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Effect of Dividend Policy Measures on Stock Prices: With Reference to Karachi Stock Exchange, Pakistan

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ABSTRACT

The objective of this study is to examine the dividend policy measures effect on the stock prices. A sample of 171 listed companies from Karachi Stock Exchange, Pakistan is examined for a period from 1998 to 2006. The dependent variable stock price volatility is regressed against the dividend policy measures (independent variables) e.g., dividend yield, dividend payout ratio, actual cash dividends and dividend to total assets of the firm, after controlling for firms’ profitability, liquidity, gearing, size and growth. This study finds that, dividend policy measures have strong effect on the stock market prices but results are contradictory to earlier research in Pakistan. Dividend payout and actual cash dividends have negative, significant relationship with stock prices and dividend yield have significant positive relationship with stock market prices.

Key words: Dividend policy measures, accounting variables, price volatility
Chapter 1

Introduction

This study is focused on the effects of dividend policy measures on the stock market prices. The objective of this chapter is to provide the background and motivation for this study. The problem statement is defined; the objective of the study and the research model is discussed. The research design, methodology is presented and finally, definition of the key terms of the study is given.

1.1 Background of the study

The purpose of the study is to analyze the effect of dividend policy measures on the stock market prices of Karachi stock exchange, Pakistan. Earlier research and theories stated that many factors effect the share prices and are associated with the valuation of shares i.e. dividend yield, dividend payout ratio, size of the firm, growth and earnings of the firm (Wilcox, 1984 and Rappoport, 1986). Allen and Rachim (1996) analyzed linkage between accounting variables and stock price risk and stated that dividend policy remains in a state of controversy even after much research. Gordon in 1963 analyzed the Paying large dividends reduces risk and thus influence stock price. Both concluded that significant relationship exists between stock price and accounting variables. A number of theoretical mechanisms have been suggested that cause dividend yield and payout ratios to vary inversely with common stock volatility. Common stock prices are the most reliable and important tool available to investor to decide whether to go to invest or not. Here a need comes up to investigate these variables impact and relationship on stock prices. There is also need to investigate the impact of accounting variables on stock prices and investor’s decision in a developing economy.

The results of the study aimed for the financial institutions, investors and for further research to understand the stock market price volatility with reference to continuous economic failure in the country after a good economic period (in terms of stock prices and accounting variables relationship). Because in crisis managers adopt different strategies to cope with the current business environment and economic conditions in the country. During the crisis the behavior of the investors also change and lead to identify more precisely the actual business position. Now a day’s developed countries are moving to invest in developing economies due to low labor cost (cost of production) and Pakistan is one of low cost of production countries. So, it will be very useful to find out how Karachi stock exchange, Pakistan responds to dividend policy measures during crisis to assist local as well as foreign investors to make decisions. As Karachi stock exchange is a high risk and high return market and foreign investors have a good opportunity to attain good profit if they are well aware about the stock market.

Rozef (1982) and Easter (1984) explored if the dividends are announced and paid continuously the stock market showed the positive reaction and also it reduces the agency cost. Manager’s ability to use excess

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1 Accounting variables are factors which stated the financial position of the organization and also have significant effect on the stock prices. These variables can be identified from the financial statements of the organization.
funds can be monitored by dividend payout policy. Thus, I can say that positive market reaction following dividend increases consistently leads to agency cost reduction.

Firms having low dividend yield and dividend payout ratio may have greater investment opportunity but also high stock price volatility. Moreover, if the policy of the dividend is in the same pattern then the stocks with high dividend yield will have shorter life as compared to the stocks with low dividend yield and payout (Donaldson, 1961; Gordon, 1963). Thus expanding firms although may have lower payout ratio and dividend yield, show price stability. This may be because dividend yields and payout ratio serves as proxies for the amount of projected growth opportunities. If forecasts of profits from growth opportunities are less reliable than forecasts of returns on assets in place, firms with low payout and low dividend yield may have greater price volatility. The stock price volatility and dividend and return relationship proposed by Baskin, (1989) suggested the following variables are of great importance; payout ratio, operating earnings, size of the business firm and the level of growth. Some studies found positive relationship between the dividend yield, dividend payout ratio and stock price volatility (Steven and Jose, 1989; Nishat, 2001) and other found the negative relationship (Easton and Sinclair, 1989; Nishat, 2001). In Pakistan different researchers found mixed results like Irfan and Nishat (2000) and Nishat and Saghir (1991).

Empirical studies had examined cross-sectional variation in dividend payout ratios and CAPM\(^2\) beta coefficients. Beaver et al. (1970) estimate CAPM betas for 307 US firms and find significant correlation between beta and dividend payout. Rozef (1982) had observed a high correlation between value line CAPM and betas and dividend payout for 1000 US firms. Fama (1991) and Fama and French (1992) investigated dividends and other cash flow variables such as accounting earnings, investment, industrial production etc., to explain stock returns. Baskin (1989) followed a slightly different approach and examined the effect of dividend policy on stock price volatility, as opposed to returns. The difficulty in any empirical work examining the linkage between accounting variables (and dividend policy measures) and stock price volatility or returns lies in the setting up of adequate controls for the other factors. For example, the accounting system generates information on several relationships that are considered by many to be measures of risk. So, Baskin (1989) suggested the use of the following control variables in testing the significance of the relationship between dividend yield and price volatility; operating earnings, size of the firm, level of debt financing, payout ratio and level of growth. These variables have a obvious impact on stock returns as well as on dividend yield.

Share prices are the most important indicator readily available to the investors for their decision to invest or not in a particular share. Many researchers have worked out to understand the effects of dividend

\[r_s - r_f = \beta_s (\bar{r}_m - r_f)\]

Where:
- \(r_s\) = Risk free rate
- \(\beta_s\) = Beta of the security
- \(\bar{r}_m\) = Expected market return

\(^2\)CAPM is a model that describes the relationship between risk and expected return and that is used in the pricing of risky securities.
policy measures and other accounting variables on stock market prices but there are no conclusive findings. Also the findings of the researchers vary for different stock markets in different countries due to their different financial systems and economic conditions. The analysis of stock markets has come to the forefront since this is the most sensitive segment of the economy and this is through this segment that the country's exposure to the outer world is most readily felt. Also, the dividend policy is very important for the investors due to their preferences and that is the main task for the management of the companies to manage the interests of all the stakeholders (shareholders, lenders, managers, employees, investors, etc.) which is also called "Corporate Governance" the burning issue now-a-days. It is, therefore, imperative to explore such relationship to accrue the benefits to economic growth of a country. Moreover, this study will be providing interesting information to the policy makers, managers, investors, etc., so as to make rational decisions regarding the dividend and stock prices. Furthermore, this study will provide theoretical support to the financial researchers on this topic.

1.2 Karachi Stock Exchange (KSE) Pakistan
Karachi stock exchange is the leading financial institution, which is offering efficient, fair and transparent securities market in the region and enjoying full confidence of the investors. KSE was established on 1947, 09, 18 and started with 5 companies with paid up capital of Rs. 37 Millions. Karachi Stock Exchange has 1850 trading terminals at broker end. KSE was termed as high risk high return market by Nishat (1999). It has been declared as the "Best Performing Stock Market of The World" for the year 2002. Development, implementation and monitoring of state-of-the-art trading system known as Karachi Automated Trading System (KATS), introduced in 2002 with a capacity of 1 million trades a day and unlimited number of users. Pakistan is facing many problems since the day of independence for realizing its true economic potential and also Pakistani government strategic planning and poor implementation is a block between the Pakistani markets for foreign investment. Now a day's Pakistan is facing the problem of terrorism and political instability but Pakistan has reformed the financial sector which have a very strong positive impact on the structure of the economy and open new ways to economic growth and development. The reform process of financial sector started in early 1991 when the doors are being opened for foreign direct and indirect investment on liberal terms in the equity market of Pakistan. The most effective progress in the financial sector has been achieved in the period of 1998-2000, when the country's foreign exchange reserves moved from $2279.2 million to $15182.2 million. Now many stocks of Pakistani firms are being traded in international markets and also many brokerage houses are working with joint ventures in primary and secondary markets of Pakistan.

Few studies have attempted to analyze the long run behavior of the market and related issues i.e., Nishat, (1991, 1992 1995, 1999, 2001) and Nishat and Bilgrami (1994) but little work has been done to explore role of dividend yield and payout ratio in effecting the share prices. Stock price state the present value of company future expected cash flows and cash flows are availed from two sources. First cash
flow source to investor is dividend and second is capital gain availed by stock prices fluctuations. Thus, it is very important to explore the relationship between dividend yield, payout and stock prices. It is also important to study its role in the Pakistani context after the introduction of reforms during 1990s, which emphasized more towards openness to foreign investor, and competition, which led to, increased volatility in the market (Nishat, 1999) and has reduced the responsiveness of share price volatility to fundamental factors (Irfan and Nishat, 2001). Reforms in Pakistan in general and specific to dividend policy are; tax sealing on cash dividend, exemption of right and bonus shares from tax, pattern shifting from cash to share dividend and government policy of easing restrictions on transfer of market profits etc. The objective of this study is to find the impact of dividend policy measures after controlling other accounting variables on share price volatility in the long run.

