	1166.3	6511.50	3490.79
Debt Instruments					
New Listed	2	NA	1	2	3
Listed Capital	1250.0	NA	274.43	1147.80	647.5
Fund Mobilize	21832.2	3561.4	1661.6	7659.3	6173.29
KSE-100					
High	1855.28	2067.98	1746.31	1416.62	2054.43
Low	1332.14	1341.31	765.74	852.44	1276.05
Average per day					
KSE-100	NA	NA	945.24	1408.91	1507.60
KSE all shares	NA	NA	619.35	874.83	945.90
Av. Volume	NA	NA	77.00	127.88	186.90
Av.Value. Vol.	NA	NA	1769.4	4412.8	7130.10
Foreign Investment in Security Market.					
Inflow	NA	NA	14930.6	5096.4	7618.0
Outflow	NA	NA	14242.1	7307.8	91292.8
Net inflow	NA	NA	688.5	-2211.4	-8608.3

Source: Annual report Karachi Stock Exchange.

Major Investors in the Market

The composition of ownership can be classified into the three categories:

1) Private Sector

2) Public Sector

3) Multinational Sector

In the private sector almost 60% the sponsors hold capital. In the Public sector, more than 80% controlled by the Government directly or through Government controlled institutions. In the Multinational Sector, the Parent Corporation holds almost 65% of equities.

Incidental Charges

(1) Commissions

These are prescribed in accordance with a schedule set by the KSE. It averages about 1/2% of the market value of the shares.

(2) Transfer Expenses

The present transfer charges are 1.5%of the face value of the shares under physical system of the settlement. There is no stamp duty for transactions settled through the Central Depository System, however there is one time deposit stamp duty of 0.1% of the face value of the shares.

(3) Zakat

Where applicable i.e. only in the case of the resident Pakistanis, Zakat is deducted 2.5% of the face value of the shares. However asset where Zakat has been deducted at source are exempted from wealth tax. Zakat is not applicable on foreigners, non-Muslims & non-resident Pakistanis.

Future Outlook

The KSE has been showing consistent progress since the last few years and more particularly since 1991 when several records have been surpassed with margins. Foreign Investors too have started showing keen interest. The future expected to be very helpful for the success of present policy of the industrialization & privatization by the Government. With all these developments and especially in the walk of various reforms made in the exchange & payment controls in Pakistan, foreign funds are also actively

involved in the secondary market operations that have added a new dimension of progress and activity on the KSE.

With the establishment of the Central Depository Company & the introduction of computerized trading foreign interest will be enhanced. Trade Volume will increase & trading will become more transparent. There are plans also to introduce new instruments. A credit rating agency has been established. Term Finance Certificate has already been floated. Option trading & a future market are likely to follow. The future looks promising as the young market grows & advances towards maturity.

3.3- PERFORMANCE OF STOCK MARKET.

At the time of independence the condition of Pakistan economy was poor. It grew gradually, during 1950,s due to healthy cooperation between public sector and private sector. Although at that time there were political instability, less industrial base and small entrepreneur class present but economy grew with healthy sign because of the healthy cooperation between private sector and public sector. As a result the performance of Karachi stock exchange improved i.e. listing of new companies increased from 13 to 81, paid up capital increased above to Rs. One billion ($267.2m) and market capitalization was Rs 109billion ($511.6m).

The economic progress continued in 1960s especially in the first half of this decade. In second half of this decade there were adverse effect on Pakistan economy due to war between India and Pakistan and socio political unrest. However overall economy had positive sign during this decade, which also had influenced on Karachi stock exchange. The new listed companies increase up to 318, but major emphasis was given on debt financing rather than equity financing. Three steps had been taken in this respect. First the trading Bonus Voucher Scheme in the equity market. Second, NIT and ICP were established in 1963 and 1966 respectively in order to provide facility for small investors to participates in the market. Third, regulating legislation such as the security and exchange ordinance in 1969 and security and exchange rule in 1971 promulgated to

protect the right of share holders and to regulate the activities of the members besides defining the reporting requirement for companies listed on the exchange.

The 70's decade was the worst decade in Pakistan economy. A war between India and Pakistan, separation of East Pakistan and nationalization policy had adverse effect on Pakistan economy as well as on Pakistan Equity Market. Sixty companies got delisted due to separation of East Pakistan and 18 companies were nationalized. 70% of the economy was under the control of the government and 30% was under private sector. But private sector was fully dominated by public sector that is why by the end of 70's the listed companies were 314 and market capitalization were Rs. 6.36 billion which was almost the same in the end of 1960.

1980's started with goods expectation because fear of nationalization was abated and flows of remittances of Pakistan worker form abroad. No serious measurement was taken until the half of the decade. In 1985-86 significant measure were taken including (i) exemption of income tax from dividend (ii) regularization of monetary system through the special bon issue (iii) issue of foreign exchange bearer certificate to encourage remittances through regular banking channels (iv) issue of bearer bonds for general public (v) a program to gradually permit the entry of the private sector in financial system investment Banks and leasing (vi) a disinvestment program of government held share.

These steps had positive impact on investment climate and restored business climate that had improved stock market activity. As a consequences the number of listed companies' increases from 314 to 438 and market capitalization increase eight times from Rs. 6.36m to Rs.52.79m.

The 1990's started with uncertain situation. The reasons were (i) highly tension with India (ii) change of the government and uncertainty about election (iii) gulf crisis which had adverse impact on balance of payments. (iv) the suspension of US aid on political ground as well as stoppage of the disbursement of IMF loan for failure to meet economic targets. These unfavorable reasons could not affect the market

sentiments largely due to privatization move and measure taken to liberalize the economy.

