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Determinants of Dividend Policy and the Effect of
Dividend Policy on Stock Price Volatility: A
Comparative Study of Bombay Stock Exchange and
National Stock Exchange

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Abstract

This study aims to investigate the determinants of Dividend Policy and its effects on the Share Price Volatility in the Indian Stock Market. We do this by looking at the 30 most traded stocks on the Bombay Stock Exchange (BSE) and 50 most traded stock on the National Stock Exchange (NSE) for the period of 2004-2013. A Panel data approach is used and fixed effect regression is used for Determinants of dividend policy and Random Effects Model regression is run for the Share Price Volatility studies. In NSE the main determinants are Return on Assets, Size, Pattern of Dividends and Tax ratio. In BSE it is only Pattern of Dividends and Tax Ratio. Whereas for the price volatility regression, in NSE the dividends do not affect the Price volatility, rather the Size, Debt to Assets ratio, Earnings Retention Ratio are the most significant in explaining the stock price volatility. On the other hand, in BSE, Dividend Yield is a significant explanatory of changes in share price volatility, along with the same ratios that explained the NSE price volatility. Another important observation was that once the control variables are introduced in the share price volatility model the dividends don't affect the NSE price volatility but it does in BSE. Also NSE seems to have better results in almost all the regressions models used. We also can connect the results to the Stock exchange characteristics and norms

Acknowledgements

There are many people who I am really grateful to for helping me through this year. First and foremost I would like to thank my parents for being my pillars of strength and for being ever supportive and encouraging in what I strive to do and helping me tackle all the challenges directly. Secondly, I would also like to thank my supervisor, Mr Sanjay Banerji, for giving me helpful suggestions and assistance through this dissertation. Lastly, I want to thank all the amazing friends that I have made in this year, who have helped me in some way or another.

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1.0 Introduction

The term dividend policy refers to "the practice that management follows in making dividend payout decisions or, in other words, the size and pattern of cash distributions over time to shareholders" (Lease et. al. 2000 p. 29)

There has been a lot of debate in the academic world when it comes to Payout policy, especially after Lintner (1956) Modigliani and Miller (1961) that have led to a number of competing theories and theoretical explanations regarding dividend payment in companies. Lintner laid the groundwork for dividend policy by finding that firms in the developed markets target their dividend payout ratio with the help of current earnings and past dividends and to achieve the target various changes are made to the dividend policy for them to have stable dividend payments. Quite the reverse is MM who said that dividend policy is irrelevant in measuring the current worth of shares considering the irrational assumptions of market perfections.
However, Gordon (1962) and Walter (1963) during the same time period proved that dividend is rather relevant for the valuation of firms which means that shareholders are not all that indifferent to the payment of dividend and retention of profits. Even after various academic researches, over the decades, from different parts of the world, there has been no single consensus about the contradicting theories of dividend policies.

The dividend paradox has not only been an enduring issue in finance, it also remains unresolved. Almost 4 decades ago Black (1976) described it as a "puzzle" and since then an enormous amount of research has occoured trying to solve the dividend puzzle. Allen et al (2000, p. 2499) concluded "Although a number of theories have been put forward in the literature to explain their pervasive presence dividends remain one of the thorniest puzzles in corporate finance".

In this paper we study the determinants of dividend policy in the Indian Stock Market and how it affects the stock price volatility of the firm. We see this by comparing companies listed on India's 2 major stock markets; Bombay Stock Exchange (BSE) and National Stock Exchange (NSE).

1.1 Motivation and Objectives of the study

Many researchers, in many different aspects, resulting in various dividend policy theories, have studied payout policy. The first one being Lintner (1956) who used a behavior model to explain the changes in dividends as a function of the the target dividends payout less the last period's dividends payout multiplied by the speed of an adjustment factor. He said that the change in earnings was the most significant determinant of dividend payments. Rozeff (1982) was the first to acknowledge the role of insiders in unregulated firms and conclude that more the insider holdings less will be the dividend payment of the firm. Farelly and Baker (1986) surveyed 562 firms listed on the NYSE about the dividend policies in US in 1983. They stated that expected future earnings and pattern of past dividends are the most important determinants of dividend payment. Pruitt and Gitman (1991) surveyed 1000 largest U.S firms in terms of investment, financing and dividend decision. They found the past and current levels of profit, volatility of earnings, and growth in earnings (expected future earnings) highly affect the dividend policy of these firms. Also past dividend had a grave impact on the current one declared.

The volatility of a share price is a measure to define the risk and it conveys the change in the price of a security over a given period. The more volatile the share price the more it varies in either direction and accordingly the investor has a gain or a loss. This does not help the investor to know for sure if the investment is safe or very risky. The lesser the risk, the better is the investment for the investor (Kinder, 2002). Gordon (1963), Allen and Rachim (1996); Baskin, (1989) were among the very first ones to link the effect of dividend policy to share price volatility. Gordon (1963) proved that dividend is actually relevant in contrast to Modigliani and Miller's (1961) irrelevance theory. Studies by Travlos et al (2001), Baker et al (2002) Myers and Frank (2004) Dong et al (2005) Sevic et al (2007) all found no relationship at all between the dividend policy and share prices.

This tells us that it is important to study the topic, as there are many contradicting results to these studies. Also dividend is considered very important by shareholders, because they perceive it as a proof of the company's earnings being good enough.

There have been many academic papers studying the trends and determinants and others studying the effect of dividend policy on stock price behaviour. But in this paper I am making an attempt to combine these two different academic research topics into one, and study their relevance in the Indian Stock Market. Also to authors knowledge there are no papers combining these to studies or comparing between the 2 main Indian stock Exchanges.

The main objectives of this paper are:

-To find out the main determinants of the dividend policy in the Indian Stock Market

-To see the effects of the dividend policy on the volatility in the share prices of the Indian Stock Market

-How do these aspects differ between the BSE and NSE?

-Do Stock Exchange norms have anything to do with results?

1.2 Structure Of the Paper

This is how the whole paper is structured; we continue on by giving the motivation behind studying Dividend Policy and what we will be concentrating on in this research. Then we introduce Dividend Policy briefly, and how it affects the share price under different circumstances. We then give the workings and highlights of the stock exchanges chosen for this study. In Section 2 we start our literature review and get an idea of the existing literature regarding the determinants as well as how the dividend policy affects share price volatility. We divide these by existing literature all over the world and existing literature solely in India We also take a look at the different theories that have been developed over the years by conducting different studies by various researchers. Section 3 describes the data, sample selection, variables used and their hypothesized relationships with each other are formed. The research methodology and various tests used are explained. Even tools such as descriptive statistics and Pearson's correlation are explained. Regression models are formed, in order to find the key relationships for the study. In section 4 the obtained empirical results of the regression models formed in the previous section are analyzed in detail, and also compared between both the stock exchanges. In Section 5 the study is concluded along with limitations of the study and further research scopes highlighted as well.

1.3 Introduction to Dividend Policy

We all know how dividend policy works in today's market, but all the theories that have evolved through these various studies over the years, ignore the evolution of payments of dividends. Studies say that dividend payments are bad for the firm value, because they decrease the wealth of the firm. So a question would arise 'Why do firms still pay them?' Frankfurter and Wood (1997) found that the practice of paying dividends is more than 300 years old. Dividends were initially paid when a venture was liquidated and the profits were then distributed to the businessmen involved.

The concept of dividends goes back so far that the question of the first company to pay a dividend is very much an open question. A French joint stock company, Société des Moulins du Bazacle, may well have been the first (the company was formed in 1250), and other companies formed in the 16th century and early 17th century like Muscovy Company and East India Company paid dividends to their shareholders. (Simpson, 2013) The Hudson Bay Company was the first North American commercial corporation, and most likely the first to have paid a dividend. That first dividend (paid 14 years after the company's formation in 1670) was massive too – 50% of the par value of the stock. (Simpson, 2013)

When a firm has excess cash after completing their obligations to the respective stakeholders, they have 2 alternatives; they can either retain it or distribute it to the shareholders. If a firm decides to pay the excess cash to the shareholders, it can pay it in the form of dividends, share repurchases, or a combination of both. In recent years, dividend payments and stock repurchases have amounted to a high proportion of earnings. Although dividends remain the principal channel for returning cash to shareholders, many corporations pay no dividends at all. The way a firm chooses between these alternatives is referred to as its **payout policy**.

A public company's board of directors determines the amount of the firm's dividend. The board sets the amount per share that will be paid and decides when the payment will occur. The date on which the board authorizes the dividend is the **declaration date**. After the board declares the dividend, the firm is legally obligated to make the payment. (Berk, DeMarzo 2011)

The firm will pay the dividend to all shareholders of record on a specific date, set by the board, called the **record date**. Because it takes three business days for shares to be registered, only shareholders who purchase the stock at least three days prior to the record date receive the dividend. As a result, the date two business days prior to the record date is known as the **ex-dividend date**; anyone who purchases the stock on or after the ex-dividend date will not receive the dividend. Finally, on the **payable date** (or **distribution date**), which is generally about a month after the record date, the firm mails dividend checks to the registered shareholders (See Figure 1). Most companies that pay dividends pay them at regular, quarterly intervals. Companies typically adjust the amount of their dividends gradually, with little variation in the amount of the dividend from quarter to quarter. Occasionally, a firm may pay a one-time, **special dividend** that is usually much larger than a regular dividend. (Berk, DeMarzo 2011, p.552) Many companies offer shareholders automatic dividend reinvestment plans (DRIPs). Often the new shares are issued at a 5% discount from the market price. Sometimes 10% or more of total dividends will be reinvested under such plans.(Scholes and Wolfson, 1989)

Figure 1: Important Dates of Dividend Payment

2 Business Days

Declaration Date	Ex-dividend date	Record Date	Distribution Date
Jan 15th	Feb 20th	Feb 22nd	Mar 22nd
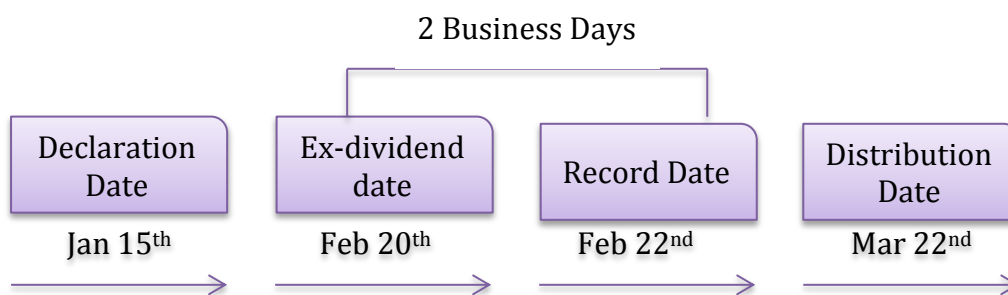
Drawn by: Author

Companies are not free to declare whatever dividend it chooses. There are different rules and patterns all over the world. In Brazil and Chile, companies are obligated by law to pay out a minimum proportion of their earnings. On the contrary, in some countries lenders impose restrictions on payments of dividends because they might be concerned that excessive dividend payment might not leave enough cash for their loans to repaid. In fact, US state law protects the firm's creditors against such things.

Dividends are not always in the form of cash. Frequently companies also declare stock dividends. For example, if the firm pays a stock dividend of 10%, it

sends each shareholder 10 extra shares for every 100 shares currently owned. A stock dividend is essentially the same as a stock split. Both increase the number of shares but do not affect the company's assets, profits, or total value. So both reduce value per share. The difference between them is technical because a stock dividend is shown in the accounts as a transfer from retained earnings to equity capital and split is shown as reduction in the par value of each share.

Whereas, when it comes to repurchasing stock, the most common method is for the firm to announce that it plans to buy stock in the open market. Share Repurchases have become an important form of paying shareholders. Grullon and Michaely(2002) find that most US firms finance repurchase with the funds that could be used to increase dividends. They also find that younger firms prefer share repurchase as it is easier for them to afford. On the other hand large firms don't lower their dividends, but have shifted towards share repurchase as a prefered form of cash distribution to shareholders, hence substituting repurchases for dividends. Share repurchases are restricted by regulations in some countries. Canada limits repurchases to 5%. Shareholders must approve repurchase in the United Kingdom, France, and Germany. Motives for repurchasing shares include the following: Signalling that the stock is undervalued, Flexibility of distributing cash without the expectation of cash dividends. Tax efficiency when the tax rate on capital gains is less than that of cash dividends. Brealy et al (2013, p. 402) the fraction of companies that pay dividends has decreased from 48% in 1980 to 31% in 2010 (Skinner, 2008) (Denis and Osobov 2008) Some of the non–dividend payers did pay a dividend in the past but then fell on hard times and were forced to conserve cash. Further, a large number of new growth companies have gone public in recent years and do not pay a dividend. Some of these ompanies are Amzon, Google, Berkshire Hathaway. Most of the Firms now-a-days work out a combination of dividend payments and share repurchases.

Dividend Payment of a company is looked upon differently by different sets of people associated with the company.for the investors, dividends are not merely means of regular earnings but also an important input for determining the worth and credential of the firm. For managers, dividend payment might well determine the level of investment in profitable investment projects. Lenders look at it carefully

because they feel that the more the dividend payment the less will be the amount available for servicing and redemption.

1.4 Dividends and Share Price

Since this study mainly concerns with the dividend and the stock value we should first understand how exactly the payment of dividend affects the share price.