Karachi Stock Exchange (KSE) has a lot of potential among the markets of developing countries. (Nishat and Bilgrami, 1999) analyzed that KSE is termed as high-risk high return market where investors seek high-risk premium. Few studies have attempted in Pakistan to analyze the long run behavior of the market and related issues, but no work has been done to explore role of accounting variables in effecting the share prices except (Irfan and Nishat, 2001). It is also important to study its role in the Pakistani context after the introduction of reforms during 1990s, which emphasized more towards openness to foreign investor, and competition, which lead to, increased volatility in the market and has reduced the responsiveness of share price volatility to fundamental factors. Reforms in Pakistan in general and specific to dividend policy are; tax sealing on cash dividend, exemption of right and bonus shares from tax, pattern shifting from cash to share dividend and government policy of easing restrictions on transfer of market profits etc.

The greater motivational factor to select Karachi Stock Market, Pakistan is current crisis. From 1990-2004 the economy of the country grow positively with respect to foreign and local investment. But later on world economic crisis along with terrorism and natural disasters (earthquake and flood) almost ruin the economy of Pakistan. Pakistan’s current situation attracted my attention and leaded me to include the data from 1998 to 2006 to explore the stock market reaction with reference to accounting variables. The results of the study aimed for the financial institutions, investors and for further research to understand the stock market price volatility with reference to continuous economic failure in the country after a good economic period (in terms of stock prices and dividend policy measures relationship). Because in crisis managers adopt different strategies to cope with the current business environment and economic conditions in the country. During the crisis the behavior of the investors also change and lead to identify more precisely the actual business position and associated risk. Furthermore, now a day’s developed countries are moving to invest in developing economies due to low labor cost (cost of production) and Pakistan is one of low cost of production countries. So, it will be very useful to find out how Karachi stock exchange, Pakistan responds to dividend policy measures during crisis to assist local as well as foreign investors for decision making.
1.3 Problem

Many researchers worked on accounting variables (dividend policy and other variables) and stock prices but found mixed results. Early research provided somehow varied results and leaded me to work more on this unsolved issue of accounting variables with reference to stock prices by considering more factors which effects the stock prices. Earlier researches stated the share price changes are associated with changes in fundamental variables which are relevant for share valuation like operating earnings, dividend yield, growth rate, dividend payout ratio and the size of the business e.g. Wilcox (1984), Rappoport (1986) and Downs (1991).

A number of studies have been conducted on stock exchanges of developed economies that have resulted in tremendous improvements in the functioning and efficiency of those markets. There is also an increasing interest in the stock markets of developing countries known as emerging markets like Pakistan. Using the data from US, Japan and Singapore markets, a number of studies found that stock price has a significant positive relationship with the dividend payment i.e., Gordon (1959), Ariff and Finn, 1986, Lee, 1995; Irfan and Nishat, 2001. Others found a negative relationship like Loughlin (1989) and Easton and Sinclair (1989). In the Pakistani context, the studies by Nishat and Saghir A. (1991), Nishat and Bilgrami (1994), Irfan and Nishat (2001), are notable. However, the findings regarding the effects of dividend policy measures on stock market by different researchers in case of Pakistan are mixed and needed to further research.

Also in earlier researches till 2001 in Pakistan few variables has been taken into consideration which can effect stock prices directly or indirectly and I have taken more factor which can have significant effect on stock prices. In early researches data was collected on average basis by using cross sectional data collection method, which leads to loss of the originality of the data. Therefore, I have taken into consideration panel\(^3\) data; which determine the effect of variables on prices in each particular period. This study will examine the effect of dividend policy measures after controlling other accounting variables on stock price of the Karachi stock exchange Pakistan. I have focused on dividend policy measures i.e. dividend payout ratio, dividend yield ratio, dividend to total assets ratio, actual cash dividend and other control variables as leverage, liquidity, profitability, business growth and the impact of these variables on the stock prices of Karachi stock exchange Pakistan.

Many researchers have worked out so far on the stock markets of the developed countries and progress has been made a lot but in developing countries like Pakistan only few researches been done. It is an urgent need to work out because Pakistan is an emerging economy, which has many areas open to investors and high potential to grow with high return on investment.

1.3.1 Problem Statement

The previous studies have used few major accounting variables, whereas this study will use nine

\(^3\) Panel Data collection permits the analysis of a consistent set of variables with data collected units of analysis over multiple time periods.

representative accounting variables to explain the effects of dividend policy measures on stock prices volatility in Karachi stock market, Pakistan. Moreover, most of the previous studies have focused on few sectors and some studies conducted event analysis. This study will be based on the overall economic sectors of Pakistan.

1.3.2 Specific Research Questions
This research is focusing and answering the following questions;
> Is stock price is affected by the changes in dividend payout ratio?
> Is stock price affected by the changes in dividend yield ratio?
> Is stock price affected by the changes in dividend to total assets ratio?
> Is stock price affected by the actual cash dividends?
> Is stock price affected by the Leverage?
> Is stock price affected by the Liquidity?
> Is stock price affected by the Profitability?
> Is stock price affected by the Business growth in terms of sales?
> Is stock price affected by the Size in terms of assets?

1.4 CONCEPTUAL FRAMEWORK
Wilcox (1984), Rappoport (1986) and Downs (1991) proposed that share price changes is associated with changes in fundamental variables which are relevant for share valuation like payout ratio, dividend yield, capital structure, earnings, size of the firm and its growth. Share prices are the most important indicator readily available to the investors for their decision to invest or not in a particular share. This implies that dividend policy variables e.g., dividend payout ratio, dividend yield ratio, dividend to total assets and actual cash dividends along with other major accounting factors can effect investor's investment decision and encourages many researchers to investigate the effects of these accounting factors on stock exchange prices.

This study will investigate the effects of dividend policy on stock market prices. To identify this effect, this study uses major dividend policy measure e.g., dividend payout ratio (DPR), dividend yield ratio (DYR), dividend to total assets (DTA) and actual cash dividends (ACD) and other accounting factors e.g., profitability (P), liquidity (LQ), size (SZ), growth (GRW), gearing (GRG). The annual stock exchange prices are used for this purpose.

1.4.1 Description of Model
The independent variables in this study are the dividend policy measures e.g., dividend payout ratio (DPR), dividend yield ratio (DYR), dividend to total assets (DTA) and actual cash dividends (ACD) and other major accounting factors e.g., profitability (P), size (SZ), growth (GRW), liquidity (LQ), and gearing
These accounting factors are the control variables and are included because of the fact that these factors can influence dividend policy as well as stock market prices of the firms. Similar sets of the variables have been used by Hamada (1972) and Sharpe (1964) Irfan and Nishat (2001), Ariff and Khan (2000). But I have extended the time period and also number of variables that can have significant effect on stock prices. These factors are useful to examine their effects on stock market prices of the firms in Karachi stock exchange, Pakistan.

The dependent variable of this study is stock market prices in Pakistan. Karachi stock exchanges have been taken into consideration for this purpose. The objective is to analyze the effects of dividend policy on stock market prices after controlling the above mentioned control variables and also to draw some useful conclusions that would help to understand the Pakistani capital market to provide the basis for the rationale decision making for the policy makers, stakeholders, practitioners, investors and the future financial researchers.

The research hypotheses are developed on the basis of previous discussions regarding the effects of dividend policy and stock market prices in Pakistan. Studies established direct relation between share price changes and either earnings or dividend changes (Ball and Brown 1968; Baskin 1989). Sharpe (1964) and Hamada (1972) suggested direct relation between share price changes and capital structure. Beaver, Kettler and Sholes (1970) showed that firms appear to pay less of their earnings if firms have higher earnings volatility. This suggests payout ratio as relevant factor for share price changes. Atiase (1985) showed that as the size of the firm increases, their Share price volatility declines. Both dividend policy measures (dividend yield and payout ratio) have significant impact on the share price volatility. The relationship is not reduced much even after controlling for size, growth, leverage, earnings volatility. The earnings volatility impact is negative and significant. Size and leverage have positive and significant impact on stock price volatility (Irfan and Nishat, 2001).

1.5 Research Design
The conceptual framework of the study has quantitative research approach and hypothesis is stated and variables are measurable by the use of statistical data. This study is descriptive in nature and the research is conducted with a view to test the hypothesis as “The effect of dividend policy measure (after controlling other accounting factors) on stock market prices. Christensen (1997); Nishat (2001) indicates that the primary characteristics of the descriptive research approach are that it represents an attempt to provide an accurate description or picture of a particular situation or phenomenon. It attempts to identify variables that exist in a given situation and describes the relationship that exists between those variables, this research meets these requirements as both variables are clearly defined and analyzed using quantitative techniques, and the aim of the research is to determine the effects of relationship between the two variables.
The independent variables are the dividend policy measures along with the other accounting factors (control variables) and the dependent variable is stock market prices. The purpose is to find out whether dividend policy of the firms effects the stock market prices in Karachi stock exchange Pakistan. I am following the research pattern of the Irfan and Nishat 2001, and Ariff and Khan 2000, who used size, growth, earnings, leverage, dividend payout ratio and dividend yield as accounting factors to examine the stock market prices in Pakistan.