In 1991, the new government took steps, which were (i) the opening of the market to international investors (ii) removal of constraints to repatriation on investment proceeds, gains and dividends (iii) deregulation of economy and allowing commercial banks in private sector (iv) liberalization of foreign restriction and allowing Pakistani to have foreign currency accounts. Due to these steps stock market reacts positively and by the end of 1991, listing companies rose to 542 while market capitalization increase more than double $73 billion. Similarly turnover and value trade increased twice to 12.6% and US $620m respectively. These movements in stock markets caused the inflow of the foreign capital through common wealth Equity Fund, the Pakistan Fund and Pakistan growth fund. As a result, Pakistan share market was given 2nd rank among five emerging markets in the world in terms of return obtained by investors.

The success of stock market continued in 1992 due to government favorable policy, which attracts the foreign investors. As a result listed company increased up to 628, market capitalization to Rs. 204,723 million ($8025m). During 1993 till the end of 1994 the listed company rose up to 724 and market capitalization enhance up to Rs 37733m ($12263m).

1995 was not a good year for Pakistan equity market. Due to political crisis and discouraging economic outlook, outbreak of violence in Karachi foreign investors, local institutions and domestic investors did not take interest in investment in Pakistan equity market. KSE-100 index decreased by 26.9% in terms of local currency and 33.7% in terms of Dollar. No new company was listed during this year. Average monthly turnover is also sluggish and was $266.2m while total market capitalization dropped by 24.3%.

There was hope and better performance of Pakistan equity market at the initial level in early 1996. But political crisis and lack of positive economic news contracts the market in 2nd half of this year. KSE-100 index fell by 9.6% in domestic currency and

19.3% in Dollar terms. However turnover and market capitalization increased by 6.9m shares worth $6.1billion and 14.6% or $10.6m respectively.

The beginning of 1997, new government came into power, which has positive effect on Pakistan equity market. The main reason was the fact that the said government had introduced few economic liberalization measures during first tenure. The new listing companies got increased up to 782, while the market capitalization was Rs. 498984.

1998 starts with three major events whose influenced continues in 1999 and 2000. These events are First nuclear tests, which ultimately had its effect on the financial sector in two ways (i) imposition of economic sanction by foreign countries (ii) internal handling of affairs by declaration of emergency under article 232 and freezing of foreign currency accounts. Second the controversy between IPP and government of Pakistan about regulating the Hubco project. Third Military regime came into power in late 99's. This resulted in uncertainty in domestic business environment accompanied by further economic sanctions by foreign governments. These events affect Karachi stock market. The new listed companies rose up to 773 in 1998 and reduced in 1999 i.e.765. The market capitalization also reduced by Rs.26471m and Rs366669.9m respectively.

Second Part

3.4- REVIEW OF LITERATURE WITH REFERENCE TO KARACHI STOCK EXCHANGE.

A lot of work is available on equity and financial market in general but a very little work has been done on Pakistani equity market. The work on Pakistani stock market started from beginning of 90's when Pakistan's stock market was recognized as an emerging market in Asia. A great interest is created among researchers and financial economist to study and analyze the behavior of Pakistan's stock market.

Nishat (1992) did the first work. He considered about the relative importance of the dividend and retained earning, which explains the share prices. Then he compared the

dividends and retained earnings that influence on share prices with highly profitable growth industries and less profitable industries. He used Durand (1959), Fisher (1961), and Benishay (1961), Linter (1962), model with some modification. These model had related stock prices to current dividends and retained earnings. He modified the models by using lag of earning price ratio, which measured individual deviation from sample average earning price ratio in the previous year. He found that the effect of dividend and retained earnings on share prices are comparatively bettered explained. His result showed that in all types of industries whether growth or non-growth, both dividend and retained earnings effect hypothesis are equally important.

Uppal (1993) examined the relationship between prices in Pakistan equity markets and international markets. In his study he selected the countries on the basis of relationship of Pakistani stock market with Australia, India, Japan, Korea, UK and USA. Except for India and Korea the selected countries are major trading partners of Pakistan. He used the monthly share prices indices from July 1969 to June 1992 and used the GARCH (p,q) model to investigate the spill over effects in mean stock return and volatility from these markets to the Pakistani markets. His results indicate that in the recent period there is evidence of integration of Pakistani market with stock in Japan and Korea. The integration with other markets is relatively low. The study concludes that regional stock markets may be exerting a great influence on the Pakistan stock market than more distant market.

Khilji (1993) studied about the behavior of Pakistan stock returns. He emphasized on time behavior of monthly stock returns from July 1981 to June 1992. The author used State Bank price indices and calculated monthly stock returns of 11 groups of stock. He finds the distribution of stock returns to be non-normal, generally positive skewed leplkertic and positive mean. He used an error correcting, first order auto-regressive model, and employing the Kalman Filter technique, the author attempted to determine the time-varying behavior of monthly expected returns and finds expected returns to be constant and equal to long term expected monthly return. However, as pointed out by author, this is a surprising result in the context of a developing economy and needs further investigation by using weekly or daily data.

Khilji (1994) investigated whether stock returns in Pakistan are characterised by nonlinear dependence, using the test developed by Brocks, Dechert, and Scheinkman (BDS). Using weekly indices, BDS tests are conducted on both returns and residuals from an auto regressive model. Strong non-linear dependence is found in six of the eleven indices. As mentioned by author, this nonlinear dependence could result from a non-linear deterministic system or a non-linear stochastic system. In order to distinguish between the two, the author suggests the use of non-linear stochastic models like GARCH to estimate the returns.

Jun and Uppal (1994) examined the characteristics of the Karachi Stock Exchange using monthly International Finance Corporation indices as well as monthly stock prices for 20 companies. The results show the distribution of stock returns to be non-normal. The analysis of serial dependence shows significant auto-correlation coefficient for indices. However, this is not the case for individual companies and Q (12) is significant for only 3 of the 20 stocks, suggesting that independent hypothesis, generally, holds in the Pakistani market.