As explained above that from the dividend announcement to actual dividend payments there is quite a time lapse in between. During this time there are many changes in the share prices and to the various items tied to it. On ex-dividend date, the stock price is decreased by the exact amount of the dividends being paid. It is decreased by the exact amount in perfect capital markets with no taxes and transaction costs. In reality for most of the stocks this is not observed amidst the daily changes in the stock prices. When it is observed the share price is adjusted by less than the dividend being paid, and that is because of the effects of the components of the imperfect capital markets such as tax effects on the gain by dividend, transaction costs etc. Frank and Jagannathan (1998) study this fact in Hong Kong where neither dividends nor capital gains are taxed and still find that price drops less than the dividend. They account for the price drop by recognizing that most trades occour when the share is still cum dividend and these happen on the bid price, whereas, on the ex-dividend day they are traded on the ask price, resulting a rise in the stock prices on the ex-dividend day independent of the amount of dividends. Overall, the reason for this adjustment in share price is that once the company pays the dividends, that portion of cash goes out of their balance sheet and does not belong to them anymore. This would result in the reduction of company's market cap. As mentioned the shareholders purchasing shares after the ex-dividend cannot claim the dividend being paid, so the exchanges adjust the prices to reflect this fact.

1.5 Indian Stock Market

The public equity market within India, both spot and derivatives, takes place almost entirely at the two exchanges—National Stock Exchange and Bombay Stock Exchange. The exchanges have an essentially identical trading system, with the

following features:

- There is an open electronic limit order book with order matching by the trading computer.
- There are no market makers.
- Both exchanges trade equity spot and equity derivatives.
- There is T+2 dematerialized settlement on the equity spot market.

Both exchanges trade from 9:55 A.M. to 3:30 P.M. in IST, which is five and a half hours added to GMT. India is unusual in having the din and fury of two very active exchanges doing spot and derivatives trading on equity from 9:55 A.M. to 3:30 P.M., and no equity trading at any other time of the day. Both exchanges do dematerialized delivery through two competing depositories, the National Securities Depository Ltd. (NSDL) and the Central Depository Services Ltd. (CDSL). NSE is a shareholder in NSDL while BSE is a shareholder in CDSL. While NSDL and CDSL compete in offering depository services, a customer is fully free to have an account with NSDL or CDSL, and then choose to trade on any of the two exchanges. The choice of exchange and the choice of depository are independent: the settlement processes on either exchange work fully with settlement on either depository. (Nse.com, bse.com) By and large, the exchanges compete for *order flow* for cross-listed stocks. Competition for listings is not an important feature of the competition between the NSE and BSE, since the regulatory and legal environment supports multiple listings and listing fees are low. (Shah et al, 2008) When a firm is traded on both the NSE and BSE, both prices are directly comparable since they both pertain to T+2 settlement. The two prices are tightly bound by arbitrage. Both exchanges are demutualized, and there is an infinite supply of memberships that can be accessed any time. For all practical purposes, any important member firm has memberships on both exchanges. The important firms have offices all over the country for the purpose of interacting with geographically dispersed order flow. According to Sangameshwaran and Philipose, (2005) if one notices closely one would witness a varying difference between the bid-ask prices on both the exchanges when it comes to the same security. On NSE the difference is much smaller than that on BSE. Given that higher bid-ask spreads entail higher costs while executing large orders and spreads on the NSE are finer, it's the obvious choice for investors. As a broker says, "Liquidity breeds

liquidity." The main difference between BSE and NSE is that since they were formed at different times, the characteristics are different, rules and regulation of entry/ listing in the brokerage industry vary, which could affect many things that one wouldn't have thought of.

1.5.1 National Stock Exchange (NSE)

NSE was founded in 1992, and created into an electronic exchange in the mid 1990's NSE has a market capitalization of more than US$1.5 Trillion, with 3091securities available for trading as of June 2014[1] Almost all listed firms are listed on BSE. NSE listing requirements are stiff, and most firms do not qualify for these. Companies are subject to norms laid down by the Securities and Exchange Board of India (SEBI) and Rules and Regulations of the Exchange. For them to become members the Companies paid up equity capital should be at least Rs. 30 lakhs, Net Worth of minimum Rs.75 lakhs, their designated directors should have a minimum 2 years experience of dealing in securities. Whereas financial service companies like banks have to have a minimum net worth of Rs.500 crores. Also the listing fee ranges between Rs.100- 300 lakhs. Their Net Profit for the last 3 years should be positive. Some BSE-listed firms are also listed on NSE. The official NSE closing price is the value weighted average (VWA) of the last 30 minutes of trading. Since the NSE has more trading of most stocks, the NSE closing price is the preferred measure of price on the Indian equity market. (Shah et al, 2008) NSE members have roughly 50,000 trading screens across the country. Since 1995, the NSE has been India's biggest stock market. In 1996, a new index named the NSE-50 or Nifty was released. This was calculated as a market capitalization weighted portfolio containing 50 stocks. The full name of the index is now "S&P CNX Nifty," reflecting an involvement of Standard & Poor's from 1999 onward. The 50 firms that go into the NSE-50 index are chosen using a methodology that focuses on liquidity. The stocks are required to deliver low transactions costs while doing portfolio (or basket) trades to buy or sell the index portfolio. Basket trades of Rs.5 million at a time are simulated for these computations. Basket trades are simulated using four snapshots of the limit order book every day on NSE, so as to achieve measurement of the impact cost suffered

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[1] Indian Stock Market article in the Economic Times
http://m.economictimes.com/markets/stocks/market-news/investor-wealth-in-indian-stocks-rises-to-record-1-5-trillion/articleshow/36158252.cms

when doing basket trades. Firms with a higher market capitalization naturally have bigger transaction sizes in these simulated baskets. The simulations use exact data from NSE, and thus accurately measure the transactions costs associated with doing basket trades. This mechanism ensures that illiquid stocks do not contaminate the index series, and that index returns are genuinely attainable to an investor who would have to implement such basket trades on the market (Shah et al, 2008). NSE though created after BSE was, is India's most liquid stock exchange. This is because of the firms they select and also because NSE revolutionized and broke entry barriers in the brokerage industry. This meant that many firms that were unable to list their stock initially now could at the NSE. (Shah and Thomas, 2001) NSE is also the one that was keen to explore other investment avenues such as derivatives, which led to derivatives being traded on NSE. Where NSE benefitted from it a great deal BSE suffered to keep up which led to it losing market share over the years to NSE. Hence according to Sangameshwaran and Philipose, (2005) NSE is a preferred stock market to investors, but this could change if BSE decides to make changes as well.

1.5..2 Bombay Stock Exchange (BSE)

The Bombay Stock Exchange is known as the oldest exchange in Asia. It was initiated its operation in 1850s, when stockbrokers gather under banyan trees in front of Mumbai's Town Hall. The location of these meetings frequently changes as number of stock brokers increases. Then this association moved to Dalal Street in 1874 and in 1875, became officially "The Native Share & Stock Brokers Association". The BSE became the first recognized stock exchange by the Indian Government in 1956. More than 5000 companies are listed in BSE. The Bombay Stock Exchange uses the BSE Sensex, an index of 30 large and most liquid companies. The listing eligibility for BSE is lengthy as it includes a number of form submissions such as Data on Member Registration, Authorization from BSE, Company Mission and Financial statements etc. Also the company should have a minimum paid up capital of Rs.10 Crores (almost 1.01 million pounds) and a minimum Market Cap of Rs. 25 crores(25.22 million pounds). The BSE Sensex was developed in 1986; this index is a proxy to measure the overall performance of stock market and an economy. The electronic trading system was introduced in 1995 prior to that the trading was organized in an open cry floor. BSE members have roughly 25,000 trading screens. Investors generate returns in two ways firstly in the form of

dividend and secondly by way of capital appreciation. (Patel and Prajapati, 2014). The oldest and most prominent index in India is the BSE Sensitive Index, known as the BSE Sensex. The BSE Sensex was created in 1986. A committee chose the set of companies that formed the index. It was a market-capitalization weighted index of 30 listed firms. In 2002, the BSE Sensex shifted from market capitalization weights to "floating stock weights." Here, the weightage of a company in the index is proportional to the shares held by investors who might possibly sell the shares. Difficulty when using the Sensex is that a total returns index, which incorporates capital gains and dividends, is not available. (bse.com) When compared to NSE, BSE is not as liquid, in fact it struggles with liquidity issues. Also because BSE is restricted by the rules and regulations of operating primarily in Mumbai only, NSE went wide and far because of demutualization at incorporation, which led it all across the country, reaching out to a mass of companies that were eager and willing to step into the brokerage industry. BSE even though the better-known index did not capitalize on their popularity and that is how NSE flew in and attracted investors in a very short time (Sangameshwaran and Philipose, 2005).

2.0 Literature Review

There have been many studies related to dividend policy and its theories, with varying results. We start with the Determinants Studies all over the world and then solely concentrate on what the existing literature is in India. Exactly the same thing is done for the effects of Dividend Policy on Price Volatility.

2.1 Dividend Determinants Evidence

We first look at international evidence and then concentrate on the results in India.

2.1.1 Dividend Determinants studies Internationally

Baker and Powell (2000) study the determinants in US of NYSE listed firms by conducting a survey, where they look at mangers views of what exactly determines the dividend policy in the firms. Their results suggest that the most important factors are current an future earnings,and the pattern of dividends. They compare these results to their 1983 results and say that the results are more or less similar in terms of the determinants. These factors are similar to those identified by Lintner (1956) in his behavioral model of dividends more than four decades ago. Second, the most important factors influencing dividend policy in the 1983 dividend survey were highly similar to those in the current survey. This finding suggests that the key determinants of dividend policy

Baker Powell veit (2001) survey the NASDAQ firms and find that their results are consistent with Lintner (1956) they find different 22 main factors that influence dividend policy according to the mangers in the survey. Responses from managers of financial and non financial firms, but this is expected because of the different ways in whichboth the type of firms function. Same actors are important to NASDAQ and NYSE firms.

Brav et al (2005) survey 384 financial executives and further interview 23 to understand the factors that determine the dividend and share repurchase decisions in the 21st century. overall the surveys and field interviews provide a benchmark describing where academic research and real-world dividend policy are similar and where they differ. They say that managers believe that maintaining a dividend level has the same priority as an investment decision, but only for maintaining the level of dividends per share. Otherwise payout policy takes second-order concern which means they avoid dividend cuts except in extra ordinary circumstances, but increases in dividends are considered only after investment and liquidity needs are met. In contrast to lintners era they find that target payout ratio is no longer the pre-eminent decision variable affecting payout decisions. in terms of non-payers initiatind dividend payment, the dominating factors are; a sustainable increase in earnings and demand by their institutional investors. Several factors stand out as influencing repurchase policy. Consistent with a Miller and Modigliani irrelevance theorem, and in contrast to decisions about preserving the level of the dividend, managers make repurchase decisions after investment decisions. Many executives view share repurchases as being more flexible than dividends, and they use this flexibility in an attempt to time the market by accelerating repurchases when they believe their stock price is low. CFOs are also very conscious of how repurchases affect earnings per share, consistent with Bens et al (2004). Companies are likely to repurchase when good investments are hard to find, when their stock's float is adequate, and to offset option dilution.

Denis and Osobov (2007) firstly provided international evidence (including U.S., Canda, U.K., Germany, France, and Japan) on the impacts of firm size, profitability, growth opportunities, and the ratio of retained earnings to total equity in determining the dividend decisions.

Gill et al (2010) seek to extend the findings of Amidu and Abour(2006) and Anil and Kapoor (2008) regardingthe determinants of payout ratios by examining American service and Manufacturing firms. They found differentiating results between the two kind of industries when it came to the most determining factors of the payout ratio. They find that the main factors in the Service industry are profit margin, sales growth, and debt-to-equity ratio. Whereas, for manufacturing firms they

are profit margin, tax, and market-to-book ratio. They also found that the results are different when the dividend payout ratio is defined as the ratio between the cash dividend that the after-tax cash flow, not the after tax earnings of the companies. The different result is expected because the Cash and Capital needs for both the industries are very different.

Anupam Mehta (2010) researches the determinants in the GCC countries by studying the firms listed on the Abu Dhabi stock exchange from 2005-09 and finds that profitability and firm size are the main factors determining dividend payments in UAE firms.

Shabibi and Ramesh (2011) study the factors that determine dividend policy in the firms listed in UK. This study explored the determinants of the dividend policy for a sample of non-financial UK firms in 2007. The empirical study shows that board independence, profitability, firm size and firm risk have an impact on the dividend policy decisions in the UK. The study supports the theory that corporate governance features affect dividend policy in UK firms. Board independence is the most essential factor in corporate governance, which forces the UK companies to pay dividends. In other words, the greater the number of independent directors on the board, the higher is the dividends paid to the shareholders. This finding supports the agency cost theory (Jenson, 1986; Jiraporn et al., 2008). Further, the firm characteristics variables viz., profitability, risk and firm size also act as a determinant factors for dividend policy among the non-financial UK firms.

Museiga et al (2013) examines determinants among dividend payout of non-financial firms listed on Nairobi Securities Exchange. Purposive sampling technique was used and a sample of 30 non-financial companies for duration of five years from 2007 to 2011 was selected. Return on equity, current earnings, and firms' growth activities were found to be positively correlated to dividend payout Business risk and size,both the two taken as moderating variables increase the precision of significant variables from 95% to 99% hence among major determinants of dividend payout. Current earnings, profitability, Growth opportunities, firm's size, and business risk, are found to be the main determinants of dividend payout for non- financial firms on NSE.

Ranti (2013) analyses the Nigerian Stock Exchange to examine the effects of financial performance of firms, firm size, financial leverage and board independence on the dividend payout decision of the listed firms during 2006-10. The results showed a significantly positive relationship between financial performance, size and board independence of the firm on its payout decisions. their results were in line with Baker and Powell (2000), Al-Najjar and hussainey (2009) Kumar (2003) and Malkawi (2007). There is a significantly negative relationship between the firms leverage and its payout which tells us that as the debt content in the capital structure of a firm decreases, its payout ratio rises and vice versa. This is why highly levered firms will always prefer to pay lower dividends in order to reduce transaction costs associated with external financing.