All the data sets were extracted from the annual reports of the KSE listed companies, publications of the state bank of Pakistan and the website of the business recorder, jstor, and emerald and business source premiere. The analysis utilized pooled least squares regression. The most basic test involved is regressing the dependent variable stock price volatility against the above mentioned independent variables. This provided a crude test of the relationship between common stock market prices and accounting variables.

1.6 Research objective

This study is conducted to find out the effect of dividend payout ratio (DPR), dividend yield ratio (DYR) dividend to total assets (DTA) and actual cash dividends (ACD) and other accounting factors e.g., profitability (P), liquidity (LO), size (SZ), growth (GRW), gearing (GRG) on the stock exchange prices. Nishat and Irfan examined the effect of accounting variables on the stock market of Pakistan in 2003. I have extended the research by considering the data till 2006 because of the huge expansion in the foreign investment (2000-2006) and crisis as well in Pakistan in the period of 2004 to 2006. Also some other relevant control variables are included and constructed in different ways e.g., dividend to total assets, natural logarithm of cash dividends and liquidity of assets (current ratio) etc., as compared to Irfan and Nishat (2001) and Allen and Rachim (1996) a study with reference to Australian stock market, to investigate the actual relationship among the variables in a real since, which is also consistent with the researches done in other countries. The results of this study (on data from 1998-2006) will help the shareholders, management of the firms, investors and financial institutions to provide basis for rationale decision making and also provide basis for future research.

1.7 Efficient Market Hypothesis

Three types of informational efficiency (weak, semi-strong and strong) have been well identified by researchers in the field of capital markets throughout the world. Weak efficiency states that current prices fully reflect all the information contained in the history of past prices and denies the utility of charting and technical analysis. Semi strong form of efficiency deals with the speed with which publicly available information is assimilated by the market and incorporated in market prices. The third form of market efficiency (strong from) asserts that even inside information which is not publicly available is reflected in market prices very rapidly. This study will be conducted in the light of efficient market hypothesis. The efficient market hypothesis (EMH), in its strong form, assumes that everyone has perfect knowledge of all information available in the market. Therefore, the current price of an individual stock (and the market as a
whole) portrays all information available at time $t$ and accordingly, if dividend policy effects stock prices, then an efficient stock market instantaneously digests and incorporates all available information about economic variables. Some authors have stressed the importance of information content of dividend such as, Miller and Rock (1985) suggested that dividend announcements provide the missing pieces of information about the firm and allows the market to estimate the firm’s current earnings. Irfan and Nishat (2003) with reference to Pakistan found the significant effect of dividend payout and dividend yield on stock price volatility due to the information effect which is consistent with the results of studies conducted in developed markets as well as developing markets e.g., USA, Canada, U.K, Australia, Japan, Singapore, Malaysia and Turkey.

### 1.8 DEFINITIONS OF THE KEY TERMS

The following are the operational definitions of the key variables:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Dividend Payout Ratio (DPR)</td>
<td>Payout is the ratio of total dividends to total earnings. Total cumulative individual company earnings and dividends were calculated for all years. The use of this procedure is to control the problem of extreme values in individual years attributable to low or possibly negative net income. The payout ratio is set to one in cases where a total dividend exceeds total cumulative profits.</td>
</tr>
<tr>
<td>Dividend Yield Ratio (DYR)</td>
<td>The variable was calculated by summing all the cash dividend paid to ordinary shareholders in each year, and then dividing this sum by the average market value of the stock in the year. The average for all available years was used.</td>
</tr>
<tr>
<td>PROFITABILITY (P)</td>
<td>This variable is developed in number of steps. The first step is to obtain an average of available years of the ratio of net profit after interest and tax to shareholders equity which is also called Return on Equity Ratio. The next step is to calculate an average of the squared deviation from the overall average. A square root transformation is then applied to the mean squared deviation to obtain estimates of standard deviation.</td>
</tr>
<tr>
<td>Liquidity (LQ)</td>
<td>This variable is calculated simply dividing the</td>
</tr>
</tbody>
</table>
current assets to current liabilities, also called 'current ratio'. The current ratio of each year is then summing up and average ratio of the available years was taken.

Size (SZ)
This size variable was calculated in the way that the cumulative total assets of the company were averaged for the available years. The value of the assets was taken in million rupees.

Growth (GRW)
The yearly growth rate was calculated by taking the ratio of change in total sales in a year. Then the ratio was averaged over the available years.

Gearing (GRG)
This variable was calculated by taking the ratio of long term debts to long term fund for each year which is also called 'Debt-Equity Ratio'. Then this ratio was averaged over the available years.

Stock Market prices Volatility (PV)
The dependent variable in the regression is derived by following the Parikson's (1980) extreme value estimate or estimating variance of the rate of return. In this case, for each year, the annual range of stock prices will be divided by the average of the high and low stock prices and then raised to the second power. These average measures of variance for all available years can be transformed to a standard deviation by using a square root transformation. Parikson (1980) describes how this method is far superior to the traditional method of estimation, which uses closing and opening prices only.

Performance
The findings of this research will provide the basis for the rationale decision-making for the policy makers, managers, investors, practitioners, and other stakeholders in the companies. It will also provide reference for future researches.
Chapter 2

Literature review

This chapter will discuss the literature about the effects of dividend policy measures and other accounting variables on stock market prices. Shiller (1981), Campbell and Shiller (1987), Cochrane (1991) and Lee (1998); Nishat (2001) argue that fundamental market elements such as earnings and dividends are not sufficient to explain the variation in stock prices. The stock market prices are affected by many other factors such as size of firm, level of debt financing, growth and many other macroeconomic factors such as inflation, industrial production, foreign exchange rate, balance of trade and also the stock price volatility is the resultant of its own. The purpose of this chapter is to explore the effects of accounting variables on stock prices and how these variables can be defined and how the effects of these variables on stock prices can be analyzed in the light of literature.

2.1 Dividend Policy

Dividend policy remains an unresolved issue despite a research of number of years by many researchers in different countries. There are two major dividend theories which are followed by different researchers. First theory of dividend is dividend relevance theory which explores the effects of the dividend on the investors and firms. Later on Gordon and Linter (1959) examined and stated that dividend policy and its market value has a direct relationship. This is also known as “bird in hand theory” by Gordon and Lintner. Investors find future dividends are more risky than the current dividends because they are subjected to risk of uncertainty. Current dividends are more likely to accept as compared to future dividends because of risk and there is a direct relationship between dividends and market value (Gordon and Lintner, 1959).

2.1.1 Dividend relevance theory

Lintner has done a research study about dividend policy in 1950’s by interviewing the corporate managers. The study can be discussed in four sections e.g. A- Firms target long term dividend payment ratios. B- Managers tend to be more critical about dividend changes. C- Shifts in long term earnings propose changes in dividends, which states that managers focus always on smooth dividends. D- Managers disinclined to make changes in dividends that might have to be reversed. They are particularly concerned about having to rescind a dividend increase.

The dividend relevance theory is followed and explored by many researchers later on. Dividend payments causes’ tax penalty on investors and paying dividends reduces firm value in the presence of taxes (Siddiqi, 1998). The Lintner dividend model states that if target payment ration of a firm is persisted then the earnings per share eps1 would equal a constant proportion to dividend payment in ensuring year div1, Wolmarans, (2003).
In 1991 Smith in his study stated that many researchers are of the view that when the stock price is high the stockholders trade away their dividend paying stocks unless the stock prices go down to provide more returns to meet the consequences of the tax on dividend payout (Irfan and Nishat, 2001). The research done at least since 1963 is very much based on the Gordon and Lintner work because investors assess dividend paying stocks less risky as compared to non-dividend stocks (Nishat, 2001). A bird in the hand is worth two in the bush, Literature shows that dividend relevance theory is of growing interest and has also some opposite views. This study is a step forward with dividend relevance theory.

2.1.2 Dividend Irrelevance Theory
After the dividend relevance theory many researchers supported the theory but a new theory is presented against as dividend irrelevance theory. Merton Miller and Franco Modigliani 1958 stated that value of a firm is unaffected by dividends. The dividend irrelevance theory involves the following criteria e.g., (1) Dividend policy has no effect on either the value of a firm’s stock or its cost of capital. (2) M&M argues that the value of the firm depends on the income it produces from its assets, and not by how this income is divided between dividends and retained earnings. (3) Their assumptions were e.g., (a) No personal or corporate taxes. (b) No floatation or transaction cost. (c) Investors are indifferent between dividends and capital gains. (d) The investment decision is dependent on dividend policy. (e) There exists symmetric information. M&M are of the view that dividend itself did not effect, value is effected by the information comes up from the changes in dividend. Their view is based on different assumptions, like perfect capital market and some investors binding assumptions.