Ahmed and Rosser (1995) examined the existence of speculative bubbles in Pakistani equity market, using daily indices. The authors use the vector auto-regressive (VAR) technique to estimate a presumed fundamental on the stock market indices. Then they use the Hamilton regime-switching model and the associated Wald test to examine the presence of speculative trend, and they find the evidence of their presence. In order to examine the nonlinear dynamics, the authors first test the series for ARCH effects and find the presence of these effects. After controlling for the ARCH effects, the authors apply the BDS test and find evidence of such a nonlinear structure. The nonlinear dynamics, according to the authors, suggest that the Pakistani economy may be subject to instability and oscillation that may be generated by the erratic and complex dynamics of its stock market.

Farid and Ashraf (1995) investigated the impact of trading on the volatility of stock prices of Karachi stock exchange. He randomly selected ten companies from 100 companies listed on KSE-100. The average daily turnover of each selected company's shares was calculated from the published date for the first six-month of 1994. This average turnover of each company was expressed as percentage of the total number of

shares of that company and was used to find out volume of trading of each company. The result advocated the assumption that he had taken in the model and found the strong positive correlation between the volume of trading and the expected rate of return, volume of trading and volatility and expected rate of return.

Hussain (1997) studied the distributional characteristics of the Pakistani equity market as well as the impact of liberalization measures on the market. He took the data of 36 individual shares, 8 sector indices and the general market index. His investigation showed that Pakistani stock market are likely to generate positive returns. Stock returns in Pakistan did not characterize by normal distribution.

Hussain (1997) investigated the validity of Random Walk model in the Pakistani equity market using the data from January 1, 1989 to December 30, 1993. He tested the serial correlation and run test. He found the presence of strong serial dependence in stock returns and suggested that the random walk model is not appropriate to describe stock returns behavior in Pakistani equity market.

Hussain (2000) extended his previous work and examined the day of the week effect on the Pakistani equity Market. The results did not indicate any significant differences in stock returns across days. The analysis conducted over various sub-periods revealed the presence of day of the week effect in the form of lowest returns on the first trading day. However, the paper indicates identical distribution of stock returns across days.

Hussain (1998) examined the effects of the month of fasting on the behavior of stock returns. The analysis indicate a significant decline in stock returns volatility in this month although the average return indicates no significant change.

Ali (1997) investigated the relationship between noninformational trade and stock market activity. He used Campbell, Grossman, and Wang (1993) model and developed the relationship between stock price and volume. He investigated that noninformational factors explained the trading activity (Volume and Price) in Karachi Stock Market. He concluded that the fluctuation in stock returns occurred due to idiosyncratic risk and risk aversion of market participants.

Ahmad and Zaman (1999) examined the association between risk and expected return at Karachi Stock Exchange between risk and expected return at Karachi Stock Exchange. They used the CAPM model and investigated the monthly volatility in returns. They took

CHAPTER-4

OBJECTIVES AND METHODOLOGY

4.1- INTRODUCTION:

This chapter presents the objectives i.e. to see the association between information and trading activity and the methodology, which follows as (i) correlation between daily news and trading activity (ii) regression between daily news and trading activity. I collected the data from the headlines of front page of Daily "Business Recorder" and "Dawn". The rationale behind choosing these two is that daily Business Recorder is more economic and business oriented and other is political. This gives the information of two different perspectives i.e. economic and political. I found that surprise news as well as total numbers of news are negatively related to trading volume and market returns. The relationship is robust in case of trading volume but not with market returns. Moreover the impact of information on volume is more vivid on Wednesday and less on Friday. This chapter concludes on recommendation and suggestion.

4.2- DATA DESCRIPTION

4.2.1 The Information Variable:

The data on information is collected on daily basis from the headlines of front-page news of Daily Dawn and Business Recorder. The Business Recorder is more business and economic oriented newspaper whereas Dawn is a general newspaper. This difference in the nature of newspaper is expected to capture the relative importance of market relevant information. The length of data period is July 01, 1998 to Dec.31, 2000. Total 15772 news headlines are collected in which 10510 are taken from Business Recorder and 5262 from Dawn. During this sample period there are 619 days in which Karachi Stock exchange was open and trading took place.

This sample period is interesting in that period diverse kinds of information were generated during this period. Three major events that took place during this period had implications for the stock market. First, the nuclear tests of May 28, 1998 by Pakistan; It created deep effect on the financial sector in two ways: (i) the imposition of economic sanctions by foreign countries, (ii) internal handling of affairs by declaration of emergency under article 232 and freezing of foreign currency accounts. Second, the controversy between IPP's (Independent Power Producers) and Government of Pakistan regarding the HUBCO project peaked during this time. The contribution of HUBCO in the total trading volume of KSE is large so is its importance in KSE-100 index. Therefore

any factor that affects HUBCO can significantly affect the aggregate activity in stock market. Consequently, any news regarding HUBCO affects the activity of stock exchange. Third, Military regime came into Power. This resulted in uncertainty in domestic business environment accompanied by further economic sanctions by foreign governments. Furthermore, efforts to increase the tax base of the country by the government which were opposed by the business also affected the stock market.

4.2.2 Why Use Daily Data :

Our purpose is to check relationship between public arrival of information and excess returns. The short term and immediate effects of information can be easily observed in daily data. Sometimes information affects the stock on same day. But if the market is not informationally efficient then it may affect after one day, two days, and three days. This insight is not available with monthly or weekly data. Moreover, long horizon data create difficulties in measuring excess return. It may be undetectable when the two or three days of excess returns mix. Real effects might be missed when broad based or long horizon data is used. Monthly data get adjusted to the new information much easily as compared to the weekly and daily data on stock market activity and it may falsely portray efficient stock market. Jun and Uppal (1994) pointed that monthly data creates spurious conclusion about the efficiency of market due to adjustment of information. Khilji (1993), and Uppal (1993) have used monthly data and their results are limited by this fact. About his own study Khiliji (1993) indicates the surprising result and suggest the same study on the basis of weekly data or daily data.