2.1.2 Dividend Determinants studies in India

Reddy (2002) analyzes the trends and determinants of dividend of all Indian companies listed on both the BSE and NSE during 1990-2001. He investigates three factors i.e. number of firms paying dividend, average dividend per share and the average payout. His results indicate that companies paying dividends has decreased fro 60.5% in 1990 to 32.1% in 2001 and only few companies maintain the dividend payout rate and that firms forming a part of small indices pay higher dividend compared to firms forming a part of broad market indices. Deviations in the tax regime are also examined using the trade-off theory and it is found that this theory does not apply to the Indian corporate sector. He concludes that the omission of dividends have information content i.e. such companies expect lower earnings in the future whereas the same does not hold true in case of dividend initiations.

Anand (2004) analyses his own survey (Anand, 2002) to study different dimensions influencing dividend policy decisions. He examines responses from 81 CFOs from the main companies in India and dissect their answers to see how they formulate dividend policies in their firms and what factors do they consider. This study gives us a company perspective in formulating dividend policies. He uses Lintner's (1956) study as his basis and gets similar results. He used principal components analysis and identifies dynamic-static dividend policy, information signaling and clientele effect and investors preference for dividends as the main components of dividend policy in India. His study indicated that firms strive for stable

dividend payments so as to have smooth dividend payments, but be dynamic in the sense that they want to grow at a increasing growth in earnings. It also referred to dividend announcements being a signal to the investors of the company's potential growth in earnings supporting the signaling hypothesis. He also mentions that payments of dividend help reduce the agency cost associated in a corporate form of organizational structure Easterbrook (1984), Jensen (1986), and Jensen et al (1992). The dividend payments reduce the incentive to managers to use free cash flows for creation of corporate wealth instead of shareholders' wealth (Lang and Litzenberger 1989, Agrawal and Jayaraman 1994).

The relationship between corporate governance and dividend payout behaviour of the Indian firms is examined by Kumar (2006) by taking into consideration their financial structure, investment opportunities, dividend history, earnings trend and ownership structure during 1994–2000. He finds a positive association of dividends with earnings and dividend trends but does not find any association between foreign ownership and growth in dividend payout. Bhayani (2008) has examined the influence of earnings and lagged dividend on dividend policy of companies listed on the BSE. He found that the current year's earnings is the foremost factor affecting the dividend behaviour of a firm and concludes that Indian companies follow a stable cash dividend policy. Kanwal and Kapoor (2008) examine the dividend policies of companies in the information technology sector in India. They explore various factors such as profitability, cash flows, corporate tax, sales growth and growth opportunities that have an impact over the dividend policies of such companies. They report that only cash flows indicating liquidity and beta indicating risk are the foremost determinants.

Parua and Gupta (2009) study the trends in dividend payments and its determinants of selected Indian companies during 1994-2005. They found out that the number of non payers and low payers of dividends have increased but average dividend payments kept on rising. They say that the current profit, past profit, and expected future profit play a significant role on the setting of the rate to be paid. And average dividend (average of 3 years prior also helps in setting the dividend rate in the companies. Interestingly they find that cash position and cash flow have a significant negative relationship with only dividend rate. And interest expense, tax ratio and

share price behavior have no role at all when it comes to dividend payment. They conclude that the stability of dividend payments is primary concern for the managers.

Gupta and Banga (2010) examine various factors that affect the dividend decision of the firm by using a two-step multivariate procedure. Through factor analysis they extracted prominent factors from the data indicating that liquidity, leverage, growth, ownership and profitability of the firm are the major factors affecting the dividend policy decision. They run multiple regression analysis state that liquidity and leverage are the determinants of dividend policy for Indian companies during 2001-07. They do an extensive factor analysis on 15 variables that possibly could affect a dividend decision in the firm.

Thus over the years different strands of research have emerged in the area of dividend policy both in India and abroad.

2.2 Dividend Policy and Share Price Volatility studies
Similarly for Price Volatility as well we divide the evidence internationally and concentrate on India.
2.2.1 Dividend Policy and Share Price Volatility studies Internationally
Hussainey et al (2011) study the relationship between dividend policy and share price volatility in the UK stock market. They use multiple regression analysis to see if there is any association between share price changes and both dividend yield and dividend payout ratio. The empirical findings suggest that there is a significant negative relationship between the payout ratio of a firm and the volatility of its stock price, and a negative relationship between dividend yield and the volatility of stock price. This is consistent with the findings of Allen and Rachim (1996). But the findings on payout ratio were contrary to the findings of Baskin (1989). The overall findings suggest that the higher the payout ratio, the less volatile a stock price will be. They also suggest that payout ratio is the main determinant of the volatility of stock price. Among the control variables, it was discovered that size and debt had the highest correlation with price volatility. While size had a significant negative relationship with price volatility, suggesting that the larger the firm, the less volatile the stock price is, debt, on the other hand, showed a significant positive relationship with price volatility, suggesting

that the more leveraged a firm is, the more volatile the stock price will be.

Since both management and investors are concerned about the volatility of stock price, this research has provided a light on the pathway to discovering what moves stock price, as well as important factors to be considered by investors before making investment decisions and by management in formulating dividend policies for their firms. This research also discussed some theories and determinants of dividend policy, as well as theories of risk and dividends.

Similarly, Nishat and Irfan (2003) examine a sample of 160 companies for a period of 20 years from 1981-2000. They divided their results into pre-reform(1981-1990) and reform period (1991-2000).The responsiveness of the dividend yield to stock price volatility increased during reform period (1991-2000). Whereas payout ratio measure is having significant impact only at lower level of significance. In overall period the size and leverage have positive and significant impact on stock price volatility. The size effect is negative during pre reform period (1981-1990) but positive during reform period. The earning volatility impact is negative and significant only during reform period. Although the results are not robust enough as in the case of developed markets but are consistent with the behaviour of emerging markets. Overall both dividend payout and dividend yield are positively related to share price volatility.

Profilet and Bacon (2013) examine a diverse sample of 599 companies listed on S&P over the course 3 years The study used a given stock's standard deviation as the dependent variable to represent the stock's volatility. Independent variables tested include: dividend yield, payout ratio, size, leverage, and growth. Leverage and growth both varied negatively with stock price volatility. The positive relationship observed between the payout ratio and the stock price volatility produced anomalous results.
As expected, results suggest that the higher the firm's dividend yield, the lower is it's stock price volatility. This result supports the findings presented in Al-Malkawi's Signaling Hypothesis and further implies the importance of dividend cash flow as a signaling device to stockholders as is evident in the sample.

Habib et al (2012) examine the relationship between dividend policy and share price volatility in Pakistan by studying the firms listed on the krachi stock exchange-100 index. They find that dividend yield and share prices are positively related but payout

ratio is negatively related. The size and debt are negatively related with share price volatility. This study proposed that dividend yield is better and more important determinant factor in determining share price volatility in KSE 100 index rather than payout ratio. Their study also hints that the signaling effect of dividends also affects share price volatility. Sadiq et al (2013) studied random companies n the same stock exchange for a period of 11 years from 2001-2011. Here they take dividend yield as their only dependent variable, unlike others who run regressions by taking both dividend yield and dividend payout ratio as their dependent variable. Their study suggests that volatility has a negative relationship with dividend yiels and earnings per share and a positive relationship with size and growth in assests of firms. And it resulted with no relationship between volatility and earnings volatility. Khan and Khan[2] do the same study in the same stock market for the period of 2001-10, but takes a panel data approach and controls for fixed and random effects. Also the independent variables differ from the other studies. They use profit after tax, earnings per share, return on equity, which have a positive relationship with stock price volatility. They also use retention ratio, which is insignificant and has a negative relationship. Khan (2012) one of the authours from the previous study carries the same study by focusing on the chemical and pharmaceutical companies in the same stock market. He uses the same approach with panel data and finds that in these industries dividend, EPS and PAT have a significant positive relationship with SPV and explain most of the changes in stock prices in this sector of KSE listed companies. While retention ratio and ROE have a insignificant and negative relationship with SPV. He even states that the Irrelevance theory by MM is not applicable in Pakistan.

Hashemijoo et al (2012) conduct this study in the Malaysian stock market by focusing on the consumer product companies from 2005-2010. They find that share price volatility has a significant negative relationship with both the dividend payout and dividend yield. Also firm size has a negative relationship. And size and dividend yield have the most affect on share price volatility. Zakaria et al (2012) also studies the malaysian market but concentrating construction and material companies for the same period. They find that there was 94.41% of volatility during their study time of six

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[2] There is no year given for this paper. This is the complete citation -Khan, A. A., & Khan, K. I. Dividend Policy and Stock Prices–A Case of KSE-100 Index Companies. *Cell*, *321*, 4028246.

years, dividend payout ratio and size significantly influences share price volatility and that leverage has negative impact in the share price movement. The empirical result suggests there is a significant positive relationship between the DPR of a firm and share price volatility. DY is insignificant and negatively related to the movement of stock prices. This result is consistent with Baskin (1989), Rashid and Anisur Rahman, 2008 but contradict to Allen and Rachim (1996), Nazir et al. (2010). Thus, this finding suggests that, higher DPR will lead to a more volatile share prices. Among the control variables, only firm size (FZ) and leverage (LEV) showed high correlation with the changes of the firm share prices. The larger the size of the company, the greater the company needs to face with the volatility of share prices. The results show no significant influence between investment growth and earnings volatility on the changes of the company share prices.

Irandoost et al (2013) study the effect of dividend policy on SPV and investment decisions of the firm. They research firms on the Tehran stock exchange for a period of 5 years from 2007-2012. They quantify the investment decisions of the managers in the form of cash and accrual basis. They find that dividend policy has no effect on the investment decisions of the firm, and it has an effect on SPV in the short term and not the long term.

2.2.2 Dividend Policy and Share Price Volatility studies in India

When it comes to dividend policy effects on share price volatility in the Indian context, the literature is limited.

Pani (2008) studies the firms listed on the BSE for the period of 10 years from 1996-2006. He follows a panel data approach and analyses the relationship between dividend retention ratio and stock returns. He uses control variables like size of the firm and Debt-to-Equity ratio. The results are presented and differentiated industry wise to see the full impact of the dividends paid by specific industry type. The firms show a clientele effect in the effects of dividends on share price behavior. He finds that dividend retention ratio is statistically significant and positively related to the stock price behavior with industry classifications but when it comes to aggregate data the results lack statistical significance but dividends still do affect the share price behavior.

Azhagaiah and Sabaripriya (2008) narrow it down and research the impact of dividends on share prices specifically in the chemical companies listed on BSE. They found that the wealth of shareholders was mainly influenced by growth in sales, improvement in profit margin, fixed and working capital investment decisions, capital structure decisions. But dividend impacted strongly in organic chemical companies but not in inorganic chemical companies.

Aravanan and Mannarakkal (2011) similarly study the Ferro Alloy and Alloy steel companies in India. Their results indicate a strong siginificant impact of dividend payout on market prices of their shares in the Alloy Steel companies but not in the Ferro Alloy Steel companies in India.

Das and Samanta (2012) in their article titled "Dividend policy and its effect on shareholders" wealth: a study on Indian banking sector in liberalized era" conducted a study on Indian banking companies in post liberalization era and they found that for public sector banks in India dividend policy is an important determinant of shareholders" wealth.

Das and Samanta (2013) study the stock price behavior on the dividend policy of IT firms (which are known to pay high amounts of divided in INDIA) listed on the BSE for the period of 10 years from 2002-2012 in the liberalization era. They conclude that From the major findings of the study it can be said that dividend policy i.e., splitting of total profits into dividend and retained earnings is not at all a decisive factor for stock price behaviour in information technology sector under the present study. So, irrelevance theorem holds good even with market imperfections in our study. The probable reason, as we think, behind such outcome is that in Indian market young India"s investors prefer growth of the firm, which largely depends on profitability and other factors, than cash dividend.

Patel and Prajapati (2014) study the impact of dividend announcement on the stock prices of 20 selected Indian companies listed on BSE through 2008-2011. They explain the effect of the announcement by seeing if there were abnormal changes in the stock returns pre and post announcement. Their research resulted that on the declaration date, Cumulative Average Abnormal Returns has been found significant on event period 57 times positive move, 49 times negative move and 64 times constant or near to zero volatility. The results of paired t-test for means have shown

that there are significant differences in average number of transactions before and after announcement during the period 2008 to 2011 for the companies like HUL, ITC, Jaiprakash, L & T, Reliance Industry, SBI, Tata Motor, and Wipro. Which tells us that as soon as dividend is announces it causes a frenzy among investors, an according to their preference they either sell, hold or buy the particular stock.

By these empirical studies mentioned above, we can say that there has been no single answer for either of the studies when it comes to Payout Policy. Therefore it is interesting to study and research whether the Indian Stock market receives any similar or differentiating results.

2.3 Theories of Dividend Policy

Over the decades there have been researchers who have found many contradicting theories regarding dividend payments. We will have a brief look at them in this subsection.

2.3.1 The Irrelevance Theory

Modigliani and Miller's (1961) (hereafter M&M) dividend irrelevancy theory is one of the most influential theory, that has provided a foundation for many subsequent researches on firms' dividend policy. They suggested that if perfect capital market is assumed, based on arbitrage arguments, the mixture of debt and equity that a firm holds had no effect on the overall firm value. In 1961, M&M published another paper, that reported a similar result as their pervious work for dividend policy. Therefore, in M&M's Perfect capital market assumptions the firm valuation is based on investing decisions and not on which sources are used to fund the company. They stated "given the firm's investment policy, the dividend payout policy it chooses to follow will affect neither he current price of its shares not the total return to shareholders" (pp. 414). They even go further and suggest that for shareholders all the dividend policies are similar, that they don't prefer one over the other, and they can create "homemade" dividends by adjusting their portfolios according to their preferences.