2.1.3 Signaling Theory
Miller and Modigliani (1961) presented another theory known as signaling theory. They are of the view that managers may use the dividend policy as a signal to present the true inside information of the financial position and growth of the firm otherwise they can hold information. The stakeholders may have information but managers are the persons who are working to maximize the wealth of the shareholders and they know more about the firm. Bhattacharya (1979) suggested that managers use corporate dividend as a tool to increase the certainty of the investors about company’s financial stability and future growth. Miller and Rock (1985) stated that investors considered dividend announcement as a tool to assess the earning ability of the firm.

2.2 Effect of dividend payout ratio on stock price
Earnings distributed to shareholders are known as dividend. Dividend payout ratio is the payment of dividend out of earnings in terms of percentage. Dividend payout ratio can be calculated as;

\[
\text{Dividend Payout Ratio} = \frac{\text{Total amount of dividend}}{\text{Earnings per share}} \times 100
\]
Total amount of earnings (after interest and tax)

OR

\[
\text{Dividend per share} \times \frac{100}{\text{Earnings per share}}
\]

The main objective of the manager is to maximize the wealth of the shareholder and managers peruses this objective with investing and financing decisions. Moreover managers have to analyze whether to pay out dividends for reducing the agency problem (Jensen and Meckling 1976). Managers have more information about the firm’s current and future financial information than the outsiders and stakeholders. So may be share prices do not reflect the true position and managers then preferably can use dividends as a signal tool to share inside information (Battacharya 1979, John and Williams 1985 and Miller and Rock 1985).

Dividend increase has a positive impact on the share price and vice versa and also some costs are associated with signaling through dividend which may be due to unfavorable tax treatment or distortion of firm’s investment decisions (Miller and Rock 1985, John and Williams 1985).

Many early researches has done by using the signaling hypothesis of dividend e.g. Britain (1964), fama and babiak (1968); Irfan and Nishat (2000, 2003). These studies provide support empirically to the dividend relevance theory of Lintner. Dividend relevancy idea is later on supported by Gordon (1959, 1962) and formalized in a theory that current stock price reflects the present value of all expected dividend payments in the future. Many of researchers are of the view that dividend payments and stock price has a strong positive relationship (Ogden 1994, Steven and Jose 1989 and Easton and Sinclair 1989). Chen, Grundy and Stam Baugh (1990) found that stock price is being effected by the dividend payout ratio.

Thirumalvalavan in 2004 concluded in their research with reference to India that market has shown positive reaction to the announcements of dividend initiation as they find a very high cumulative abnormal return of 2.1% within one day of the event and 1.45% over five day announcement period. Irfan and Nishat (2001) stated a positive relationship between the dividend payout ratio, dividend yield and stock price volatility. The purpose of this study is to find out whether currently this relationship will be positive or negative and how market reacts in this situation to help future decisions in certain situations.

2.3 Effect of Dividend Yield on Stock Price

Dividend yield can be calculated in many ways. Many researchers used different methods to calculate the dividend yield but the most common is dividend per share divided by the market price of the share. Also
researches use different approaches to determine the stock market prices. Adding all the monthly dividends over the period and dividing the sum with the beginning and ending share price is used by Fama and French (1988). Average stock market price is used to calculate dividend yield by Irfan and Nishat (2001). They sum all the annual dividends paid to the shareholders and divided then by average stock market value in the year.

Black and schools (1974) examined the dividend yield and their investigation stated that there is not a consistent impact of dividend yield on the expected returns. Litzenberger and Ramaswamy (1979) explored significantly positive relationship between the dividend yield and expected returns. Stocks with high dividend yields have higher return on average observed by Blume (1980). Christie (1990) observed that the stocks of non paying dividend firm’s had negative returns. Hodrick (1992) in his investigation of whether dividend yield had some power of prediction about the expected returns states that dividend yield have the predictive power to explain the returns. Levis (1989) investigated the effect of dividend yield on stock returns for London stock exchange stated that stock returns are strongly influenced by the dividend yield and price to earnings ratio.

Dividend yield has a positive impact on the return in bear market and negative impact on returns in bull market, Gombola and Liu (1993). Also they observed the systematic risk and dividend yield has a negative relationship and firms paying stable and high returns have a positive alpha. Some other researchers like Morgan and Thomas (2000); Nishat (2000) found the almost same results and states that dividend stability reduces the systematic risk and vice versa.

Dividend yield and stock market prices has a direct relationship and as earlier discussed black and Scholes, (1974) states that dividend yield and returns may have negative relationship if dividend income is taxed at higher rate. Irfan and Nishat (2000) found negative relationship between the dividend yield and stock price volatility in their empirical investigation with reference to Karachi stock exchange Pakistan. Irfan and Nishat also observed that there is less volatility in the stock market prices of the firms having large size and high dividend yield.

2.4 Effect of dividend to total assets on stock price

To measure the stock price volatility dividend to total asset ratio is used in this study as an accounting variables. Divided income which have been received by the stockholders from total investment (total assets). Dividend to total assets ratio shows how much business is returning to the shareholders for their total investment. This is calculated as:-

$\text{Dividend to total assets ratio} = \frac{\text{Amount of dividend}}{\text{Total assets}} \times 100$

In 1963 Gordon used dividend to total assets ratio to find out the impact on stock prices. Gordon observed momentous effect of dividend to total assets ratio on stock market prices volatility.

2.5 Effect of firm’s profitability on stock price volatility
Definition of profitability / earnings:

1. Excess of revenue over expenditure during the accounting period is called surplus or profit of the business.
2. Net increase in the value of the shareholders is called earnings. This includes revenue and capital gains.
3. The total income from operating as well as investing activities.

Accounting earnings are the major factor which can affect stock market price of the firm. In earlier research different proxies were used for expressing the earnings of the firms in different countries. Some authors used earnings before interest and taxes, whereas earnings after interest and taxes are used by others. Other proxies include earnings per share (earnings after interest and tax divided by number of shares outstanding), operating profits, return on total assets (operating profit to total assets) e.g., Irfan and Nishat, (2001), return on capital employed (earnings before interest and tax to net capital employed), return on equity, etc. However, in this research return on shareholders’ equity (calculated as earnings after interest and taxes divided by shareholders equity) is used for the expression of profitability of the firms (see, e.g. Kumar and Sopariwala, 1992, Ahmed and Khababa, 1999, Gordon and Owers, 2000). Earnings of the firm convey information to the investors about the position, which will of course, effect investors’ decision. If the earnings are higher than the expectations of the shareholders, then they will be more satisfied and it will have a positive effect on stock prices and vice versa.

The decision to pay dividends starts with profits. Therefore, it is logical to consider profitability as a threshold factor, and the level of profitability as one of the most important factors that may influence firms’ dividend decisions. The theory suggests that dividends are usually paid out of the annual profits, which represents the ability of the firm to pay dividends. Thus, firms incurring losses are unlikely to pay dividends. This statement might be demonstrated by the following quote “An annual loss is essentially a necessary condition for dividend reductions in NYSE firms with established earnings and dividend record” (DeAngelo, DeAngelo and Skinner, 1992, p.1862). In his classic study, Lintner (1956) found that a firm’s net earnings are the critical determinant of dividend changes. Furthermore, several studies have documented a positive relationship between profitability and dividend payouts (Jensen et al, 1992, Han et al., 1999; Fama and French, 2002).

Evidence from emerging markets also supports the proposition that profitability is one of the most important factors that determines dividend policy. For example, Adaoglu (2000) found that a firm’s earnings are the main factor in determining dividend decisions in Turkey. Pandey (2001) has arrived at a similar conclusion for Malaysian firms. More recently, Aivazian et al. (2003) in their study of the dividend policy of emerging market firms and US firms demonstrated that profitability has a significant impact on dividend payouts for both samples. Finance literature suggests that firms, finance the activities first through the internal finance, and if external financing is necessary, firms prefer to issue debt before issuing equity to reduce the costs of information asymmetry and other transactions costs (Myers 1984).
This financing hierarchy thesis might also have an effect on the dividend decision. That is, taking into account the costs of issuing debt and equity financing, less profitable firms will not find it optimal to pay dividends. On the other hand, highly profitable firms are more able to pay dividends and to generate internal funds (retained earnings) to finance investments.

There is a large accounting literature that explores the relationship between security prices or returns and accounting earnings. BMS (Beaver, McAnally and Stinson, 1997) with reference to USA, develop a new method, in the context of this accounting literature, for exploring the bivariate relationship between security prices and accounting earnings. The key innovation by BMS is to characterize the price-accounting earnings relationship as a system of simultaneous equations. To establish their case that there is a simultaneous equations bias in the standard approach, they run OLS regressions for the individual equations before proceeding to the simultaneous equations approach. They argue that earnings and prices can behave as if they are both endogenously determined because they are jointly effected by information that is difficult to specify explicitly. They suggest that earnings may change for reasons that do not lead to price changes and prices may change for reasons that do not lead to earnings changes, which mean that the stock prices are not effected by earnings. The stock market prices are effected by other factors.