4.3 Summary Of News Statistics:

Summary statistics of news information is given in table I. The news, which is taken from Business Recorder and Daily dawn, published on front page. In our data the mean of total daily news is 25.48 and standard deviation is 3.43. The total minimum news items on any day are 16, that were published on Oct.17 1998 and the maximum news on any day are 36, which were published on May 11, 2000.

Summary statistics for daily news announcement
TABLE: 4.1

News published. by News papers	Number of News	Average of News	Standard Deviation	Coefficient of Variation	Maximum News	Minimum. News
Total news	15772	25.48	3.43	0.135	34	16
Business Recorder	10510	16.98	3.06	0.180	25	08
Dawn	5262	8.497	1.50	0.177	14	05

Analysing each newspaper separately the average of the total Business Recorder news is 16.98 and standard deviation is 3.06. The maximum news items are 25 published on March 25, 1999 and minimum news items are 08 published on Feb.6, 1999. The average of total Dawn news is 8.47 and standard deviation is 1.50. The maximum daily news items are 14 published on August 05, 1999 and minimum daily news items are 05 published on July 07, 1999. The standard deviation of total news is larger which shows that the arrival of news is quite variable on day-to-day basis. The standard deviation of Dawn news is 1.50, which shows the consistency in the arrival of news. Adjusting the variance for differences in means by calculating the coefficient of variation, there is not much difference in the daily variability of news arrival between Dawn and Business Recorder. There is some common news in both newspapers. The nature of news of Dawn is general economic and political news whereas the nature of Business Recorder news is economics and business. Both Business Recorder and Dawn cover general economic news.

Summary statistics for monthly news announcement
TABLE: 4.2

Month	Trading days	Average total news	Average news of Business Recorder	Average news of Dawn
January.	34	25.23	16.97	9.26
February.	40	25.96	16.80	9.15
March.	40	24.92	16.47	8.45
April.	40	25.37	17.17	8.20
May.	43	25.27	17.34	7.93
June.	43	24.97	16.62	8.27
July.	66	25.06	16.78	8.46
August.	64	25.34	17.02	8.32
September.	63	25.53	16.96	8.57
October.	64	25.70	17.21	8.48
November	62	26.93	18.32	8.61
December	61	24.95	16.50	8.44

Table 4.2 shows the trend in news information by months. On the basis of selected sample data the largest means of total news is 26.93 per day reported in November and the lowest average of news is 24.92 per day reported in March. Regarding to Business Recorder the largest and smallest news information is in the same months of means total news. Pertaining to Dawn the largest mean news were published in January (9.26 per day) and lowest in May (7.93). Average daily number of news increased during the first six months of fiscal year and declined during the last six months. The pattern may be due to various news items explaining the budget, mini budgets, and company performance news (for most of the companies end year is June or September around it the companies release information on their business performance), income and sales tax news etc.

Furthermore, we also analyse the means of total information by the day of the week. Table 4.3 shows the same. The mean of total news information rise from Monday to Thursday but slightly decrease on Friday, which show the number of news announcements is smaller on the days before holiday. Jain and Joh (1988) and Lakorishok and Maberly (1990) have examined the news information trends in stock market activity.

Summary statistics for day of the week news announcement
TABLE: 4.3

Days	Trading days	Means of total news	Means of news Bus. Recorder	Means of news Dawn	Max.	Min
Monday	123	23.40	14.95	8.43	33	16
Tuesday	123	25.52	16.83	8.68	33	19
Wednesday	124	26.06	17.65	8.41	34	20
Thursday	127	26.87	17.50	8.37	34	18
Friday	113	26.66	18.08	8.58	34	20
Saturday	10	24.10	15.40	8.7	30	19

The summary statistics in Tables 4.1, 4.2, and 4.3 showed that there is consistency in daily variability of news across the two newspapers and that the daily average number of news/information exhibits some systematic pattern. This pattern will draw the spurious result if there is some common environment that is responsible for generating a pattern in information as well as in the measures of stock price or market activity. To avoid such spurious result a general econometric technique is to work with the differenced data.

Summary Statistics of descriptive News
TABLE: 4.4

Types of news	No. of news
No. of news	15772
HUBCO and IPP	1085
IMF and world Bank	1507
Foreign currency account	312
CTBT and Nuclear test	307
Aid from other countries	374
Violence and strike	183
Devaluation and F.E. Reserve	207
Kashmir issues	265
Kargil Issues	21
Paris club	72
Political news	598
Stock Market news	113
World news	173
Miscellaneous	10755

But there is a bigger problem, as mentioned earlier, in using the raw data on number of daily news items as information variable. It is that some news items may be only the publication of already anticipated news, which is not likely to impact market valuation of stocks on the day of publication. The raw data on number of daily news items does not differentiate between anticipated and unanticipated announcements. Moreover, news around a certain event may come in clusters and some times repeated for more than one day.

To account for all the three factors mentioned above we define information as difference between numbers of daily news items from its twenty-day moving average. The idea is that this method will capture innovations or unanticipated element in news.

4.4 Measurement of Market Activity:

For the purpose of this study we are interested in measuring aggregate level of market activity. We utilized two measures: (i) returns in stock market, (ii) abnormal trading volume. The market returns are obtained by taking first difference of natural logarithm of daily KSE-100 index.

Another measure of market activity i.e., the abnormal daily trading volume is obtained by first taking the natural logarithm of volume and then, subtracting it from its twenty day moving average.