However, the M&M's irrelevance theory becomes questionable when entering an imperfect market. Large literature has questioned this basic theory by proceeding with theoretical proofs (i.e. taxes, agency cost and asymmetric information

hypotheses) of the relevancy of dividends. For instance, most early studies, such as those conducted by Lease et al. (2000) and Baker, Powell and Veit (2002), disagree with the irrelevance theory mainly focus on market imperfections and argue that dividend policy does affect value of a firm.

2.3.2 The Bird In the Hand Theory

In contrast with the principal conclusion of M&M's (1961) irrelevance theory that dividend policy does not affect the value of stock price, the bird-in-hand theory states that "shareholders desire firms pay out cash in a form of current dividends in order to reduce the uncertainty in future income" (Sheeba, 2011). This is on the basis of the belief that dividend payments increase firm value. When it comes to the real world, the world of taxes, transaction cost, asymmetric information dividends are valued differently. Investors prefer the "bird in hand" i.e. cash dividends, rather than "two in the bush" i.e. future capital gains. The investors prefer the cash today rather than the uncertainty of unpredictable future cash flows. Gordon and Lintner (1962) developed the theory as a response to M&M's (1961) irrelevance hypothesis and argued that Investors preferred cash dividends rather than future capital gains due to the uncertainty of the price appreciation. Gordon (1962) further argued that high dividends indirectly cause an increase in a firm's cost of capital.

However, M&M (1961) criticized the above theory. They argued that the risk of the firm was determined by the riskiness of the firm's operating cash flows rather than the way it distributed its earnings. Further, Bhattacharya (1979) agreed with M&M's (1961) and stated that the bird-in-hand hypothesis is misleading. He suggested that the uncertainty of firms' future cash flow (risk) affects the level of dividend payments but not the other way around. Moreover, a survey conducted by Baker, Powell, and Veit (2002) investing on dividend policy issues including the bird-in-hand hypothesis does not find empirical support for the bird-in-hand explanation for why companies pay dividends. Indeed evidence for the bird-in-hand theory as an explanation of paying dividends is generally very limited.

2.3.3 Clientele Effect of Dividend Policy

The clientele effect was firstly proposed by M&M (1961), which implies that "each corporate would tend to attract to it a 'clientele' consisting of those preferring its payout ratio". More precisely, they argued that market imperfections such as transaction costs and different tax rates might cause preferences among investors, For example, investor would like to earn dividends on a continuous basis, his preferred share to invest is the one that pays dividends smoothly and regularly. Investors will have different preferences and different mixes of dividends and capital gains. In the same vein, further support to the existence of clientele effects is found by Pettit (1977) who investigated the extent to which transactions costs and taxes affected individual investors' portfolios. The author finds that investors' age is significantly positive related to their portfolios' dividend yield, and a negative relationship between investors' incomes and dividend yield. However, by using the same database as Pettit (1977), Lewellen et al. (1978) do not find very strong evidence for the existence of clientele effects.

Indeed, empirical studies investing on the clientele effects have been taken in different ways. A vast amount of literature has investigated on investors' portfolios and their demographic attributes including taxes (i.e. Pettit's (1977) work as mentioned above). Another stand of literature has focused on testing the relationship between the dividend changes and clientele changes. For example, using a sample of 192 U.S. firms during the period of 1969-1982, Richardson, Sefcik and Thompson (1986) observed that the increased firms' stocks trading volume was associated with the changes of dividend policy was largely due to the signaling effects of dividend announcement rather than the clientele adjustments. Richardson et al. (1986) therefore conclude that there is limited evidence of the existence of clientele trading. Additionally, some early studies report that clientele effects may have influence on investors' demand for dividend payments, for instance, investors may find favor in cash dividends for psychological reasons (Shefrin and Statman, 1983). Allen et al (2000) suggests that institutional investors prefer dividend paying stocks because they have a relative tax advantage over individual investors.

2.3.4 Signaling Theory

This theory also known as 'The information content of dividend

announcements'[3], originally reported by Bhattacharya (1979), suggest that when managers know more than outsiders (existing shareholders or creditors) about firms' current operations and future plans, dividend changes may signal the beliefs of these insiders, and therefore influence the firm value. Simply, the theory assumes that an increased dividend is considered as a favorable signal about the firm's future earnings, and vice versa. This is in line with Lintner's (1956) findings that managers are willing to increase dividends only when they can make sure of long-term sustainable earnings and that they will be able to maintain a particular level of dividend payments. In 2004 a survey of senior executives asked about their firms' dividend policies which resulted in these results. Firstly, managers are reluctant to make dividend changes that may have to be reversed. They would rather raise funds than announce a decrease in dividends. Secondly, to avoid the risk of a reduction in payout, managers "smooth" dividends. Which means they would rather increase dividends at an increasing rate and not drastically. Managers focus more on dividend changes than on absolute levels. Thus paying a Rs. 2.00 dividend is an important financial decision if last year's dividend was Rs. 1.00, but no big deal if last year's dividend was Rs. 2.00.

From the abovementioned responses one would realize the importance of dividend announcements to investors. Investors know that managers are reluctant to reduce dividends and will not increase dividends unless they are confident that the payment can be maintained. Therefore announcement of a dividend increase signal managers' confidence in future profits. That is why investors and financial managers refer to information content of dividends.

The information content of dividends implies that dividend increase predict future profitability. Evidence on this point is somewhat elusive. But Healy and Palepu (1988) who focus on companies that paid a dividend for the first time, find that on average earnings jumped 43% in the year dividend was paid. If managers thought that this was temporary windfall, they might have been cautious about committing themselves to paying out cash. But it looks as if these managers had good reason to be confident because not only did the earnings increase but also there was a 4% share price increase on average. Investors certainly appear to take comfort from an increase

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[3] The phrase 'information content of dividend announcements' was originally utilized in the study of Lintner (1956), which is also known as 'market signal' or 'signalling'.

in dividends. when an increase is announced analysts generally up their forecast of the years earnings. (Ofer and Siegel, 1987)

Indeed, studies investigated on the signaling theory were somewhat mixed, for instance, some found a positive relationship between dividends and firms' future earnings (Aharony and Swary, 1980; Nissim and Ziv, 2001), some argued that changes in dividends could not signal a firm's future earnings (La Porta et al., 2000), while others (see DeAngelo, DeAngelo, and skinner, 2003; Grullon et al., 2005; Lie, 2005) documented that the signaling theory does not hold.

However, the signaling power of dividends in United States may not capture the reality in other countries. For instance, Dewenter and Warther (1998) observed a lower impact of dividend signaling in Japan capital markets than that in the US. They attributed the differences to the unique nature of corporate governance structure in Japan compare to US. In addition, a more recent paper conducted by Travlos, Trigeorgis and Vafeas (2001) evidence significant abnormal returns due to the signaling effects of both cash and stock dividend announcements in an emerging market (Cyprus Stock Exchange).

2.3.5 Dividend Smoothing Theory

The 'partial adjustment model' proposed by Lintner (1956) suggests that firms tend to adjust their dividend payment in attempts to maintain a target long-term payout ratio. This generally refers to the dividend smoothing behaviors. Fama and Babiak (1968) extended Lintner's (1956) work and confirmed the existence of dividend smoothing behaviors. More recently, Brav et al. (2005) provided further evidence of an increasing need of dividend smoothing and found that the consequences of decreasing and disappearing dividend payments were much more serious in private firms than public ones, mainly due to the different informational content. In addition, Leary and Michaely (2009) investigated on the dividend smoothing behavior of U.S. publicly traded firms and concluded that large firms with low earning and price volatility but high level of tangible assets as well as those firms with higher dividend payouts and greater concentration of institutional holdings tended to smooth more.

However, until recently, there is not much evidence can explain the reason why

companies should smooth and why some smooth more than others. One stream of prior literature argues that the theory of dividend smoothing is primarily based on the signaling theory (Bhattacharya, 1979), as dividends are generally treated as a costly signal of firms' future performance and investors tend to react positively to increasing dividends. Michaely et al. (1995) observed a serious equity price fall (6.1% on average) as a consequence of dividend omissions. However, the vein fails to explain why firms do not use share repurchases as a signal instead of dividends and the real reason of smoothing dividends.

Another strand of explanation of dividend smoothing suggests that it is primarily motivated by mitigating the agency conflicts between managers and shareholders (Allen, Bernardo and Welch, 2000; DeMarzo and Sannikov, 2008). Michaely and Roberts (2007) document that the needs of dividend smoothing in UK private companies are significantly less than public counterparts where the agency problems are more serious.

2.3.6 Agency Theory

Manos (2002) studies the agency theory of dividends in India. He follows Rozeff's cost minimisation model, which predicts that the target payout ratio is at the level that minimises the sum of transaction costs associated with raising external finance on the one hand and agency costs on the other. A main innovation is achieved by introducing business group affiliation into the original cost minimisation model. The model is estimated and tested on a cross-section of 661 non-financial companies listed on the Bombay Stock Exchange. The results suggest that group affiliation has an important impact on the transaction cost structure as well as agency conflicts faced by Indian companies. In general, the findings support the cost minimisation model and the agency theory rationale for dividend policy.

However, without exception the actual effect is found to be positive indicating that the greater the percentage held by foreign institutions, the greater the need to induce capital market monitoring. This is consistent with the view that, relative to other shareholders, it may be more difficult for overseas investors to monitor the firm and its management. There is also evidence to suggest that the dividend policy of group affiliated firms is less sensitive to the percentage of equity held by foreigners.

This phenomenon may be driven by the fact that in India, international analysts tend to concentrate on group affiliated firms as opposed to independent firms (Khanna and Palepu, 2000b). This may reduce information problems for foreign investors in group-affiliated firms.

The impact of institutional shareholdings, INST, on the target payout ratio is found to be positive particularly for group-affiliated firms. This is inconsistent with the view that the ability of institutional shareholders, to more effectively monitor the firm, reduces the need for the dividend mechanism. However, evidence of a positive relation between INST and the payout ratio is consistent with the preference-for-dividends-related prediction and results in Moh'd, Perry and Rimbey (1995). It is also consistent with the notion that due to greater agency conflicts in the Indian context, the level of institutional monitoring is insufficient, hence this influential group of shareholders pushes for higher payouts to induce capital market monitoring.

The impact of PUBLIC, the variable measuring ownership dispersion, on the target payout ratio, is found to be positive. As predicted it appears that increases in the dispersion of ownership increases the collective action problem of monitoring and thus the need for the dividend induced capital market monitoring. In contrast increases in the percentage of insider ownership, DIRS, which was expected to reduce agency costs and thus to have a negative impact on the target payout ratio, is actually found to be positive and significant, although less so in the case of group affiliated firms.

Thus while the results for the rest of the variables are in line with expectations, those for insider ownership, DIRS, and possibly for institutional ownership, INST, contradicts agency theory. These clearly require further investigation, perhaps allowing the dividend decision, ownership structure patterns, and possibly the capital structure decision, to be simultaneously determined. Indeed, it is reasonable to assume that these decisions are interdependent and therefore a system of equations, as in Jensen, Solberg and Zorn (1992) and in Noronha, Shome and Morgan (1996), may be the better testing approach.

2.3.7 Free Cash Flow Theory

The free cash flow theory is also considered as an explanation of why

companies pay cash dividends. Excess cash generally exists in firms with high performance especially when managers unwisely spend it, Jensen and Meckling (1976) and Jensen (1986) argue that the use of debt can mitigate the agency costs of free cash flow problems through reducing the excess cash available to corporate financial managers. Alternatively, Easterbrook (1984) and Jensen (1986) both suggest that paying dividends can also be useful in reducing the agency costs of free cash flows. However, either using debt or dividends to reduce the agency costs will destroy a firm's financial flexibility.

Here, we mainly focus on literature regarding dividend payment as a way to reduce agency costs. Generally, the agency conflicts between the interests of mangers and existing shareholders raises as the free cash flow increases, which often result in a negative impact on firm performance. Supporting by a sample of over 4000 firms from 33 countries, La Porta et al. (2000) report that corporate managers will use excess cash on wasteful practices (such as, invest on value-decreasing projects) at their own discretion, even under a better legal protections of minority shareholders. Mollah, Keasey and Short (2002) argue that firms with a level of free cash flow tend to pay high dividends to reduce agency costs. Amidu and Abor (2006) conclude in their paper that a firm's cash flow position significantly influence dividend payout policy decision in Ghana Stock Exchange. In addition, DeAngelo, DeAngelo and Stulz (2004) investigated on 25 publicly traded industrial firms that subsequently offered dividends for the period 1973-2002, and further claimed that dividends were quite useful in preventing agency problems and in avoiding managers to make worthless investments.

However, by examining 468 unregulated British firms traded on London Stock Exchange during the sample period of 1895-1905, Braggion and Moore (2008) find limited evidence of the free cash flow hypothesis and further suggest that tax appear to be the key determinant of agency-based explanations.

2.3.8 Life Cycle Theory

Life-Cycle Theory Mueller (1972) firstly suggested that each firm has a well-defined life cycle that generally had an S-shaped pattern of growth beginning with the start-up to rapid growth and eventually entering into the maturity stage and decline,

which is considered as the fundamental to the life- cycle theory. According to Fama and French (2001)'s survey of the dividend behavior of publicly traded firms in United States during the period 1926-1999, they confirm the importance of life-cycle factors in deciding the payment of cash dividends. Their evidence implies that small firms with low profitability level but high growth opportunities rarely pay dividends.