Aasmund Eilifsen, Kjell Henry Knivsfla, Frode Svttem (2001) with reference to Norway for 37 companies traded on Oslo Stock Exchange (OSE) from 1990 to 1995 examined whether stock price volatility caused by earnings announcement. They found that the volatility of Norwegian stock prices has been high. Based on a value weighted market index, the standard deviation of annual stock returns for the period 1983-1994 is about 24% in Norway, while corresponding figures in the US and UK are 12 and 13%, respectively. Finally, they concluded that the earnings announcements reduce volatility in stock prices.

Starting with Ball and Brown (1968) and Beaver (1968), a large body of literature has investigated the information relevance of accounting numbers in capital markets. The majority of studies on stock markets and earnings announcements focus on information content and found that the price variance is significantly larger during the announcement period than the average variance in the no announcement period (see for instance Beaver, 1968; May, 1971; Hagerman, 1973; Morse, 1981; McNichols & Manegold, 1983; Patell & Wolfson, 1981, 1984 on US data; Brookfield & Morris, 1992; Pope & Lnyangete, 1992 on UK data; Irfan and Nishat, 2003). This finding is consistent with the claim that earnings data convey new information to the capital market. Irfan and Nishat (2003) with reference to Pakistan, identified the joint effect of six theory suggested fundamental variables (dividend yield, payout ratio, size, asset growth, leverage and earning volatility) exert on share prices in Karachi Stock Exchange (KSE) using annual balance sheet data of listed firms during 1981 to 2000. The analysis utilized weighted least squares regression and found that the earning volatility impact is negative and significant at a very lower level e.g., earnings explain only 0.02 % volatility in stock prices.
2.6 Effect of Gearing (Leverage) on Stock Market Prices

The degree of debt financing in the capital structure is called leverage. Some authors used different proxies for the calculation of gearing ratio. Someone used long term debts to total assets such as C.M. Irfan and Nishat (2000). Other proxies include, external equities (short term borrowings plus long term borrowings) to internal equities (share capital plus reserves plus retained earnings), long term debt to shareholders fund ratio and long term debt to long term fund (shareholder fund plus long term debt) ratio. In this research, long term debt to long term fund ratio is used for the expression of the level of gearing.

Capital structure of the firm is another relevant factor in effecting the share prices of the firms. The degree of debt financing by the business has impact on the value of firm’s assets. Sharpe (1964) and Hamada (1972) specify their theories regarding the capital structure. A high-risk firm (a firm with debt) must generate high return consistent with the investor’s expected return. It follows that highly leveraged firm should have greater rate of change in its share price. Hence capital structure changes must be directly related to the stock price volatility. Modigliani and Miller (1958) emphasized that in competitive capital markets, the value of a firm is independent of its financial structure. But if markets are imperfect (transaction cost, taxes, informational asymmetry, agency cost etc.), then capital structure matters and influences the share prices.

There are different types of firm’s resources to run business operations for generating earnings such as current assets e.g. stock, debtors, short term investments, cash, etc. and fixed assets. Fixed assets are further classified into two categories e.g. tangible and intangible assets. Tangible assets are those which are in physical existence like plant and machinery, land and building, furniture and fixture, equipment, etc. and intangible assets include goodwill (self generated or purchased outright), copyrights, patent rights, trademarks, franchise, design etc. The investment in all these resources is through two main sources e.g. equity financing and debt financing. There are different approaches of managers to finance their assets. The approach of managers to finance the current assets through short term borrowings (current liabilities) and fixed assets through long term fund (shareholder’s equity and long term borrowings), that is called “matching maturity approach”. This approach is mostly followed by the managers for the optimum utilization of business resources. Some managers may finance the fixed assets as well as a large portion of current assets through long term fund and the remaining portion of current assets through current assets, this is said to be “conservative approach”. The assets of the firms following this approach remain under utilized and result in low profitability, which effect stock prices adversely. Another approach which may be followed by some finance managers is called “aggressive approach”. According to this approach, current assets as well as some portion of fixed assets are financed through short term borrowings and the remaining portion of fixed assets is financed through long term fund. This is the situation when a firm is trying to generate sales with minimum resources, may suffer from cash flow problems, also called ‘overtrading’. In this condition, a firm is struggling to survive and is facing decline in stock prices.
The most common explanation for asymmetry ties the behavior of a stock's volatility to the degree of leverage in the underlying firm's capital structure. Black and Scholes (1973) discuss the impact of leverage on stock price behavior. The reasoning stems from Modigliani and Miller's (1958) classic principle that the fundamental asset of a corporation is the whole firm, while the securities the firm issues—stock, bonds, and so on—are just different ways of splitting up the ownership of this asset. From that perspective, BS observed that the volatility of a stock's return should come entirely from the fluctuations in the total firm value. In a firm that has both equity and debt in its capital structure, the debt holders' claim on firm value is limited to the face value of the bonds, so (nearly) all the fluctuations in total firm value will be transmitted to the equity. Suppose there is an increase in overall firm value. Since equity is less than total firm value, the proportional return on the stock will exceed that of the whole firm. Therefore the stock in a levered firm should be more volatile than the whole firm, with the difference being a function of the relative amounts of debt and equity in the firm's capital structure. The connection to leverage will also cause stock volatility to vary systematically and asymmetrically with returns; When a negative stock return causes equity value to go down while debt is fixed, firm leverage is raised, which increases future equity volatility and vice versa. Empirical evidence supporting this theoretical argument was presented by Christie (1982), who found a positive correlation between the degree of leverage on a firm's balance sheet and the volatility of its stock price.

Stephen Figlewski and Xiaozu Wang (2000) taking the data from COMPUSTAT to investigated the effect of leverage on stock price volatility. They concluded that with increase/decrease in leverage due to decrease/increase in the value of the firm positively correlates to the stock price volatility. Also they find that a leverage change arising from a change in the amount of debt in the firm's capital structure appears to have little or no impact on stock volatility. Similarly, there is no evidence of a "leverage effect" when an increase in leverage is caused by a change in the amount of stock outstanding.

There is a direct link among the level of leverage, dividend policy and stock market prices. In order to understand the relationships, a further comprehensive view of the dividend policy, the relationship between capital structure and dividends of the firm should be considered. The financial structure of a firm consists of both debt financing and equity financing. Long-term financing usually refers to the firm's capital structure, and the extent to which a firm relies on debt financing is called financial leverage. In addition to the tax advantages (interests deduction on income), the use of debt financing can lever-up shareholders' return on equity. However, leverage entails risk; that is, when a firm acquires debt financing it commits itself to fixed financial charges embodied in interest payments and the principal amount, and failure to meet these obligations may lead the firm into liquidation.

The risk associated with high degrees of financial leverage may therefore result in low dividend payments because firms need to maintain their internal cash flow to pay their obligations rather than distributing the cash to shareholders. In addition, some debt covenants have restrictions on dividend payments, because creditors want to secure their debt and avoid being exploited by shareholders. Therefore, an inverse relationship between debt and dividend payouts seems to exist. A large body of research reports a

There is a positive relationship between debt and stock price volatility as shown by different researchers e.g., Irfan and Nishat (2001) with reference to Pakistan, which is consistent with researches conducted in different countries e.g., Christie (1982), etc., whereas Stephen Figlewski and Xiaozu Wang (2000) find no effect on stock price volatility (Irfan and Nishat, 2001).

2.7 Effect of growth on stock market prices
Firm’s growth is directly linked with the stock market prices and its dividend policy. Different proxies are used to determine the growth of the firm. The first proxy for growth and investment opportunities is the firm’s sales. This proxy has been widely used in the literature see, for example, De Bondt & Thaler, 1985; Abarbanell & Bernard, 1992; Kasznik & McNichols, 2002. The second proxy is the firm’s market-to-book ratio (MBR), for instance, Perfect and Wiles, 1994; Barclay et al., 1995; Cleary, 1999; Travlos et al., 2001; Deshmukh, 2003 and Aivazian et al., 2003 and 2004. Another proxy for growth often suggested in the literature is the firm’s price-earnings ratio (PER) (Rozeff, 1982). Growth is also determined by some researchers in terms of the age/life cycle of the firms e.g. (Evans, 1987; Farinas and Moreno, 2000; Grullon, Michaely and Swaminathan, 2002; Rodriguez et al., 2003 and Huergo and Jaumandreu, 2004). However, in this study percentage change in sales is considered as growth.