4.5 EVIDENCE ON SYSTEMATIC PATTERN IN RETURNS AND VOLUME

4.5.1 Evidence of Systematic Pattern in Return and Volume:

Before we embark on our main task of relating information to market returns and volume it is important to check weak form efficiency of Pakistan's stock market and to check for systematic patterns in returns, e.g., the day of the week, and month of the year effects in our data. Such patterns are wide spread in other stock markets and reported extensively in the literature. In context of Pakistan, Hussain (1999) have shown existence of Ramadan effect, and month of the year effect using monthly data covering a different sample period than ours. For us it constitutes sufficient evidence for existence of pattern, but we want to know the existence of such patterns in the daily data as well that we are using. For this purpose we start with the test of random walk model.

According to random walk model hypothesis the successive returns in an individual stock returns are independent. To test this hypothesis we compute the differences of two successive prices in natural logarithms, which is the stock returns and then calculate the correlation with different lags. Table 4.5 shows the correlation between stock returns with different lags.

Random Walk model test

Correlation coefficient of Successive returns

TABLE:4.5

Lags	1	2	3	4	5	6	7	8	9	10
Rt	0.078	0.080*	0.014	-0.25	0.044	-0.02	-0.04	0.025	0.025	-0.05

The above table shows that there is serial dependence between two successive returns but all coefficients of correlation are statistically insignificant except that with lag 2, it is positive and significant. This shows that two days old returns have predictive power for today's stock returns. This runs against the weak form efficiency of the stock

market, which predicts that past returns should not have any explanatory power for current returns once immediate past returns are taken into consideration.

Table 4.6 shows day-of-week trend in the market activity. We estimate the day-of-week dummy variables with trading volume and stock returns, which indicate the deviation of volume or returns on particular day from the mean value of the given variable. The trading volume exhibits a pattern that on Wednesdays it is 12.2% higher relative to the average daily volume and on Fridays it is 13.6% lower than an average daily volume. This result is statistically significant. The pattern in stock returns is such that the returns are 0.5% higher than average on Mondays and 0.5% lower than average daily returns on Fridays. The result is statistically significant. The consistently less than average daily trading volume and stock returns on Friday may be attributed to short trading hours due to Jumma prayers.

Day of the week trends in Market activity.

Table: 4.6

Day of the week	Trading volume	Stock return
Monday	-0.0236 (-0.492)	0.005039* (2.336)
Tuesday	0.00488 (0.142)	-0.00178 (-0.824)
Wednesday	0.122* (3.271)	0.000989 (0.458)
Thursday	0.03864 (1.138)	-0.00109 (-0.511)
Friday	-0.136* (-3.896)	-0.00583* (-2.617)

4.6 ANALYSIS OF RELATION BETWEEN INFORMATION AND MARKET ACTIVITY

4.6.1 Correlation between news information and market activity:

Most of the statistical tests for the stock market efficiency with respect to information are based on correlation coefficients and their transformations. A standard process is to test the null hypothesis that coefficient of correlation between information and stock prices is zero. If new information immediately reflects in stock prices then, the correlation coefficient would be +1 (or –1) indicating that the market is fully efficient. Additionally we have also used regression analysis to test for informational efficiency.

As discussed earlier we have focused only on the public information. Informational efficiency in this context means that public information is fairly rapidly incorporated in security prices. An implication of efficient market is that it is not easy to manipulate, hence small investors will also take interest in investment in stock market. Attempts to earn excess returns on the basis of public information in standard ways are unlikely to be successful. All techniques and all forms of public information have not been tested in this paper for excess returns. However, sufficient numbers have been tested to indicate that an investor should be cautious about selecting stocks simply on the basis of new publicly available information.

The news information, excess trading volume and return variables are computed as defined in the data section. The results on correlation coefficients are shows in Table (4.7)-A. The coefficient of correlation for news information and trading volume is represented in column 1. For all news information the correlation coefficient is 0.127, which is negative and statistically significant. For separate news sources the coefficient of correlation between news in Business Recorder and volume is negative and statistically significant, while that between news in Dawn and volume is positive but statistically insignificant. It shows that information does impact on trading volume but this relation is weaker. To capture the day of the week effect on the correlations we calculated these correlation coefficients separately for each day of the week. The results are reported in first column of Table 4.7-B. For Wednesday and Friday the coefficient of correlation is significant. On Wednesday the correlation is positive and significant. On Friday the coefficient of correlation is negative but significant. It shows that the role information on Friday is negative.

When same analysis is carried out for stock returns (reported in column 2 of Table 4.7-A and 4.7-B), the association with all news information is negative and statistically insignificant. In day of the week effect for Monday the coefficient of correlation is positive and weak but statistically significant. For Friday the relation is negative and weak but significant.

Correlation coefficient with news announcement

Table: 4.7-A

The table shows the correlation coefficients: (i) between excess trading volume and news surprises (column-1); (ii) between news surprises and stock returns (column-2). News surprises are defined as deviations of number of news from its past twenty-day moving average. Excess volume is defined as deviation of log trading volume from its twenty-day moving average. Stock returns are difference between log of daily stock prices. Results are reported for total news, news from Business Recorder only, and news from Dawn only. Numbers in parentheses are ρ-values/levels.

"News" announcements (i.e., news surprises)	Excess Trading Volume	Stock Returns
Total news	-0.127* (0.002)	-0.0332 (0.415)
News from Business Recorder	-0.119* (0.005)	-0.031 (0.138)
News from Dawn	0.022 (0.224)	0.045 (0.237)

Day of the week and correlation coefficients with news

Table:4.7-B

The table shows, for each day of the week, the correlation coefficients: (i) between excess trading volume and news surprises (column-1); (ii) between news surprises and stock returns (column-2). News surprises are defined as deviations of number of news from its past twenty-day moving average. Excess volume is defined as deviation of log trading volume from its twenty-day moving average. Numbers in parentheses are ρ-values/levels.