Lease et al. (2000) have evidenced that firms were unlikely to pay dividends in the early stage and tended to become dividend payers in the mature stage. Consistent with the life-cycle theory, DeAngelo, DeAngelo and Stulz (2006) observe that a firm's propensity to initiate dividends highly depends on the firm's stage in its life cycle proxied by the ratio of retained earnings to total equity. In particular, Bulan, Subramanian and Tanlu (2006) report similar findings that firms tend to initiate dividends when they reach an optimal level of maturity in their life cycle. Generally, "decisions to pay the first regular cash dividend is usually made contingent on having reached maturity" (Baker, Singleton, and Veit, 2011).

Grullon, Michaely, and Swaminathan (2002) proposed an important linkage between a firm's dividend payouts and firm life cycle. The notion is consistent with economic intuition suggesting that "as a firm's investment opportunities shrink due to a natural maturation process, the need to increase its cash payout from free cash flow should also start to increase" (Julio and Ikenberry, 2004). A more recent study conducted by Wang, et al (2011) examining the dividend policy of firms listed on the Taiwan Stock Exchange was found to be consistent with the life-cycle hypothesis that companies are likely to distribute different types of dividend payments in the different life cycle stages.

Based on previous researches, Denis and Osobov (2007) extended the scope of investigation to five more countries—Canada, United Kingdom, France, Germany and Japan for the period 1989-2002. Their findings greatly reinforce the agency-cost-based life-cycle theory, as the retained earnings to total equity ratio is found to be strongly associated with the propensity of paying dividends. Like DeAngelo, DeAngelo, and Skinner (2004), they find that "aggregate dividends do not decline over time and dividends are concentrated among the largest, most profitable firms"

3.0 Data and Research Methodology

3.1 Data and Sample Selection

For this study I chose to use the companies listed under the BSE30 and NSE50 which are the 30 and 50 most traded stocks on the respective stock exchange. The data was collected for the period of 10 years ranging from 2004-2013 (financial year ending). The data for both BSE and NSE firms was collected from data stream and moneycontrol.com, which is an online trading site. For variables and ratios where the above-mentioned sources lacked information the company's annual report was used to fill in these gaps. There were some companies that did not have the data for the whole 10 years and some that started paying dividend midway through the study period. There were also some companies that were introduced to the stock exchange in last few years and did not have sufficient data to work with. Cutting these companies would reduce the sample, so in order to keep the sample good enough for a comparison between stock exchanges, the companies with less than 10years of data were replaced with the next most traded company stock on the stock exchange. Refer to the list in the Appendix to see which company was replaced. This was done purely so that each stock exchange has their respective 30 and 50 best traded stocks to be properly represented and also that the sample does not diminish on the grounds of missing data. Raw data was collected for each company to calculate the variables explained in the next subsection. Compiling data in this manner makes the dataset a

3.2 Variables

3.2.1 Variables used for the Determinants Model

1. Dividend Payout Ratio (DPR)

is the dependent variable in this model. As it is one of the prominent dividend ratios and is used as a dependent variable in mostly every study mentioned. It is calculated as follows:

$$Dividend\ Payout\ Ratio = \frac{Dividend\ Per\ Share}{Earnings\ Per\ Share}$$

2. Profitability Ratios

Profitability is considered as the most important indicator of a firm's capacity to pay dividends, because the firm that earns more profit is more likely to pay dividends. (Banerjee, Gatchev & Spindt 2002). In addition, firms' profitability has been recognized as an important role in increasing the dividend payments distributed to the shareholders (Al-Najjar and Hussainey, 2009). Their findings further suggest that the positive relationship between profitability and dividend payments is supported by the signaling hypothesis since companies tend to enhance their reputation of business performance. To get the effect of profitability two ratios are used: Return on Equity and Return on assets.

Return on Equity (ROE): ROE is a very commonly used profitability ratio. It tells us how much profit a company has earned over and above the money invented by the shareholders. It is calculated as follows:

$$Return\ on\ Equity = \frac{Net\ Income}{Shareholder's\ Equity}$$

Return on Assets: (ROA): ROA is another profitability measure, which indicates a firms profitability relative to its total assets that are invested for the company to function. It specifies to the investors how efficient the management of the firm is at using the assets, and whether they are being used to their best or not. T is calculated as follows:

$$Return\ On\ Assets = \frac{Net\ Income}{Total\ Assets}$$

H1. There is a positive relationship between profitability and dividend payout ratio.

3. Firm Size:

Several stands of theoretical and empirical literature on dividend policy have found that firm size also played a significant role in explaining a firm's dividend policy behavior. Prior literature has evidenced that large and mature companies had a better assess to capital market and therefore should be more able to afford higher dividends rather than smaller companies (Fama and French, 2000; Ho, 2003 and Aivazian et al., 2003). For the present paper, firm size is proxied by the natural logarithm of Total Assets. It is calculated as follows;

$$Firm\ Size = \ln(Total\ Assets)$$

H2. There is a positive relationship between the firm size and dividend payout ratio.

4. Leverage:

Existing literature has evidenced the importance of firms' financial leverage level as a key indicator in explaining the dividend behavior of the firm (Jensen, Solberg, and Zorn,1992; Aivazian et al., 2003). They emphasize that firms with low debt ratio tend to pay higher dividends. In the same vein, Thanatawee (2011) argue that leverage firms are generally riskier and are more likely to be financially constrained, and therefore should be less willing to pay dividends. However, Chang and Rhee (1990) provide an opposing view suggesting that firms with greater debt ratios associated with higher dividend paid, as "firms with higher debt ratio tend to be debt financed". The ratio of long-term debt to the total shareholders' equity (Debt-to-equity ratio) is used as the proxy for firms' financial leverage level. The leverage related hypothesis in this study can be written as follows: it is calculated as follows:

$$Debt\ to\ Equity\ Ratio = \frac{Total\ Debt}{Shareholder's\ Equity}$$

H3. There is a relationship between the debt level and dividend payout ratio

5. Growth in Earnings: the greater the growth in earnings the better it is for the firm. If the DPR is the same the Dividend Growth equals the Earnings Growth. The effect of

growth opportunity Al-Najjar and Hussainey (2009) define the growth opportunity as the ability of a firm to sustain the level of growth at a higher rate than that of other firms. Particularly, it has been found that the higher the growth opportunity of a firm, the more needed to invest on new projects for expansion purpose, therefore, firms with high growth opportunity are less likely to distribute dividends (Change and Rhee, 1990; Gul and Kealey, 1999; Ho, 2003 and Aivazian et al., 2003). In this study, the measure utilized to quantify the firms' growth opportunity is the annual sales growth rate.

$$GIE = \frac{Earnings\ of\ current\ year - Earnings\ of\ Previous\ year}{Earnings\ of\ Previous\ year}$$

The hypothesis is formulated as follows:

H4. There is a positive relationship between firms' growth in earnings and dividend payout ratio.

6. Tax Ratio (TR)

TR is the amount of tax the company pays to the profit before tax ratio. When there are high taxes to pay there is very little left to pay to the shareholders as dividends. On the other hand High Tax means high earnings, which in aforementioned studies is proven to be the primary increase in dividends. It would be interesting to see the aspect of tax ratio in both the stock exchanges. Parua and Gupta (2009) have used it as on of their independent variables to show the determinants.

$$Tax\ Ratio = \frac{Tax\ for\ the\ curent\ Year}{Profit\ Before\ Tax\ of\ the\ current\ Year}$$

H5. Tax Ratio will have a relationship with DPR.

7. Current Ratio:

A firm's liquidity position is found to be essential in determining the dividend payment decisions, and should be in part account for the changes in dividend- payers (Banerjee, Gatchev and Spindt, 2007). Generally, rational investors prefer liquid stocks and tend to reduce the value of illiquid stocks. However, the empirical study conducted by Banerjee et al. (2007) reveals that firms with high liquidity are less

likely to distribute cash dividends to their shareholders, which is consistent with Bulan et al.'s (2006) observation. Current ratio interprets firms' short-term financial position and therefore is utilized as the proxy of firms' liquidity level. The negative relationship between a firm's liquidity (current ratio) and cash dividends has already been evidenced by Kania and Bacon (2005), therefore the hypothesis is:

H6. There is a negative relationship between current ratio and dividend payouts.

It is calculated as follows:

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

8. Pattern of Past Dividend:

Lintner stated that firms trading in relatively more developed capital markets tended to follow stable dividend behavior and tend to paid out dividends from their earnings. In addition, as Lintner (1956) reported that past dividend patterns were significant in explaining corporate dividend decision-makings. This notion is also strongly supported by a large number of economists, such as, Mick and Bacon (2003). Parua and Gupta (2009) stated POD had a positive effect on the current years dividends. Companies as stated would rather strive to maintain a stable and uninterrupted dividend payment than decrease their dividends, because that would send a negative signal to the investors. Parua sand Gupta (2009) also suggest that an increasing trend in past dividends leads a company to increase dividends in the current year, whereas a decreasing trend in past dividends might not mean that there is a dividend decrease in the current year too. It is calculated as;

$$Pattern\ Of\ Dividends = Average(4\ dividends\ paid\ precceding\ current\ year)$$

Therefore, the hypothesis is given:

H7. There is a positive relationship between past dividend payments and dividend payment decisions.

3.2.2 Variables for Relationship between Price volatility and Dividend Policy

For this portion of the study we will be following parts of Hussainey et al(2011) and Pani (2008) paper.

1. Price volatility. (PV)

   This is the dependent variable. It is based on the annual range of adjusted stock price obtained from Moneycontrol.com, for each year. The range is then divided by the average of the highest and lowest prices obtained in the year and then squared. Then a square root transformation was applied so as to obtain a variable comparable to a standard deviation (Baskin, 1989). The use of proxy for share price volatility rather than standard deviation was done because standard deviation could be influenced by extreme values.

2. Dividend yield. DY

   This is expressed as the dividend per share as a percentage of the share price. Figures were obtained from moneycontrol.com. then the calculation was performed Dividend is calculated on gross dividends, i.e. excluding tax credits.

3. Payout ratio. DPR

   This is the ratio of dividends per share to earnings per share as explained before. Here it is one of the ratios representing Divdend Policy of the firm.

4. Earnings Retention Ratio (ERR)
   (Khan and Khan) when a company ploughs back profit, it is called retained earnings. Retention ratio is the amount as percentage of the income that are being retained for the company, instead of being paid as dividends. It is the opposite of DPR, because that measures the amount being paid as Dividends. (Pani, 2008) used a It is calculated as follows:

   $$Retention\ Ratio = \frac{Net\ Income - Dividends}{Net\ Income}$$

5. Size (ln total assets).

This is the figure of Total Assets of the firm. A transformation using the base 10 logarithm was then applied to obtain a variable that reflects orders of magnitude. This transformed figure acts as a proxy for Size of the Firm.

6. Earnings volatility. (EV)

These figures represent the earnings before interest and taxes. Following Dichev and Tang (2009), earnings volatility is calculated by taking the standard deviation of earnings for the most recent preceding five years for each year.

7. Long-term debt (debt). (DAR)

Figures for long-term debt and total assets were obtained directly from Moneycontrol.com These figures represent all interest-bearing financial obligations, excluding amounts due within one year, e.g. debentures, mortgages and loans with maturity greater than one year. It is shown net of premiums or discount.

8. Growth in assets (growth). (GIA)

These figures were obtained by taking the ratio of the change in total assets at the end of the year to the level of total assets at the beginning of the year.

3.3 Research Methodology

In this section we will see the methods by which we will find the relationship between the above-mentioned variables and test the hypotheses.

Descriptive Statistics is used to see the various important statistics of the variables to see how they vary in the dataset. We look at the Mean, Standard Deviation, Minimum and Maximum. This shows us how much each variable deviates from the mean, giving us the ranges of all the variables.

Pearson's correlation is used to see how strongly or weakly the variables are linearly correlated with each other and if they are significant or not. It also helps in figuring out if any of the variables are highly correlated with each other. It helps with

the problem of multicollinearity. If any of the variables are multicollinear then they would affect the results by how much they affect each other alone.

Since we have collected data for each variable for each company 2 stock exchanges over 10 years, we have collected a balanced panel data. Panel data analysis is a method of studying an exacting subject within multiple sites, periodically observed over a defined time frame. In our data this is companies variables collected over the time period of 10 years. (Yaffee, 2003) Panel data give more informative data, more variability, less co-linearity among the variables, more degrees of freedom, and more efficiency and therefore, increase the precision of the estimates of an OLS regression. Time- series studies are plagued with multicollinearity, so if we just do a simple regression with a panel data called pooled OLS regression we might get significant results but, we will be avoiding the individual biases caused by the time-series factor, and the cross-sectional factors. (Baltagi, 1995) Panel data are better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time-series data. Ben-Porath (1973) gives an example. Suppose that we have a cross-section of women with a 50 per cent average yearly labor force participation rate. This might be due to (a) each woman having a 50 per cent chance of being in the labor force, in any given year, or (b) 50 per cent of the women work all the time and 50 per cent do not. Case (a) has high turnover, while case (b) has no turnover. Only panel data could discriminate between these cases.

In order to get the regressions results we first have to choose between the two models used while dealing with panel data; Fixed effect Model and Random Effect Model. Fixed Effects Model allows for heterogeneity or individuality among the companies by allowing having its own intercept value. And it is called fixed effect because although the intercept may differ across the companies, it does not vary over time, i.e it is time invariant. (Gujarati et al, 2012 pp. 627) Random Effects model has a common mean value for intercept and the individual differences in the intercept values of each firm are reflected in the error term ε_{it} This error term is called an idiosyncratic term because it varies across cross-sections as well as time. The difference between both these models is that in fixed effect each cross section has its own fixed intercept, where as in random effects the common intercept represents the mean value of all the cross section intercepts and the error component represents the random deviation of individual intercept from the mean. These error terms are not

directly observable. (Gujarati et al, 2012 pp. 633)

We decide which model is better by performing the Hausman Test, which deciphers which model is a better fit for the data used. The null hypothesis of the test is that there is no difference between the fixed and random effects estimator. If this is true then the random effects model is used because it is consistent and efficient under the null hypothesis and the fixed effects model is consistent but inefficient in its results.