When the firm invests the funds inside the business (operating activities or investing activities in respect of acquisition of new assets) or outside the business (making investments in securities for profits), there is off course decline in the firm resources, may suffer its liquidity position in short run but will result in inflow of funds when profits are generated in long run and ultimately result in growth of business. Managerial practices as well as academic research link firm growth to different benefits. Firm’s growth is considered necessary if companies are to remain vital and competitive (Drucker, 1973; Robins & Wiersema, 1995). But at the same time, firm growth relates to increasing complexity and many managerial problems. Studies show that excessive growth can damage shareholders’ value and adversely effects profitability (Baumol, 1962; Hedberg, Nystrom, & Starbuck, 1976; Richardson, 1964; Whetten, 1987). The research shows mixed results regarding the relationship between growth and stock price. Some studies find support for a curvilinear relationship (e.g., Ramezani, Soenen, & Jung, 2002; Irfan and Nishat (2001), others revealed a positive and linear effect (e.g. Miedich & Melicher, 1985), or no significant relationship at all (e.g. Markman & Gartner 2002).

The most relevant explanation for previous inconclusive findings may be traced back to the practice of classifying growth rates across companies and industries into normal, high and hyper growth (e.g. Markman and Gartner, 2002). However, various researchers have argued that firms’ ability to growth is contingent on their unique resource base and market conditions (i.e., Penrose, 1959; Porter, 1980; Jay B. Barney 1986). It is thus more likely that the relative degree of growth is contingent upon firm-specific characteristics, rather than being valid and applicable to firms in general.
Researchers conducted in the field of finance show that a firm’s resource endowment is one of the main determinants of its ability to grow (Mishina, Pollock & Porac, 2004). Two main kinds of resource categories have been discussed; financial resources and human resources. Studies from the finance literature emphasized the role played by financial resources in enabling and curtailing growth (Higgins, 1977; Kyd, 1981; Clark et al, 1989, Cooper et al., 1994; Bamford et al, 1999; Nishat M. 2001)). From a financial market perspective, firms’ growth requirements are determined by the shareholders’ long-term earnings growth expectations, which are inherent in the firm’s current market value (Koller et al, 2005; Rashid, A. and Rehman, AZMA, 2008). Empirical findings analyzed that there is a reward for meeting or beating expectations and a penalty for failing to do so (Skinner & Sloan, 2000). There is a significant higher return for firms that consistently meet expectations over several years (Kasznik & McNichols, 2002). A firm’s minimum growth requirement may thus be determined by the rate of expected sales growth (ESG); the annual percentage increase in sales required meeting the market expectations. Growth consistently below the expected sales growth will have negative effect on firms’ returns. Furthermore, according to the maturity hypothesis presented by Barclay et al., (1992), Grullon, Michaely and Swaminathan (2002), Deshmukh (2003); Nishat M (2001), as firms become mature; their growth and investment opportunities shrink, resulting in a decline in their capital expenditures. Thus, more free cash flows are available to be paid as dividends. These companies are relatively older and do not have the incentives to build-up reserves as a result of low growth and few capital expenditures, which enable them to follow a liberal dividend policy. On the contrary, new or young companies need to build-up reserves to face their rapid growth and financing requirements. Hence, they retain most of their earnings and pay low or no dividends. They argue that a dividend increase is a sign of changes in a firm’s life cycle (firm moving from higher growth phase to a lower growth phase). Choosing a sample of US firms announcing the changes in dividends for the period from1967 to 1993, they conclude that, those firms which increase dividends, is a signal of shrinking growth and investment, experiencing decline in their systematic risk, return on assets and profitability. Researchers such as Rozeff (1982), Jensen et al. (1992), and many others, find a significant negative relationship between dividends and firms’ growth and investment opportunities. They had view that growth and investment opportunities are a significant determinant of corporate dividend policy. More recently, Fama and French (2001) affirm that investment opportunities influence dividend decisions that firms with better growth and investments opportunities have lower payouts.

2.8 Effect of size on stock price volatility
Size of the firm has strong impact on the stock prices volatility. There are different measures of firm size e.g. employment, sales, assets, and capitalization. The firm’s total assets are a proxy which has been used by many researchers to express the size for instance Ang and Paterson (1984), Gaver and Gaver (1993), Olson and McCann (1994), Dhaliwal et al. (1999); Irfan and Nishat (2003). The firm’s market capitalization of common stockholding also has been frequently used by earlier researchers as a measure
of size e.g. Eddy and Seifert (1988), Ghosh and Woolridge (1988), Bhushan (1989), Shores (1990), La Porta et al. (1999); Irfan and Nishat, (2003). In this research, total assets of the firm are used to denote the size of the firm. The expectations are that the size is negatively correlated with stock price volatility.

Size of a firm does have effect on the valuation of the firm assets. Introduction of size, as a multiplicative term to dividend, provides a significant improvement in the explanation of share prices (Karathanassis and Philiappas, 1988). The size of the firm is expected to effect the share prices positively as large firms are better diversified than small firms, therefore, are less risky. Also as the size of the firm increases, their stock market price volatility declines (Atiase 1985).

Large firms have more flexibility in raising funds from financial markets with a relatively lower cost, while small firms do not due to their higher degree of tangibility. They enjoy greater confidence and credibility in the eyes of lenders and suppliers. This suggests less reliance on internal finance. Consequently, they can maintain a consistent payout ratio. Firms are reluctant to distribute dividends without a certain degree of assurance that they can maintain a sustainable payout ratio. Therefore, other factors held constant, large firms are expected to pay higher dividends. Based on this prediction and consistent with previous research the size variables are expected to have a positive relationship with dividend payouts.

Ghosh and Woolridge, (1988); Eddy and Seifert (1988) and Deshmukh (2003) examined stock market reaction due to the announcement of dividend changes and linked firm size with the signaling hypothesis. In line with their prediction, Ghosh and Woolridge found the size coefficient significant with a positive sign. Further, Eddy and Seifert, (1988) conclude the similar results. Deshmukh, (2003) observes that the firms which initiate dividends are positively correlated with their size. In this way, firm's size may be considered as a proxy for the level of information asymmetry e.g. Vermaelen, (1981); Atiase, (1985). Also Kross, (1985); Bhardwaj and Brooks, (1992); Barry and Brown, (1984); and Elfakhani and Zabos, (1992) observed the significant impact of size on share prices due to information signaling.

Firms in large size can easily access to capital markets and can borrow funds with lower cost of capital subject to fewer constraints compared to smaller firms. This suggests that the dependence on the equity financing decrease as firms' size increase. Thus, large firms are more likely to afford distributing higher dividends to the common shareholders. Empirical studies observe that size is a significant determinant of a firm’s dividend policy and that this is positively correlated to dividends payments e.g. Lloyd et al., (1985); Chang and Rhee, (1990); Barclay et al., (1995); Reeding, (1997); Holder et al. (1998); Fama and French, (2001). However, Gaver and Gaver (1993) point out that the theoretical foundation for the impact of size on dividend policy is weak. In Pakistani context, studies of Irfan and Nishat are notable. They observe negative effect in pre-reforms and positive effect in post reforms periods on stock price volatility.
CHAPTER 3

METHODS

3.1 Data
In this study, annual data for the nine variables for the period 1998 to 2008 has been used and panel data collection is used. Panel data analysis is a method of studying a particular subject within multiple sites, periodically observed over a defined time frame. In economics, panel data analysis is used to study the stock market behavior of firm’s performance measures and stock prices over time. Panel data collection helps to retain the originality of the data which can be neglected due to other methods of data collections. The stock market price volatility is calculated by considering the highest and lowest stock prices of the individual firms. The dividend policy measures include dividend payout ratio, dividend yield ratio, natural logarithm of dividends and dividend to total assets ratio. Other major accounting variables include profitability volatility (P), size (SZ), growth (GR), gearing (GRG) and liquidity (LQ). The data was taken from the “Balance Sheet Analysis of Karachi Stock Exchange Listed Companies” and the website i.e. “Business Recorder, Blackwell Synergy, Ebsco etc”.

3.2 Methodology
This study aimed to investigate the impact of dividend policy and major accounting factors on stock market price volatility. Dividend policy measures included dividend payout ratio, dividend yield ratio, dividend to total assets and natural logarithm of actual cash dividends. The accounting variables which have been analyzed in this study were profitability of the firm, gearing, size, growth and liquidity position of the firm. Karachi Stock Exchange has been used as a unit of analysis. The annual data ranging from 1998 to 2006 of 171 KSE listed companies has been analyzed.

3.3 Descriptive Statistics
In order to test the validity of the panel data for the considerable variables of stock market prices, dividend payout ratio, dividend yield ratio, dividend to total assets and actual cash dividends, profitability of the firm, gearing, size, growth and liquidity position of the firm, this study analyzed the standard deviation, correlation, mean, range, etc. The required analysis will indicate whether our decision about the macroeconomic variables is based on the reliable and valid data available.

3.4 Pooled Least Squares Regression
The analysis will utilize pooled least squares regression. Pooled Regression is usually carried out on Time-Series Cross-Sectional data- data that has observations over time for several different units or ‘cross-sections’. The most basic test will be regressing the dependent variable i.e. stock price volatility (SPV) against the independent variables i.e. dividend payout ratio (POR) and dividend yield (DY), dividend to total assets (DTA) and actual cash dividends (ACD). The following regression will be adopted:
Baskin (1989) reports a significant negative relationship between dividend payout and dividend yield and price volatility. The difficulty with the specification above is that the dividend policy measures are likely to influence stock price volatility plus a number of other factors are also likely to effect both dividend policy variables and stock market price volatility.