News announcement (i.e., news surprises)	Excess trading volume	Stock returns
Monday	-0.0287 (0.553)	0.0864* (0.036)
Tuesday	0.017 (0.930)	-0.013 (0.74)
Wednesday	0.079* (0.047)	0.016 (0.686)
Thursday	0.023 (0.524)	-0.032 (0.443)
Friday	-0.087* (0.044)	-0.105** (0.010)

* Significant at 5% level

** Significant at 1% level

It appears that a relative weak relation exists between news information and stock returns. There are various reasons for it. First, much of the news information may be firm specific and does not impact the aggregate stock price index. Second, Public information news does not posses the importance of particular news information. Third, KSE does not link with foreign stock market, which is why im0pact of news information cannot be incorporated in KSE index. Fourth, KSE is the emerging market, which casts down on the validity of the model regarding to information. Fifth, The data on information is

collected from Business Recorder and Dawn and the news therein are imperfect substitute for new information. That is, these news items are settled information hence could not convey sudden and abrupt reaction on trading activity.

4.6.2 Regression analysis between news information and market activity:

Regression shows the casual relationship between dependent variable and independent variable. We regress the model on market activity i.e. trading volume and stock returns as dependent variable and news information as independent variable. The regression analysis focuses on the aggregate data for excess volume and returns and total number of news per day as public information. Regression analysis is given in table 4.8.

Regression of news information and market activity:

TABLE: 4.8

Table shows the results of univariate regressions of stock returns on total news and excess trading volume on total news with dummies for each day of the week and without dummies. Stock Returns (Mon) = $a_1 + b_1$ (Total Number of News) * D_1: Stock Returns (Tue) = $a_2 + b_2$ (Total Number of News) * D_2 : Stock Returns (Wed) = $a_3 + b_3$ (Total Number of News) * D_3 : Stock Returns (Thu) = $a_4 + b_4$ (Total Number of News) * D_4 and Stock Returns (Fri) = $a_5 + b_{15}$(Total Number of News) * D_5 . Similarly, Ln(Excess Trading Volume, Mon) = $c_1 + g_1$ (Total Number of News) * D_1: Ln(Excess Trading Volume, Tue) = $c_2 + g_2$ (Total Number of News) * D_2 : Ln(Excess Trading Volume, Wed) = $c_3 + g_3$ (Total Number of News) * D_3 : Ln(Excess Trading Volume, Thur) = $c_4 + g_4$ (Total Number of News) * D_4 : Ln(Excess Trading Volume, Fri) = $c_5 + g_5$ (Total Number of News) * D_5 . Where D1 to D5 are dummy variables for each day of the week Monday to Friday. Numbers in parentheses are t-values.

	Stock returns	Trading volume
Total No. of news	- 0.0038 (-0.62)	-0.0441* (-2.84)
Monday	0.0014* (2.12)	-0.012 (-0.007)
Tuesday	-0.0021 (-0.33)	0.007 (0.43)
Wednesday	0.0002 (0.40)	0.032* (1.94)
Thursday	-0.0006 (-0.784)	0.009 (0.561)
Friday	-0.0017* (-2.59)	-0.036* (-2.14)

The first column shows the univariate regression between stock returns and news information. The coefficient of news is negative and insignificant at 5% level. The second column shows the univariate regression between trading volume and news information. The news coefficient is negative and significant at 5% level. These suggest that if information increases by 100%, the trading volume decreased by 4.41%.

The day of the week shows regression of the news and market activity that include dummy variable for each day of the week. The univariate regression between stock return and information on Tuesday, Thursday and Friday is negative. The coefficient of information is insignificant but it is significant for Monday and Friday and significant. The coefficient of news information to trading volume on Wednesday is 0.032, which is positive and significant and for Friday, it is negative and significant. It means if 100% news information increase the stock return increased 3.2% on Wednesday and decreased by 3.6% on Friday.

From the above analysis of correlation coefficients and univariate regressions we have seen that there are some cases of direct relation and other cases of inverse relation. On a closure look we find that this relation explains the common day of the week trends of information, volume and return. For example compare the signs of coefficients for day of the week effect in tables 4.6, 4.7-B, and 4.8 and note that they change in coherence. The most common day related to stock returns and trading volume is Friday in which stock activity is comparatively low. The investors do not sell equity on that day and expect that they will be able to earn more profit on Monday. That is why trading is slightly more on Mondays as compared to Fridays. But on the opening day of the week the investors are reluctant to purchase the stocks and they wait more. That is why Wednesday is more active for trading volume as compared to all other days. The contrasting results between relationship of volume and returns with publicly available news are consistent with the French-Roll (1986) opinion that public information can be incorporated into prices without significant trading volume.

4.7 FURTHER CHECKS

So far we have shown that the relationship between broad-based definition of information and market activity exists but it is weak. As discussed earlier, the small magnitude of the coefficients may be due to reasons such as the following: The news used in this study as information could not capture the sudden and abrupt nature of information. We have selected simply the headlines on front pages published in the daily Dawn and Business Recorder. Unexpected or shocking news e.g., war, dispute between India and Pakistan

about Kashmir matters, dispute between Pakistan and HUBCO authorities, IMF and World Bank news etc may have greater effect on trading activity of stock market as compared to the company news, dividend announcement etc.

For this purpose we narrowed the definition of information from its broad-based version. We, therefore, selected some particular news to see the reflection of information on stock activity. This method is expected to use a prior information about importance of news stories. For this purpose two dummy variables are introduced. First dummy takes the value of 1 for having at least one news item about IPP or IMF or World Bank related issues on a given day published in the newspapers and zero otherwise. This is done because news about IPPs is expected to affect the stocks of HUBCO, which constitutes about 36% of total stock market shares. Second dummy is associated with above average news. It takes a value of 1 when on a given day a total of 26 or more news are recorded and zero other wise. This approach is in line with the method of Niederhoffer (1971), and Cutler, Poterba, and Summers (1989) to study the impact of particular news that researchers think important.