If the alternate hypothesis of there being significant difference between the estimators is true then the fixed effects model is used because it is consistent under the alternate hypothesis and the random effects estimators are not. If the P value of the Hausman test is significant under any of the confidence intervals, then we use the Fixed effect model otherwise the Random effects model is used. (Gujarati et al, 2012 pp. 634)

Besides the Hausman Test there is another test called the Breusch Pagan Lagrange Multiplier Test, which helps decide between Pooled Ordinary Least Square Regressions (where we ignore the cross sectional and time variances in the data) and Random Effects Model. The null hypothesis for this test is that Pooled OLS is an appropriate model fit for this study. And the alternate is that Random effects is the appropriate model. If we get a significance p-value then we use Pooled OLS otherwise we use Random Effects Model. This is just another way to confirm that you are using the proper model for your data. (Gujarati et al, 2012 pp.636)

3.3.1Regression Models

To find the determinants of the Dividend policy we will explore the relationship between dividend Payout ratio (DPR) and the company specific characteristics. In order to do so we run the following regression separately for BSE and NSE and see the difference in results.

$$DPR_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 ROE_{i,t} + \beta_3 Size_{i,t} + \beta_4 POD_{i,t} + \beta_5 CR_{i,t} + \beta_6 GIE_{i,t} + \beta_7 TR_{i,t} + \beta_8 DER_{i,t} + \varepsilon_{i,t}$$

i= 1,2,...50 t=1,2,...10 for NSE (Model 1)

i= 1,2,...30 t=1,2,...10 for BSE (Model 2)

To study the Price Volatility and Dividend Policy relationship we first see the relationship between the Price Volatility and the two dividend components Dividend Payout and Dividend Yield. To get an idea as to how much as a whole in the model does dividend affect price volatility and to examine the change once we introduce control variables in the models ahed.

$$PV_{i,t} = \beta_0 + \beta_1 DPR_{i,t} + \beta_2 DY_{i,t} + \varepsilon_{i,t}$$

i= 1,2,...50 t=1,2,...10 for NSE (Model 3)

i= 1,2,...30 t=1,2,...10 for BSE (Model 4)

Then, we introduce the models with the firm characteristics as control variables.

$$PV_{i,t} = \beta_0 + \beta_1 DPR_{i,t} + \beta_2 DY_{i,t} + \beta_3 Size_{i,t} + \beta_4 GIA_{i,t} + \beta_5 DAR_{i,t} + \beta_6 ERR_{i,t} + \beta_7 EV_{i,t} + \varepsilon_{i,t}$$

i= 1,2,...50 t=1,2,...10 for NSE (Model 5)

i= 1,2,...30 t=1,2,...10 for BSE (Model 6)

4.0 Empirical Findings

4.1.1 NSE Dividend Determinant Variables Correlation and Descriptive Statistics

Descriptive Statistics

In the Table 1: Panel B there is a Descriptive Statistics of the variables used for determining factors of dividend policy.

We start with DPR with a mean ratio of 0.29 which does not seem like a lot, but when we see the minimum is 0 and Maximum is 3.26 this tells us that from the 50 companies some might have just started paying dividend at the beginning of the study period, some might have started midway but there are also mature companies paying high dividends. The sample is a good mix of different companies in different stages when it comes to dividends. Also DPR doesn't deviate too much with a standard deviation of 0.25 Same could be said about the ROA with a mean of 0.16 and a deviation of about the same with the lowest being a mere 0.0000679 to the maximum of 1.419 ROE has a mean of 9.743 with a SD of 11.39 a minimum of 0.0001996 and a maximum of 99.319 this indicates that there are companies in the mid range of earning returns on the company shares. Size has a mean of 4.08 which is a proper mid range between the minimum of 2.31 and maximum of 6.19 with a very low SD of 0.75 which indicates that companies are reasonably sized and they don't vary too much. POD has a minimum of 0 and maximum of 70 with a mean of 10.39 and a high variation of 10.93. CR with a mean of 1.3; which is higher than the preferred ratio of

1, tells us that on average the companies are liquid enough in the sample. Highest being 14.12 GIE on average grows at 0.55 every year, which doesn't seem high enough for these companies. But the result is expected with few companies getting negative earnings during the recession period of 07-09. Lowest being -0.9876 TR is the final obligation before the company decides whether to pay dividend or whether to increase it or not. TR has a mean of 0.2 a minimum of -1.1, which indicates companies deffer tax. DE ratio has a minimum of 0 which indicates that some companies are totally debt free, which indicates that those companies have higher chances of paying dividends. But also there are companies with a DE ratio of 18.74 which is considered highly levered firm. On average 2.29 DE ratio of the sample indicates the firms are not highly levered.

Pearson's Correlation

Table 1: Panel A the variables used for Determinants of dividend policy are tested to find out how they are correlated with each other by the help of Pearson's Correlation.

We see that the dependent variable is DPR which is representing the divdends of the company. ROA has a positive correlation with DPR but its not significant at all. ROE on the other hand has a negative significant correlation of -0.02 which tells us that the more the return on equity the company earns the payout will be less by 0.02 which does not make sense because the more the return the higher should be the the dividend paid to the shareholders. But when we think as managers, if after all the obligations are paid to the specific stake holders of the company the manager will first look for positive NPV investments, and then think about increasing dividends. And even if the dividends are increased they will be increased at an increasing rate (Lintner, 1956 Banga, 2007) Same goes with PAT which has a negative significant correlation to DPR. Size on the other hand has a surprisingly negative significant relationship as well because one would think that the more mature the firm gets the higher will be the dividend payout of the company because a firm in the mature stages get very few positive NPV investment opportunities. POD as expected has a positive significant relationship with the DPR of current year. This means that the higher the dividend average of the last 4 years the higher is the DPR in the current year. CR,

which is the liquidity measure of the company, also has a positive and very significant relationship with DPR. GIE has another surprising negative relationship with DPR, stating that the more the increase in earnings the less is the DPR by 0.02 units. Tax Ratio has a negative relationship with DPR as expected. Which tells us the higher tax a company pays the lower will be the DPR by a mere 0.0065. DER as well has a negative relation with DPR which makes sense because the more debt a company has the more it needs to keep aside from its profits every year to repay debts and interest payments on ongoing debts. All the values are below the accepted 0.7000, which indicates that none of the variables are very highly correlated with each other and also that the problem of multi-collinearity does not exist.

Table 1: NSE Determinants of Dividend Policy, Descriptive Statistics and Pearson's Correlation

Panel: A Correlation Matrix									
	DPR	ROA	ROE	Size	POD	CR	GIE	TR	DER
DPR	1								
ROA	0.2655	1							
ROE	-0.0279**	0.3182	1						
Size	-0.1867	-0.5028	-0.0232	1					
POD	0.0359**	0.1487	0.4196	0.1251	1				
CR	-0.0002***	-0.0021***	0.0382**	-0.0663*	0.1091	1			
GIE	-0.0164**	0.1116	0.1135	-0.0444**	-0.0506	0.0051	1		
TR	-0.0217**	0.0102**	-0.0219**	0.0621*	0.0564	-0.1153	-0.0293	1	
DER	-0.1671	-0.4622	-0.1606	0.5837	-0.1231	-0.1448	-0.0239	0.041	1
Panel: B Descriptive Statistics									
	DPR	ROA	ROE	Size	POD	CR	GIE	TR	DER
Mean	0.2941934	0.1689727	9.71628	4.089894	10.43005	1.36766	0.5201333	0.2427251	2.29872
Std. Dev.	0.2531636	0.1624341	11.40853	0.7554733	10.90683	1.587011	5.612396	0.1336852	4.327481
Min	0	0.0010968	0.02291	2.311266	0	0.02	-0.9876699	-1.119144	0
Max	3.26087	1.419836	99.31997	6.194864	70	14.12	124.8198	1.084821	18.74

Table 2: Hausman Test Results to select between FEM and REM for NSE Determinants

Regressors	Coefficients			
	Fixed	Random	Difference	SE
ROA	-0.5299156	0.0619139	-0.5918296	0.090043
ROE	-0.0001093	-0.0001093	0.0018513	0.0011353
Size	-0.0838321	-0.0455467	-0.0382854	0.0310867
POD	-0.000954	0.0003399	-0.001294	0.0006573
CR	-0.0086424	-0.0050569	-0.0035855	0.0074682
GIE	-0.0008081	-0.0012896	0.0004815	0
TR	0.1467676	0.0287439	0.1180238	0.0356365
DER	-0.0026224	-0.0042553	0.0016329	0.0095159
Rsquare	0.014	0.059		
Rho	0.4483	0.1761		
Observations	500	500		
Hausman P-Value	0.000			

As mentioned before the Hausman test shows significant differences between the coefficients for the fixed and random effects model since the p value is significant at 99% confidence. The above result shows that the there is a significant difference in the regression models and hence we use the fixed effect models for the regression to study the relationships between the variables.

Table 3: Fixed Effects Regression model Results (Model 1) for NSE Determinants

Regressors	Fixed Effects Model			
	Coefficients	Std. Err	t- stats	p-values
ROA	-0.5299156	0.1409362	-3.76	0.000***
ROE	-0.0001093	0.0017793	-0.06	0.951
Size	-0.0838321	0.0400329	-2.09	0.037**
POD	-0.000954	0.001448	-0.66	0.051*
CR	-0.0086424	0.0115599	-0.75	0.455
GIE	-0.0008081	0.0018126	-0.45	0.656
TR	0.1467676	0.0945494	1.55	0.021**
DER	-0.0026224	0.0105364	-0.25	0.804
Constant	0.7207045	0.1775968	4.06	0.000
Observations	500			
Number of Firms	50			
R squared within	0.0499			
R squared between	0.1944			
R squared overall	0.014			
Rho	0.44836586			

After determining the Fixed Effects Model is the better one for estimation by the Hausman test we now interpret the results for the Determinants of Dividend policy of the NSE firms. POD has given opposite result than we expected by having a negative effect on the DPR. But this indicates that there has been more of a decreasing trend in dividend payments in the study period. This could be the effect of the 07-09 recession or could also be because maybe the companies have had splits, or repurchases which in turn decreases the outstanding capital and hence the DPR. TR is the only variable that has a positive effect on the DPR. This is opposite than what we understand, because more tax the company pays less there is left to pay to the dividends. But on the other side more tax payments also means that the company has more earnings this year. So a positive effect could also indicate a very high increase in earnings, hence the company can still increase dividends. And the other significant variables are ROA at .001 significant level Size at 0.5 an POD at 0.1. Return-on-asset (ROA) ratio, an indicator of a firm's profitability level, is found to play an important role in determining corporate dividend policy, but surprisingly to be inversely related

to dividend payout ratio. This indicates that less profitable dividend-paying companies can also distribute large dividends, whilst those significantly more profitable companies may not tend to pay extremely high dividends. This is inconsistent with the common notion that highly profitable firms generally have larger cash flows and are more likely to generate higher dividends to shareholders. This reinforced the work conducted by Wang, Gao and Guo (2002). Therefore, we reject Hypothesis that a positive relationship exists between profitability and dividend payouts. CR GIE and DER have an inverse relationship with dividend payout ratio by having a very low negative impact on them (-0.8%, -0.09% -0.1% respectively) but they are insignificant, and don't seem to play that much of a significant role in determining companies dividend policy

The rho is the proportion of variation due to individual specific term, which in our example are the company specific variations. These results tell us that the variance in these results is 45.71% due to company specific differences.

4.1.2 BSE Determinants of Dividend policy Descriptive Statistics and Correlation Descriptive Statistics

In TableWe start with the dependent variable DPR with a mean of 0.306 ranging from 0 to 2.10 and an SD of 0.25 ROA has a mean 0.18 and a ranges from a very low 0.000679 to 1.41 with a SD of 0.18 ROE has a mean of 11.03% with a minimum of mere 0.0002% and a max of 65.32% these returns tell us that the company sample has a good range of companies. Size as before is fairly ranging between 2.6 to 6.19 with a mean of 4.28 Pattern of dividends ranges from a 0 to 86.66 with a mean and High SD of 11.97 and 11.98. this indicates that not all the companies have paid dividends in the study period and also that some might have initiated dividend payments from 2004. CR ranges from 0.02 to 14.12 indicating that there are over liquid companies and some that don't have the industry accepted level of liquidity. GIE has a negative minimum of -0.9876 which could mean that the companies were either in introductory stage of growth, or were victims of the effects of 2007-09 recession. TR also has negative minimum, which indicates deffered taxation or no payment of tax at all. This matters because then the company with no

tax payment will have more funds to decide whether to increase/ initiate dividends or invest in positive NPV projects.

Companies on average are levered 1.8 times their equity capital, highest being 18.44 and the lowest being 0 indicating that companies function without debt and only have equity capital in the company.

Pearson's Correlation

In the above correlation matrix no variable is highly correlated, hence there is no problem of multi-collinearity (all correlations are below the accepted 0.7000) the highest correlation in the matrix is between DER and Size (0.6142). ROA and ROE have a positive correlation with the dependent variable DPR, which is consistent because it indicates that more the firm earn the more chances there are of the dividend being paid. ROA has a strong correlation, which says that 1 unit increase in ROA brings out a 31.93% increase in DPR. POD as expected has a positive impact on the DPR in the current year. All other variables have a negative correlation with DPR, out of which only GIE and CR are significant. TR and DER having a negative correlation also makes sense because the more tax the company pays, and more debt obligation it has, the less earnings it is left with in the end.