In an attempt to limit these problems the regression will be modified to include the control variables as shown below:

\[ SPV_j = a_1 + a_2DPR_j + a_3DY_j + a_4DTA_j + a_5ACD_j + a_6P_j + a_7PVj + a_8SZj + a_9Grj + a10GRj + a11CRj + e_j \]

Pooled Regression can be useful with similar groups and difference of levels can be adjusted with mean centering on the data across the groups (subtracting the mean or average of each group from observations for the group). The model can be directly run using Ordinary Least Squares on the concatenated groups. If the model yields large standard errors (small T-Stats), it illustrates a warning flag to use more advanced approach such as Random Effects model and Fixed effect model.

In this study I have used Fixed Effects Models which help to measure differences in intercepts for each group (calculated using a separate dummy variable for each group. The approach is also called "Least Squares Dummy Variable" method for this reason. This is basically an OLS model with dummy variables to control for group differences, assuming constant slopes (coefficients) for independent variables and constant variance across groups. On the other hand I have also used Random Effects Model which leveraged the differences in the variance of the error term to model groups together, assuming constant intercept and slopes. Compared to Fixed Effects Models, Random Effects Models are more complex to estimate.

The expectations are that dividend payout ratio (DPR) and dividend yield ratio (DYR) would be negatively related to stock price volatility (SPV) due to signaling effects that shareholders feel more satisfaction and show more confidence on the firms paying larger and consistent dividends which reduce stock price volatility. Also size (SZ) and growth (G) factors are expected to have a negative effect on stock price volatility because of the fact that firms in larger size and growing rapidly will have greater returns in future and would meet the expectations of the investors, therefore, the stocks of these firms will show less volatility. Profitability volatility (PV) and gearing (GR) would be positively related to stock price volatility (SPV). The investors feel confidence in the stocks of those firms having upwards movement in profits and off course jump in earnings or sudden decrease in profits would increase in volatility. Profitability (P) will have negative effect on stock price volatility. The stock price volatility is also directly effected by level of gearing due to the fact that higher level of debt financing in the capital structure expresses higher degree of risk, which would certainly increase stock price volatility.
CHAPTER 4

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>JarqueBera Probability</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR</td>
<td>Dividend Payout Ratio</td>
<td>40.89529</td>
<td>3.263197</td>
<td>17.54444</td>
<td>17.54444</td>
<td>15.83307</td>
<td>0.538353</td>
<td>3.901526</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>DY</td>
<td>Dividend Yield</td>
<td>167.1995</td>
<td>14.20000</td>
<td>25500.00</td>
<td>0.00000</td>
<td>1105.678</td>
<td>14.63280</td>
<td>263.7522</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>DTA</td>
<td>Dividend / Total Assets</td>
<td>5088.200</td>
<td>122.1000</td>
<td>5088.200</td>
<td>14.10000</td>
<td>235.5619</td>
<td>10.24479</td>
<td>159.9483</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>ACD</td>
<td>Actual Cash Dividends</td>
<td>1577.778</td>
<td>36.44100</td>
<td>1577.778</td>
<td>0.00000</td>
<td>1253.333</td>
<td>2.976904</td>
<td>578.6392</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>P</td>
<td>Profitability</td>
<td>196.4300</td>
<td>1.919000</td>
<td>196.4300</td>
<td>0.00000</td>
<td>0.00000</td>
<td>19.42776</td>
<td>3.464078</td>
<td>1.539</td>
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</tr>
<tr>
<td>SZ</td>
<td>Size</td>
<td>172.4602</td>
<td>36.44100</td>
<td>172.4602</td>
<td>0.00000</td>
<td>0.00000</td>
<td>13.95271</td>
<td>5.126000</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>GRG</td>
<td>Gearing</td>
<td>12491.67</td>
<td>10.50000</td>
<td>12491.67</td>
<td>0.00000</td>
<td>0.00000</td>
<td>1.03743</td>
<td>0.00000</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>GRW</td>
<td>Growth</td>
<td>1214.286</td>
<td>11.36900</td>
<td>1214.286</td>
<td>-100.000</td>
<td>1239.130</td>
<td>29.1387</td>
<td>729.8704</td>
<td>1.539</td>
<td>1539</td>
</tr>
<tr>
<td>CR</td>
<td>Current Ratio</td>
<td>15.83307</td>
<td>1239.130</td>
<td>15.83307</td>
<td>2.400000</td>
<td>7214.286</td>
<td>314.0049</td>
<td>34.0049</td>
<td>1.539</td>
<td>1539</td>
</tr>
</tbody>
</table>

In order to analyze the reliability and validity of the available data following descriptive statistics are used. As table 1 revealed that mean of SPV was (0.561498) and standard deviation of (0.320113) with range from (0.000000) to (1.977000), so we can forecast that future value of SPV could deviate from the average. The average cash dividend distributed by the firms in the in the nine year is (167.1995) with standard deviation of (1105.678) and range from (0.000) to (25500.000). The mean of CR of all the firms in the nine years was (172.46) with standard deviation of (235.562). Mean of DPR is (40.89529) which
depict the average dividend payout ratio of all the firms for the nine years; the standard deviation of DPR is (93.04421) with range from minimum (-1253.333) to maximum (1577.778), therefore we can forecast that the future value of DPR could deviate on the given average. Mean of DTA is (3.263197) which could deviate (6.298932) from average and likely mean of DY is (8.130015) and the standard deviation is (17.54444) with standard deviation (19.54617). The average growth in sales (GRW) was (29.65620) which could deviate (371.2668) from the average. The mean of profitability (P) and size (SZ) is (15.83307) and (3285.493) with standard deviation of (191.9473) and (11390.62) respectively, so we can forecast that future value of P and SZ could deviate from the average.

Correlation

Table 2

According to Table 2 stock price volatility (SPV) have significant positive correlation with dividend yield 0.062266 (significant at 0.01) which is opposite to results of Nishat and Irfan (-0.218) and Baskin (-0.177) significant negative correlations. There exist positive relationship between price volatility and dividend yield, So this study depicts that firms with high dividend yield will have high price volatility rather than low price volatility. Stock price volatility and dividend payout ratio have negative and significant correlation -0.018648 (significant at 0.01), which conclude that high dividend paying firms tend to be less risky and so there will be less stock price volatility. These finding are similar as of Irfan and Nishat. SPV has significant and negative correlation with CR also which indicate that firms having high current ratio will have low price volatility. Price volatility has positive significant relationship with both actual cash dividends (0.025253) and firm size (0.082193). There exists a significant positive correlation between measures of price volatility and dividend to total asset ratio (0.019572) along with gearing (0.017706). Stock price volatility has significant positive relationship with growth (0.011805) and profitability (0.025141).
Second variable in regression equation is actual cash dividends which have significant positive correlation with size, profitability, dividend yield, DTA and actual stock price volatility. ACD have significant and negative relationship with current ratio and gearing but insignificant negative correlation with growth. Third variables is current ratio (CR) which have significant negative relationship with SPV (-0.028322), ACD (-0.012228), GRG (-0.232549) and size (-0.033780). CR has insignificant negative relationship with DPR (-0.006283), DY (-0.002653), GRW (-0.006137) and P (-0.008458). Fourth variable is dividend payout ratio which has significant positive correlation with ACD, DTA and DY and significant negative correlation with SPV and GRG. DPR have insignificant positive correlation with size, profitability and growth.

Next variable is Dividend to total asset ratio (DTA) which have significant negative correlation with gearing and insignificant positive correlation with growth. DTA have significant positive correlation with SPV, ACD, CR, DPR, DY, P and SZ. Dividend yield (DY) is the next variable with significant positive correlation with SPV (0.062266), ACD (0.051010), DPR (0.144379), DTA (0.319346) and P (0.019595). DY has significant negative correlation with gearing (-0.071548), size (-0.026480) and insignificant correlation with growth (0.007177) and current ratio (-0.002653). Seventh variable to identify relationship is Gearing (GRG) which has significant negative relationship with all variables except stock price volatility (0.017706) and profitability (0.064127). The next variable is growth which has significant relationship only with price volatility and gearing. Last variables are profitability and size which have significant positive correlation with stock price volatility and insignificant correlation with dividend payout ratio. Size has also negative correlation with dividend yield which depicts that there will be opportunity to increase in size (investment opportunities) which lead to increase in price volatility but with lower dividends. This is according to Gordon (1963) results which were firms with low dividend yield and payout ratio may have more investment options but with stock price variations along with longer life.