Table: 4.9 shows the number of news involving IMF, IPP (including that of World Bank and HUBCO) by week of the day. Mondays and Tuesdays have less than average news as compared to other days. Much of news pertaining to the above topics was published on Saturday and Sunday when the stock markets were closed.

Number of combined news of IMF and IPP etc by day of the week

Table: 4.9

Days	News of IMF and IPP
Monday	220
Tuesday	214
Wednesday	238
Thursday	272
Friday	246
Standard dev.	1.035

Table 4.10 shows the results of four separate regressions of excess trading volume and stock returns on dummy variable for above average news and on dummy variable for IPP-HUBCO news.

Regressions of above average news and importance of news with proxies.

Table:4.10

Nature of news	Excess Trading Volume	Stock Returns
Above average news	-0.084*	0.00009
	(-1.94)	(0.057)
News of IMF and IPP	0.0205	-0.00085
	(0.465)	(-0.488)

It shows that the above average news has negative significant effect on trading volume, while the combined news of IPPs, IMF and World Bank has no significant effect on trading volume. Unlike the trading volume, neither the above average news nor the combined news have any significant effect on return. These results are in contrast to French-Roll (1986) who argued that the above average news and importance of news has significant effect on return rather than trading volume. The present study shows the trading volume is affected by the two news categories mentioned above.

We further investigated these relationships separately for each day of the week and found interesting result in day of the week pattern. These are reported in Table 4.11 and 4.12.

Regression of combine news of IMF and IPP

with dummy variable in day of the week

Table:4.11

Days	Trading Volume	Stock returns
Monday	-0.088	0.0027
	(-1.21)	(0.96)
Tuesday	0.067	0.0014
	(0.97)	(0.525)
Wednesday	0.121*	0.7565
	(1.81)	(0.443)
Thursday	0.037	-0.0023
	(0.587)	(-0.92)
Friday	-0.109*	-0.0036*
	(1.64)	(-2.15)

Regression of combined news has positive and significant effect on trading volume on Wednesday and has negative and significant impact on Friday. This has resemblance to the results with total number of news that were reported in Table VIII. On the other hand, the above average news has negative and significant impact on trading volume on Monday and on return on Friday.

Regression of above average news with dummy variable in day of the week

Table:4.12

Days	Trading Volume	Stock returns
Monday	-0.268* (-2.47)	0.003 (0.63)
Tuesday	-0.0012 (-0.97)	0.003 (1.21)
Wednesday	0.018 (0.26)	-0.0008 (-0.31)
Thursday	0.002 (0.02)	0.0003 (0.148)
Friday	-0.080 (-0.06)	-0.004* (-1.62)

Regression of combined news has positive and significant effect on trading volume on Wednesday and has negative and significant impact on Friday. This has resemblance to the results with total number of news that were reported in Table VIII. On the other hand, the above average news has negative and significant impact on trading volume on Monday and on return on Friday.

4.8. CONCLUSION:

In this study I have examined the linkage of news published in daily Business Recorder and Dawn with aggregate stock market activity measured by market returns and trading volume. I have found that at aggregate level the news surprises and the number of news both are negatively related to stock market activity in Pakistan. This relationship is statistically significant in case of trading volume but insignificant in case of stock returns.

I also found the day of the week patterns in these relationships. This relation (market activity and news) is also robust with news importance and above average news. The days having larger news have significantly negative impact on volume but have no impact on return. More narrow definition of news (i.e., combined news of IPP and IMF) has no significant impact on volume and return. Although in most of the cases our relation is significant, however this relation is weak.

The analysis points to the fact that in Karachi Stock Exchange public information does not play as important role in day to day variation in stock returns than the role played by private information (and non-informational reasons). Here the term private

information is used to denote all non-public information such as insider information as well as the information generated by the process of trade itself.

The analysis points to the difficulties in finding observable relationship between public information and market activity and that this relationship may not be simple. There is a possibility that the news, which we have taken as informational variable, does not cover all important and surprising news. But I have tried to control for this as much as we could by broad-basing the definition of news as well as by focussing on a narrower definition of information.

I also note an interesting point regarding day of the week pattern in market activity. From trading volume point of view Wednesdays are most prominent as trading activity is very brisk on this day while it is very sluggish on Friday, which can be due to short span of market time and Jumma Prayer. From return point of view Monday is the best day in which high returns are obtained but Friday it is worst, which show losses.

Recommendations And Suggestions:

The focus of the securities markets regulations and practices should be to enhance the role of public information and reduce the role of private information.

1. There is a need to improve the quantity, quality and credibility of information companies discloses to the investing public. This should be in the shape of establishment of an online information service, issuance, by the companies, of regular and detailed reports besides usual annual reports. Insisting on regular distribution of dividends in cash.

2. Investors' protection from sharp brokerage practices such as insiders trading and excessive speculation should be made possible by implementation of laws against such practices.

3. At present credibility of many listed companies is low because their boards of directors consist of their own family members. This is likely to give greater weight to the

interest of select groups. Securities and exchange committee is reportedly taking up this matter.

4. Regulating the stock traders and improving the payment and settlement system of trade such that no one trades beyond his net wealth to reduce speculative trade and the liquidity motivated trade.

5. Promotion of research and development in all brokerage firms could also help in informed investment and reduce the sharp fluctuations.

APPENDIX

SUMMARY OF NEWS HEADLINES AS INFORMATION VARIABLE:

This study uses publicly available news as public information and relates it to stock market activity. Therefore the news covered belongs to international and domestic events, political and macroeconomic news, as well as company performance news and events. Following are some major categories of news along with some description that were published during our sample period.