Table 4: BSE Determinants of Dividend Policy Descriptive Statistics and Pearson's Correlation

Panel: A Correlation Matrix									
	DPR	ROA	ROE	Size	POD	CR	GIE	TR	DER
DPR	1								
ROA	0.3193	1							
ROE	0.1011	0.3888	1						
Size	-0.2108	-0.5628	-0.1497	1					
POD	0.1189	0.1301	0.4558	0.0757	1				
CR	-0.0389	-0.0159	0.0596	-0.1263	0.1513	1			
GIE	-0.0237	0.1191	0.1322	-0.0791	-0.0664	-0.005	1		
TR	-0.1936	0.0222	0.0081	0.164	0.0792	-0.1129	-0.0295	1	
DER	-0.1319	-0.4274	-0.157	0.6142	-0.0282	-0.0692	-0.0304	0.19	1
Panel: B Descriptive Statistics									
	DPR	ROA	ROE	Size	POD	CR	GIE	TR	DER
Mean	0.3066073	0.1898509	11.03814	4.28724	11.97433	1.516633	0.734268	0.2318571	1.806333
Std. Dev.	0.2495382	0.1806362	11.4159	0.686118	11.98747	1.687309	7.247514	0.1426027	3.764863
Min	0	0.0000679	0.0001996	2.594845	0	0.02	-0.9876699	-1.119144	0
Max	2.105263	1.419836	65.32976	6.194864	86.66667	14.12	124.8198	0.5393155	18.44

Table 5: Hausman Test Results to select between FEM and REM for BSE Determinants

Regressors	Coefficients			
	Fixed	Random	Difference	SE
ROA	0.0172552	0.1829641	-0.1657088	0.0741017
ROE	0.0015211	0.0002509	0.0012702	0.0015193
Size	-0.0769532	-0.0465511	-0.0304022	0.0329746
POD	-0.0019863	-0.000643	-0.0013432	0.0004582
CR	-0.0122861	-0.0127529	0.0004669	0.0048485
GIE	-0.0011459	-0.0013354	0.0001896	0.0001214
TR	-0.4111635	-0.3987422	-0.0124213	0.035457
DER	-0.0104469	0.0002512	-0.0106981	0.0104009
Rsquare	0.0601	0.1145		
Rho	0.49092113	0.38341997		
Observations	300	300		
Hausman P-Value	0.046			

In order to specify which model is a better fit for the data we run a Hausman test. The p value is not significant under any of the significant level (0.1, 0.05 or 0.001) it being at 10.5%, therefore we do not reject the null hypothesis and we will use Random effects model to analyse the relationship between the dependent and independent variable.

Table 6: Fixed Effects Model (Model 2) Results for BSE Determinants

Regressors	Fixed Effects Model			
	Coefficients	Std. Err	t- stats	p-values
ROA	0.0172552	0.1474421	0.12	0.907
ROE	0.0015211	0.0024463	0.62	0.535
Size	-0.0769532	0.047654	-1.61	0.108
POD	-0.0019863	0.0014003	-1.42	0.057*
CR	-0.0122861	0.0106773	-1.15	0.251
GIE	-0.0011459	0.0015717	-0.73	0.467
TR	-0.4111635	0.0986275	-4.17	0.000***
DER	-0.0104469	0.0125564	-0.83	0.406
Constant	0.7739186	0.2160896	3.58	0.000
Observations	300			
Number of Firms	30			
R squared within	0.0801			
R squared between	0.0627			
R squared overall	0.0601			
Rho	0.49092113			

The above table gives the regression outputs of the Fixed Effects Model we see that the only significant variables are POD and TR. TR has a negative effect on DPR (-0.4111) indicating that the companies on the BSE might be high earning, high tax paying companies. Surprisingly even POD has a negative effect on DPR but a mere 0.001 fall in DPR if POD increases by a unit. This as in the previous models suggests that there is a decreasing pattern of dividend payments, indicating that dividends increase at a slower. This tells us that Tax payment of the company is the main determining factor for the BSE companies, followed by a decrease in pattern of dividends. The profitability variables ROA and ROE have a positive but insignificant effect on the DPR.. GIE also has a 0.13 negative effect on DPR. Rho is 49.09% indicating that 49% of the variances are caused by the company individual intercepts and variances.

4.1.3 Analysis of NSE vs BSE for Determinants of Dividend Policy

Between NSE and BSE there are very different results. In NSE the significant variables turn out to be size, POD and ROA and TR whereas, in BSE it is just POD and TR. This puts a different light on the way one would see both the stock exchanges. And since both models were done with a fixed effect model regression it gives us a specification of the company characteristics on both the stock exchange. Both have a decreasing POD, which could be the result of high growth companies splitting their shares which in turn affects the DPR, or it could be that companies on both stock exchanges were severely affected by the recession. The difference in the results could also be because of the number of firms represented in the study, and NSE having more firms is giving a better result and it being more liquid as mentioned above has a larger volume of trading and investors, which in turn would tip the scales in NSE's favour. Where as BSE is tightly bound by rules and regulations and functions only in Bombay could also be the reason for more than half of the variables in Model 2 being insignificant when compared to NSE. Any other reason for these differences could be because of model specification and idiosyncratic errors that would be unobservable.

4.2.1 NSE Price Volatility Variables Correlation and Descriptive Statistics

Descriptive Statistics

In Table 7: Panel BWe start with the dependent variable Price Volatility it has a mean of 0.12 with a minimum of 0.012 and maximum of 0.732 and a low SD of 0.119 Earnings Volatility ranges between 3.75 to 6490.54 Crores   DPR ranges between 0 and 3.26 with an SD 0.25 and a mean of 0.29 DY ranging from 0 to 0.4 with a mean of 0.22 indicates that 22% is the average dividend yield in the sample. GIA range from -0.78 to 875.51 with a very high volatility 39.1 crores DAR also ranges from 0 to 0.91 Size is moderately averaged at 4.08 ERR ranges from -195.8 to 100 which tells us that some companies had negative earnings with no retention at all, which would make them unable to pay dividends. But the sample is averaged out at 66.4

Pearson's Correlation

In Table 7: Panel A Earnings Volatility has a positive correlation with price volatility, which tells us than the more the volatility in earnings the price volatility will increase by 0.1197 or 11.97% Also, the correlation between price volatility and dividend payout is negative (-0.1221), as expected and in line with the correlation in both Baskin (1989), which was -0.542, and Allen and Rachim (1996), which was -0.210.

Dividend Payout has a negative relationship with price volatility which confirms our above theory of Dividend Payment decresing the share price by the dividend payment amount or less as Frank and Jagganathan ()suggested. Dividend Yield surprisingly has a positive correlation with PV telling us that I unit increase in dividend yield will give us an 8.78% increase in price volatility. This is in line with that of Allen and Rachim (1996), which was positive (0.006), but it is in contrast with that of Baskin (1989), which was -0.643. DY and DPR also have the high correlation of 23.24%

GIA has an opposite relationship with PV than expected. It has a positive relationship, which tells us that a unit growth in assets will bring around 8.05% increase in the PV. DA has the expected positive correlation with PV which brings out an 18.49% increase in PV. Size has a negative correlation with PV, indicating that an increase in Size will get the PV down by 8.49% ERR has a positive relationship with PV, which as mentioned before tell us that the investor's perception of the company's investment opportunities is positive. This in turn positively affects stock prices. Hence prices will increase by 16.4% the more the companies on NSE retain.

Table 7: NSE Dividend Policy and Share Price Volatility Descriptive Statistics and Pearson's Correlation

Panel: A Correlation Matrix								
	PV	DPR	DY	Size	GIA	DAR	ERR	EV
PV	1							
DPR	-0.1349	1						
DY	0.0787	0.2269	1					
Size	-0.0738	-0.193	-0.2375	1				
GIA	0.0724	-0.1556	-0.0154	-0.0413	1			
DAR	0.174	-0.2451	-0.1157	0.5518	0.025	1		
ERR	0.1769	-0.7563	-0.1052	0.2464	0.1552	0.2135	1	
EV	-0.0856	-0.0421	-0.0674	0.6163	-0.0474	0.0923	0.0739	1
Panel: B Descriptive Statistics								
	PV	DPR	DY	Size	GIA	DAR	ERR	EV
Mean	0.1300896	0.2941934	0.0224511	4.089894	1.987118	0.3420014	66.1238	764.0154
Std. Dev.	0.1208691	0.2531636	0.0418176	0.7554733	39.14538	0.3057007	25.52294	994.0215
Min	0.0120541	0	0	2.311266	-0.9749122	0	-195.8	3.759105
Max	0.7324232	3.26087	0.4078511	6.194864	875.51	0.914696	100	6490.54

Table 8: Regression results for Model 3

Regressors	Coefficient	Std. Err	t-stats	p-values
DPR	-0.0517368	0.022479	-2.3	0.021**
DY	0.3013103	0.1353116	2.23	0.026**
Constant	0.1385905	0.0097812	14.17	0
R square within	0.0073			
Between	0.1489			
Overall	0.0262			
Rho	0.08392129			

In the above regression we see the relationship between PV and the 2 ratios representing dividends, DPR and DY. Both are as expected, highly significant. DPR has a negative relationship with PV, whereas DY has a positive relationship with PV. These results are in line with hussainey (2011), but his results were because of high multicollinearity between DPR and DY. We had a correlation of 23% which is significant but not as high Hussainey's 86%. We go ahead and add control variables to see if anything changes.

Table 9: Hausman Test Results to select between FEM and REM for NSE Price Volatility.

Regressors	Coefficients			
	Fixed	Random	Difference	SE
DPR	0.0541198	0.0254976	0.0286222	0.0171752
DY	-0.0413251	0.1391287	-0.1804537	0.1032216
Size	-0.0835446	-0.0539766	-0.029568	0.0196597
GIA	-0.0002284	0.0061152	-0.0063435	0.0043223
DAR	0.1010886	0.1278553	-0.0267667	0.0456407
ERR	0.0010214	0.000995	0.0000264	0.0001929
EV	5.57E-06	8.87E-06	-3.29E-06	6.69E-06
Rsquare	0.0648	0.1116		
Rho	0.19105078	0.05423329		
Observations	500	500		
Hausman P-Value		0.3833		

Hausman test gives a very high P value of 0.3134 which isn't significant at all on any of the significance levels. Which results in using the Random Effects Model for the following regression

Table 10: Breuch Pagan - LM Test to select between Pooled OLS and REM

	Variance	Std. Deviatioon
PV	0.0146381	0.1209882
e	0.0125197	0.1118913
u	0.0007179	0.026794
Test: Var(u) = 0		
chibar2(01) = 3.85		
Prob > chibar2 = 0.0249**		

The Breush Pagan LM test is run to confirm if the Random Effects model is the best fit, or Pooled OLS regression should be used. P value is significant at 0.05 and hence the null hypothesis off Pooled OLS being appropriate is rejected and we proceed with REM

Table 11: Random Effects Model Results (Model 5) for NSE Price Volatility

Regressors	Random Effects Model			
PV	Coefficients	Std. Err	t- stats	p-values
DPR	0.0254976	0.0383191	0.67	0.506
DY	0.1391287	0.1374283	1.01	0.311
Size	-0.0539766	0.0129165	-4.18	0.000***
GIA	0.0061152	0.0133307	0.46	0.646
DAR	0.1278553	0.0249523	5.12	0.000***
ERR	0.000995	0.0003234	3.08	0.002***
EV	8.87E-06	7.75E-06	1.14	0.253
Constant	0.2233048	0.0498015	4.48	0.000***
Observations	500			
Number of Firms	50			
R squared within	0.0464			
R squared between	0.3755			
R squared overall	0.1116			
Rho	0.05423329			

In the above table as we can see Size, DA, ERR are the most significant in explaining the change in price volatility, and neither of the ratios representing dividends are significant enough to affect PV when control variables are introduced. This tells us that from when we tested model 3 with just PV DY and DPR where they both significantly affected the PV to model 5 where the control variables were introduced the effect of dividend policy becomes insignificant. It can clearly be seen that once the control variables are introduced the effect of dividend decreases as can be seen from Model 3 and Model 5 coefficients of DPR and DY. Once that is done we find that Size, DAR, ERR are the most significant at 0.001%. With a 1 unit increase in size there is a 5.39% decrease in PV, which is because the more mature, and stable the growth of the firm, less will be their share price fluctuate.

4.2.2 BSE Price Volatility and Divided Policy

Descriptive Statistics

The dependent variable PV has a mean of 0.11 and it ranges from 0.012 to 0.538 (1.2% to 53.8% of volatility) and an SD of 10.23 % Earnings volatility has a volailtiy of Rs. 1143.007 crores which is very high. The minimum earnings volatility is almost 6 crores and the maximum being 6490.54 crores. Earnings are highly volatile in the sample of companies. DPR ranges from 0 to 2.18 with a volatility of 24.9% indicating there are some companies in the sample with very high dividend payments. DY also has a rangefrom 0 to 0.57 with a mean yield of 2.8% GIA has a negative minimum of -0.785 to a maximum of 7.15 with a 45% volatility. DTA ranges from 0 to 0.91, which indicates that there are firms with no debt and this would be nice way to see how the debt component affects share price volatility. ERR also has negative minimum of 195.8 going to a maximum of 100 which indicates some company does not pay dividends in a certain year or several years and retains all profits as reserves.

Pearson's Correlation

Correlation has one multicollinearity problem with ERR being highly correlated with DPS. EV and PV have a negative correlation which indicates that a unit increase in EV will result in PV decreasing by 3.51% this can indicate that the as long as volatility is stable and in the same range, and earnings have an increasing trend the n the share price volatility could be decreased at a decreasing pace. DPR has a negative correlation and DY has a positive correlation with PV. This makes sense because the minute the dividend is paid the share price is decreased by an amount a little less than the dividend paid. As explained before the share price is adjusted for dividend payments. DY has a positive on PV, this could be because the more the dividend paid the more dividend seeking investors will buy the share, this will increase the share price. GIA, DA both have a positive relation with PV. The more the DA grows the more cautious investors will get. No investor likes a highly levered firm. ERR here has a positive correlation here, which means the investors have a positive perspective of the firms earnings, hence the volatility change will be positive.