In order to examine the validity of correlation findings this study has used fixed and random effect regression model. The results of the model were extracted by using dividend policy measures along with other variables as independent variables and price volatility as dependent variable. Table 3 showed the results of fixed effect model which resulted in more significant results of the effect or dividend yield and dividend payout than table 4 which showed random effect model results. I have used regression along with other accounting variables to identify either the relationship between dividend policy measures and stock price volatility are weekend by adding or deleting these control variables. The results from table 3 and 4 stated clearly that even after controlling other accounting variable the relationship and significance of dividend yield and dividend payout with stock prices is not much effected. The important thing is the adjusted-R2 which is 1.8291 % (Fixed Effect) and 1.8925 (Random Effect). This indicates the ability of fundamental signals to explain the return variability in capital market and moreover relationship and significance of dividend policy measures are still significant even after controlling other accounting variables. It can be easily interpreted from the given values in the tables that results of the both the models are somewhat similar in terms of directions of the relationship, however, varying with respect to the level of significance.
Pooled Least Squares

REGRESSIONS- (FIXED EFFECTS)

Table 3

Dependent Variable: SPV
Method: Pooled Least Squares
Date: 05/01/11   Time: 00:38
Sample: 1998 2006
Included observations: 1539
Cross-sections included: 171
Total pool (balanced) observations: 263169

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.537874</td>
<td>0.001193</td>
<td>450.7905</td>
<td>0.0000</td>
</tr>
<tr>
<td>ACD</td>
<td>-3.880000</td>
<td>9.950000</td>
<td>-39.04675</td>
<td>0.0000</td>
</tr>
<tr>
<td>CR</td>
<td>-2.930000</td>
<td>2.700000</td>
<td>-10.86018</td>
<td>0.0000</td>
</tr>
<tr>
<td>DPR</td>
<td>-9.460000</td>
<td>6.950000</td>
<td>-13.61795</td>
<td>0.0000</td>
</tr>
<tr>
<td>DTA</td>
<td>0.001688</td>
<td>0.000117</td>
<td>14.47125</td>
<td>0.0000</td>
</tr>
<tr>
<td>DY</td>
<td>0.001374</td>
<td>4.140000</td>
<td>33.19159</td>
<td>0.0000</td>
</tr>
<tr>
<td>GRG</td>
<td>0.000239</td>
<td>3.330000</td>
<td>7.171110</td>
<td>0.0000</td>
</tr>
<tr>
<td>GRW</td>
<td>1.070000</td>
<td>1.670000</td>
<td>6.393455</td>
<td>0.0000</td>
</tr>
<tr>
<td>P</td>
<td>3.680000</td>
<td>3.230000</td>
<td>11.37699</td>
<td>0.0000</td>
</tr>
<tr>
<td>SZ</td>
<td>5.260000</td>
<td>9.260000</td>
<td>56.79643</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Effects Specification

Cross-section fixed (dummy variables)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
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<td>Mean dependent var</td>
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</tr>
<tr>
<td>Adjusted R-squared</td>
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<td>S.D. dependent var</td>
<td>0.320010</td>
</tr>
<tr>
<td>S.E. of regression</td>
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<td>Akaike info criterion</td>
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<tr>
<td>Sum squared resid</td>
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<td>Schwarz criterion</td>
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<tr>
<td>Log likelihood</td>
<td>-71045.97</td>
<td>F-statistic</td>
<td>28.39270</td>
</tr>
</tbody>
</table>
Stock market prices were regressed against dividend policy variables and other accounting factors to determine their impact. My study showed mixed results with regards to dividend policy measures. Table 3 and Table 4 provide the details of the regression analysis.

### Table 3

**REGRESSIONS-(RANDOM EFFECTS)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.537874</td>
<td>0.001193</td>
<td>450.7905</td>
<td>0.0000</td>
</tr>
<tr>
<td>ACD</td>
<td>-3.88E-05</td>
<td>9.95E-07</td>
<td>-39.04675</td>
<td>0.0000</td>
</tr>
<tr>
<td>CR</td>
<td>-2.93E-05</td>
<td>2.70E-06</td>
<td>-10.86018</td>
<td>0.0000</td>
</tr>
<tr>
<td>DPR</td>
<td>-9.46E-05</td>
<td>6.95E-06</td>
<td>-13.61795</td>
<td>0.0000</td>
</tr>
<tr>
<td>DTA</td>
<td>0.001688</td>
<td>0.000117</td>
<td>14.47125</td>
<td>0.0000</td>
</tr>
<tr>
<td>DY</td>
<td>0.000374</td>
<td>4.14E-05</td>
<td>33.19159</td>
<td>0.0000</td>
</tr>
<tr>
<td>GRG</td>
<td>1.07E-05</td>
<td>1.67E-06</td>
<td>6.393455</td>
<td>0.0000</td>
</tr>
<tr>
<td>GRW</td>
<td>5.26E-06</td>
<td>9.26E-08</td>
<td>56.79643</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

### Table 4

- **Dependent Variable:** SPV
- **Method:** Pooled Least Squares (random effects)
- **Date:** 03/23/11  Time: 21:05
- **Sample:** 1998 2006
- **Included observations:** 1539
- **Cross-sections included:** 171
- **Total pool (balanced) observations:** 263169
- **Swamy and Arora estimator of component variances**

**Effects Specification**

| Cross-section random S.D. / Rho | 0.000000 | 0.0000 |
| Idiosyncratic random S.D. / Rho | 0.317070 | 1.0000 |

**Weighted Statistics**

- **R-squared:** 0.018959
- **Adjusted R-squared:** 0.018925
- **S.E. of regression:** 0.316967
- **F-statistic:** 565.0643
- **Prob(F-statistic):** 0.000000

**Unweighted Statistics**

- **R-squared:** 0.018959
- **Sum squared resid:** 26439.15

Durbin-Watson stat  1.491228  Prob(F-statistic)  0.000000
3 showed (-9.460000) coefficient of dividend payout ratio with its p-value of (0.0000) which meant that with increase in payout ratio, the volatility in stock prices was declined, which was consistent with previous research of Irfan and Nishat (2003). Also actual cash dividends coefficient is (-3.880000) with p-values of (0.0000) which states that increase in ACD leads to decline in price volatility. The coefficient of dividend yield is (0.001374) with probability of (0.0000). The results of dividend yield showed positive relationship with stock prices volatility, which meant that with increase in dividend yield, the volatility also increased. These results are contradictory to previous results of research done with reference to Karachi Stock Exchange. These positive results were indicating that the firms with increase in dividends were created more volatility in their stock prices that is also referred as signaling theory. The shareholders are keenly interested in investing the stocks of those firms with larger dividend payments and ultimately that is reflected in the stock prices. The profitability was positively shown. The coefficient was (3.680000) and p-value was (0.0000). The explanation behind these results was consistent that the higher level of profits brought significant increase in returns and vice versa. The profitability volatility was observed negative relationship with stock price volatility in earlier research. The expectations were that volatility in stock prices would have positive relationship with profitability volatility which is according to expectations.

Size of the firm is an important factor that can influence stock market prices. The coefficient of size variable was (5.260000) with the significant p-value of (0.0000). The larger firms having greater resources and higher debt capacity can generate higher level of profits and can pay larger amount of dividends. Thus, such firms could produce greater volatility in stock prices. The relationship between liquidity and stock price volatility was negative. Those firms who invested more in current assets, could generate profits less efficiently as compared to firms invested less in current assets. Moreover, the firms invested in current assets through long term debts and equity (followed conservative approach), took no risk of shortage of funds, the returns of such firms were consequently less volatile. Gearing is also a major accounting factor, which can effect stock market prices. Our results showed positive relationship between the level of gearing and stock price volatility. The highly leveraged firms are more risky, can collapse and would create volatility in stock prices. On the other hand, firms with less degree of leverage in the capital structure would generate less volatility.
Conclusion

In examining the behavior of stock prices this study has used variables which are recognized and explored among researchers and practitioners worldwide but results are still mixed in different markets. The objective of the study is to identify the impact of dividend policy measures on stock prices of the Karachi stock exchange, Pakistan. For this purpose pooled least square regression has been used after controlling firm size, growth, gearing, current ratio and profitability. Dividend payout ratio and actual cash dividend have significant impact on price volatility with negative relationship, which are consistent with earlier researches. Dividend yield and profitability have significant impact on stock price volatility but with positive relationship which are in contrast with earlier research e.g., Irfan and Nishat (2003) and Baskin (1989). These positive results were indicating that the firms with increase in dividends were created more volatility in their stock prices that is also referred as signaling theory (Miller and Modigliani, 1985). Gearing, size and leverage have significant and positive impact on stock price volatility. Current ratio has significant and negative impact on price volatility.

As some of earlier studies, this study may not enable me to deal strongly with the multicollinearity problem which is referred for consideration in future research. Considering the limitations of number of periods examined, it is suggested to increase up to date (at least till 2010). I believe that the results of the future studies can be made more comprehensive if examined firms are divided into different classes, this can be possible by size or industry etc. Furthermore, in Pakistan other macro level variables are also need to be explored such as political instability, inflation, interest rate etc,
References

1. Annual publications of Karachi stock exchange.
7. Aivazian et al., 2003 "Dividend behavior and smoothing new evidence from Jordanian panel data"