During 1998-2000 the confidence of foreign and local investors remained subdued because of variety of reasons including: the impact of freezing of foreign currency accounts, the IPP issues, economic sanctions and slow down of economic activities. The confidence level stood up to 42%. On Economic front all development led towards the uplifts of the economy i.e. the release of funds by IMF and World Bank and rescheduling of loans by Paris club but it could not evoke a strong response from investors. The much-awaited decisions by Lahore High Court on frozen currency accounts and immediate deferment of action by the Supreme Court of Pakistan also had deepening effect on investor's confidence. Investors' confidence that got a major blow after the post nuclear development could not be restored during the Fiscal Years 1998-2000. Consequently the confidence level remained in the lower categories.

IMF and World Bank related news had been important news regarding stock market activity. Usually the news regarding these two institutions had been about release of loans. Because Pakistan did nuclear tests, the USA and other developed countries imposed economic restriction on Pakistan. That is why whenever delegations of IMF and World Bank were due to come to Pakistan, the investors in stock exchange felt that these institutions would release the funds, which would have good impact on the economy and consequently on stock market. IMF also interferes between the IPP and the Government of Pakistan (GOP) matters. When there is no positive result drawn from negotiations between the government and IPP KSE-100 index goes down.

The news about HUBCO and IPP had been another important news for stock market during this sample period. The contribution of HUBCO project in Karachi Stock Exchange

was 36% of total exchange shares. Any negative news regarding HUBCO and IPP has adverse effects. In inverse case the index increases. Even a rumor about whether the negotiations between GOP and HUBCO are going to continue or break down influences the KSE-100 index.

Foreign currency account was third burning issues during 1998-2000. After the nuclear test Pakistan had frozen foreign currency accounts. The foreign reserves fell by Rs. 101million to about Rs. 1.27 billion within three days of nuclear test. The public have sued in Supreme Court against the freezing of foreign currency accounts. It also had negative impact on KSE index.

CTBT (comprehensive test ban territory) and the news relating to nuclear test were also the hot issues during 1998-2000. The news items regarding these two hot issues were 40. India and Pakistan have conducted nuclear tests on May 11,1998 and May 28, 1998 respectively. After these tests the USA and other developed countries including the multilateral institutions like IMF and World Bank were pressing both countries for signing on the CTBT. Moreover, Pakistan and India also conducted Missile tests. When Pakistan fired Hataf V the KSE index went down for the reason that investors conjectured that India would also fire missile. When India test fired multi-barrelled rocket and N-capable Agni missile, Pakistan responded by test firing Ghauri II and Shaheen missiles. The news about missile tests made the KSE-100 index go down because investors guessed that the USA and other developed countries might put severe sanctions on Pakistan, funds will flow out and the condition of Pakistan's economy will deteriorate.

News about aid from other countries was another crucial news category regarding economic activity in Pakistan. After the imposition of economic sanctions, the economic condition of Pakistan deteriorated. World Bank, IMF, USA and other developed countries had banned the economic aid to Pakistan. In this situation Saudi Arabia, Islamic Development Bank, and Japan gave aid on soft terms to support the Pakistan's economy. Some countries gave aid directly and some countries gave it in the form of projects. Kuwait, Saudi Arabia, IDB offered $250, $610, and $1.5billion respectively. While in project forms, the aid was $30million for Ghazi Brotha Dam by Kuwait, ¥75.211million for debt by Japan, and $228625 for welfare project by China. All these have positive impact on stock market.

Law and order remained one of the major problems in Pakistan especially in Karachi during this sample period. When there was any disturbance in Karachi it had negative effect on the KSE index. In this situation the confidence of people weakens and they don't take interest in investment in stock market. When the situation of law and order improves the confidence regain and KSE index goes up. News about law and order situation pertains to killing, violence and strikes were therefore considered.

Devaluation and foreign exchange reserve position are also the factors that influence on stock market. After the nuclear test, the Foreign exchange reserve decreased. Government tried to increase the reserves by devaluation of currency. Devaluation increases the export and reduces the import, which can increase the foreign exchange reserve. But our exports and imports are price inelastic which have results in very small effect on foreign exchange reserves. Consequently, the government relies on foreign debt to make up the finance gap, our debt burden increases and overall effect on the economy is negative and thus on KSE-100 index. Government also purchases the foreign currency from foreign markets. Whenever the foreign exchange reserve situation improves the KSE-100 index goes up.

Kashmir and Kargil issues were most disputed and important issues between Pakistan and India. Due to disturbance in occupied Kashmir India attacked on Azad Kashmir of Pakistan. Whenever tension increases at the Line of Control in Kashmir, it also affects KSE-100 index. In May -June 1999 the Kargil issue aroused, which had adverse affect on KSE-100 index.

For the betterment of stock market the government of Pakistan took different measures during this sample period. For example, five major banks agreed to inject liquidity in share markets, which impacted positively on the stock market.

Political news is one of the major factors that influences stock market. Some important political developments during our sample period were: resignation of General Janghir Karamat as Chief of Army Staff, quitting of MQM ministers from the Sind Government, suspension of Sind assembly, change of the Governor in Sind, Supreme Court's decision about arrest of Benazir Bhutto, dissolution of Muslim League's government, military regime came into government, change of Governor of Sind and NWFP

are the major political news during 1998—2000. Some political steps had been taken for the betterment of situation of Sind, which also have positive impact on KSE-100 index.

There was also some international news, which had influenced stock market. For example, recession of Japan which had impact on its exports, US President Clinton's message to the Prime Minister of Pakistan, about dialogue with India, shut down of US embassy, US strikes at targets in Afghanistan and Sudan, Clinton's visit to Pakistan and India, dispute about presidential elections of USA between the two political parties. These were some news at international level, which influenced stock exchange.

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