Table: 12 BSE Price Volatility and Dividend Policy Variables Correlation and Descriptive Statistics

Panel: A Correlation Matrix								
	PV	DPR	DY	Size	GIA	DAR	ERR	EV
PV	1							
DPR	-0.1281	1						
DY	0.154	0.1228	1					
Size	-0.0108	-0.2108	-0.2883	1				
GIA	0.108	-0.1711	0.0269	-0.084	1			
DAR	0.1052	-0.1282	-0.1165	0.6478	-0.0332	1		
ERR	0.1539	-0.7363	-0.0361	0.3042	0.2059	0.0739	1	
EV	-0.0351	-0.1166	-0.1022	0.6329	-0.0345	0.159	0.1586	1
Panel: B Descriptive Statistics								
	PV	DPR	DY	Size	GIA	DAR	ERR	EV
Mean	0.110117	0.3066073	0.0281182	4.28724	0.2478406	0.2857059	63.5482	1050.23
Std. Dev.	0.1023782	0.2495382	0.0647064	0.686118	0.45564	0.2868597	29.83441	1143.007
Min	0.0120401	0	0	2.594845	-0.7851463	0	-195.8	5.994472
Max	0.538036	2.105263	0.5782018	6.194864	7.154355	0.9127103	100	6490.54

Table 13: Regression Results for Model 4

Regressors	Coefficient	Std. Err	t-stats	p-values
DPR	-0.0575457	0.0249202	-2.31	0.021***
DY	0.2409363	0.0940806	2.56	0.01***
Constant	0.1209863	0.0103245	11.72	0.000
R square within	0.0085			
Between	0.2894			
Overall	0.0456			
Rho	0.04355261			

Like for NSE, DPR has a negative effect on PV and DY has a positive effect on PV for BSE as well. And both of them are highly siginifcant at 1% but once we have a look at the R square it seems like the only 4.56% change in PV can be brought by the dividend policy of the company.

Table 14: Hausman test to select between FEM and REM for BSE Price Volatility

Regressors	Coefficients			
	Fixed	Random	Difference	SE
DPR	0.0015704	-0.0068962	0.0084666	0.0171377
DY	0.0031618	0.1850705	-0.1819088	0.0807553
Size	-0.0500615	-0.031249	-0.0188125	0.0201835
GIA	0.0071974	0.0121658	-0.0049684	0.0048287
DAR	0.0941597	0.0844577	0.009702	0.057941
ERR	0.0005724	0.0005794	-7.02E-06	0.0002168
EV	4.71E-06	3.90E-06	8.10E-07	5.97E-06
Rsquare	0.0577	0.08		
Rho	0.14076748	0.02848721		
Observations	300	300		
Hausman P-Value		0.0963		

Hausman test gives the result of 9.63%, which is not significant hence we use the random effects model for the regression.

Table 15: Breush Pagan LM test choose between Pooled OLS and REM for BSE Price Volatiltiy

	Variance	Std. Deviatioon
PV	0.0104813	0.1023782
e	0.0095101	0.0975198
u	0.0002789	0.0166991
Test: Var(u) = 0		
chibar2(01) = 0.80		
Prob > chibar2 = 0.1863		

BP LM test gives an insignificant p value of 18.63%, which leads to us rejecting the null hypothesis of Pooled OLS being the better model and we finally use the Random Effects Model for the regression.

Table 16: Random Effects model Results (Model 6) for BSE Price Volatiltiy

Regressors	Random Effects Model			
PV	Coefficients	Std. Err	t- stats	p-values
DPR	-0.0068962	0.0355735	-0.19	0.846
DY	0.1850705	0.1000817	1.85	0.064*
Size	-0.031249	0.0187052	-1.67	0.095*
GIA	0.0121658	0.0131434	0.93	0.355
DAR	0.0844577	0.0327874	2.58	0.010**
ERR	0.0005794	0.0003222	1.8	0.072*
EV	3.90E-06	7.70E-06	0.51	0.613
Constant	0.1729398	0.0652021	2.65	0.008***
Observations	300			
Number of Firms	30			
R squared within	0.0284			
R squared between	0.3514			
R squared overall	0.08			
Rho	0.02848721			

In the above results the only significant variables that could explain their effects on the PV are DY, DAR size and ERR. EV has a small positive effect but it is insignificant in the model described. DY explains 18.5% change in the PV of hare prices. This is significant enough to say that Dividends do affect the PV in the stock market. DAR has a positive 8.4% change in the PV, which as explained before the more levered the firm the more the investors get skeptical of the firm. Size of the firm has a negative effect on PV stating that, larger the firm the lower should be the PV of the stock price of that particular firm. The more mature the firm the lesser volatile it gets. Investors have either been with the firm for a long time, or seen the firm become mature and stable and have a positive outlook on the firm's deals and outcomes. ERR has a positive effect on PV which could also be connected to the variable of size. The more the firm earns the more the investors get a positive perception of the firm and the more the demand within the investors increases the more the prices of the shares will increase, which is volatility increase in a positive way.

4.2.3 Price Volatility NSE vs BSE

When we compare the random effects model results of model 5 and 6 we can confirm that the Dividend Policy effects on share prices of these companies decrease on the whole when other factors are introduced in the models, and the results convey that in both the exchanges the other factors have more of a significant effect on share prices. Only in BSE do we see the DY having a positive effect on the share price changes, and that too it is significant at 0.1% significance level. Comparatively both the stock exchanges have the similar significant factors of Size, ERR and DAR and DY being an additional one in the BSE. This is indicative of the Earnings, Assets and the Debt of the companies being the foremost factors of the price changes in the stock market. Any other results being insignificant could be the results of the time variance intercepts, that are used in the Random Models as time specific factors. These intercepts might not be favourable for the particular variables differentiating over time. Also because random effects models is a best fir for a larger sample, the NSE results could be more statistically significant since we have a larger number of companies there.

5.0 Conclusions

In this study I have attempted to study the ever-controversial topic of Dividend Policy in as much detail as possible in the context of the Indian Stock Market. I have combined two studies- Determinants of Dividend Policy, and Dividend Policy and its effect on Share Price volatility together to see how the dividend policy is looked at in the Indian Stock Market, and to find a connection between these two aspects. In order to do so we looked at the detailed existing pool of literature, in every context possible. There are many key theories that have been formed and have evidently been the reasons that dividend policy is so controversial. Some believe that Modigliani and Miller's (1961) irrelevance is right, others oppose the theory and have developed new ones like bird in hand theory, signaling effects (Bhattacharya, 1979) and free cash flow hypothesis (Easterbrook, 1984) like life- cycle theory (Lease et al., 2000), Agency Theory, —all of these reinforce the dividend relevancy.

We start this by first collected data for both the BSE-30 and NSE-50 stocks, creating models to see the relationships between the variables selected and how much they affect the dependent variables of the study. The primary objectives of this study were:

To find out the main determinants of the dividend policy in the Indian Stock Market

-To see the effects of the dividend policy on the volatility in the share prices of the Indian Stock Market

-How do these aspects differ between the BSE and NSE?

-Do Stock Exchange norms have anything to do with results?

In section 4.0 we explained the empirical findings of both the studies conducted in both the stock exchanges. For the determinants in both the stock exchanges we have used Fixed Effects Regression Model. For NSE we get the Return on Assets, Size of the firm, Pattern of Dividends and the Tax Ratio as the main determinants of the dividend policy. Whereas, for BSE it was only Pattern of dividends and Tax Ratio. When comparing the results both the stock exchanges have a decreasing trend in the dividends since both the models give a significant negative relationship with Dividend Payout Ratio. On the other hand Tax Ratio gives opposite results, in NSE it has a positive relationship with payout whereas in BSE it has a negative relationship with payout. Which tells us that there are more high tax paying companies on BSE than NSE. And the positive relationship in NSE tells us that even though the there are high tax paying companies, higher taxes means high earnings, which has been a major

indicator of dividend increases (Lintner, 1956). The comparative results differ mainly because of the norms and the eligibility criteria of both the stock exchange. NSE being completely liquid, with low bid-ask spreads, which makes it more preferable to the investor, which in turn increases the volumes of trade on NSE.

We then move on to the Share Price Volatility part of the research, we first run regressions to see the key relationship between Price volatility and the dividend ratios, dividend yield and dividend payout. The results are quite similar in both BSE and NSE. Both ratios representing dividends are highly significant at 0.05% significance level. But in both the stock exchanges dividend yield has a positive effect and dividend payout ratio has a negative effect on share price volatility as expected. Dividend yield will increase with price and dividend payout increases then share price decreases.

Then we go to the main models of Share Price Volatility studies where we introduce control variables of firm characteristics like – profitability, change in earnings, size, leverage, and growth in assets. For Price volatility we have used Random Effects Model because we tested the models with Hausman Test and Breusch Pagan- Lagrange Multiplier Test and both resulted in the Random Effects model being a better fit.

For the test results in NSE both the dividend ratios do not significantly affect the share price volatility once the control variables are introduced. Rather the firm size, Debt to assets Ratio and Earnings Retention Ratio are highly significant at 0.001% significance level. This indicates that the company specific characteristics have more of an effect on share price volatility than the dividends. For BSE on the other hand Dividend Yield, Size, Debt to Assets Ratio and Earnings Retention Ratio are the most significant even after introducing company characteristics. This gives us the indication of the difference between the Price Volatility effects in both the exchanges. One should notice that the NSE is freer of regulations, than BSE and this could, this brought in many investor during incorporation. And when it comes to prices the bid-ask spreads between the prices NSE has very small (50 paise) compared to BSE (could go up to Rs.2 or 3). Keeping this aspect in mind the BSE and NSE results differ only when it comes to the dividend yield, which is significant in BSE only. This tells us that NSE is more intune with the company specifics than BSE is and due to the bid-ask spreads being small there is barely any effect on the share price changes. Whereas, in BSE the bid-ask spreads are larger as it is and the change in the

price would be much larger with higher bid-ask spreads. Any other changes being insignificant could be due to robustness and any other unobservable random effects in the models.

In conclusion there are differences in the NSE and BSE results with some common factors but the differences are far more significant and explanatory. We can say that there are significant determinants for dividends in both the stock exchanges, and also the dividends effect the BSE price volatility but not the NSE price volatility. This is because of the stock exchange specifics and the norms by which they select the companies and the type of company specifics that explain the changes and would affect the price the most. In the end even after this study, there is no one specific answer as to what actually determines the dividend decision and no specification whether the dividends affect the price volatility. These results differ over many aspects and not just one single facet of the company.

5.1 Limitations of the Study

A first limitation is that some variables such as institutional and insider ownership that are proved to be significant in setting dividend policy based on prior studies are not included in the current study largely due to data limitations.

Second one is that the sample is really small when it comes to comparison with other studies in this field. The sample could be increased to a wider index such as S&P BSE 500 (For BSE) and CNX 500 (for NSE). Also instead of 10 years a larger timeframe could be studied, which will also be beneficial to properly apply panel data and get significant and more efficient results. There are very few papers that apply a panel data approach, because most of them take averages and then carry out Simple OLS Regressions

Third one would be that, these variables are chosen by the author on the basis of other papers and intuition of what would affect the dividend policy decision. To get a better idea of what would be the most factors, a factor analysis could be done. This would help to get the core factors affecting dividend policy since almost everything affects it in a minor way, but to understand it better and get the major factors affecting the policy in this time frame and time and the market conditions a factor analysis would help.

5.2 Further Research

The research suggests that further related studies are desirable. Possible research areas include; One could further the study by examining trends and factorizing the study by differentiating between payers and non-payers. This would help to study the determinants as well as find the reason as to why non-payers are content with not paying dividends.

Research could be carried out to compare 2 different countries of like nature. So say the countries of the emerging markets could be compared to further the current research. Also, one could study the effect of recession 07-09 on the dividend policy on both the stock markets, and see how the recession affected the dividend payers, and which companies were strong enough to continue paying dividends.

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7.0 Appendices

List of the most traded stocks on BSE 30 and NSE 50

List of Companies on BSE 30

Companies on BSE 30	
Company Name	Industry
Axis Bank	Banking
Bajaj Auto*	Automobiles
BHEL	Infrastructure
Bharti Airtel	Telecom
Cipla	Pharmaceuticals
Coal India*	Mining
Dr Reddy's Laboratories	Pharmaceuticals
GAIL	Oil Drilling
HDFC Bank	Banking
Hero Motorcorp	Automobiles
Hindalco Industries	Aluminium
HUL	Personal Care
HDFC Ltd	Finance
ICICI Bank	Banking
Infosys	Computers
ITC	Ciggaretes
L&T	Cement
Mahindra & Mahindra	Automobiles
Maruti Suzuki	Automobiles
NTPC	Power
ONGC	Oil Drilling
Reliance Industries	Miscellaneous
Sesa Sterlite	Mining
SBI	Banking
Sun Pharmaceuticals	Pharmaceuticals
TCS	Computers
Tata Motors	Automobiles
Tata Power	Power

Tata Steel	Steel
Wipro	Computers
*HCL Tech	Computers
*Hindustan Zinc	Metals

*These companies were replaced with the ones mentioned in the end due to data missing or them not being on the Stock Exchange for the time of the study

List of Companies on NSE 50

Companies on NSE 50	
Company Name	Industry
ACC	Cements
Ambuja Cement	Cements
Asian Paints	Paints
Axis Bank	Banking
Bajaj Auto*	Automobiles
BHEL	Infrastructure
Bharti Airtel	Telecom
BPCL	Refineries
Bank of Baroda	Banking
Cairn India*	Oil Drilling
Cipla	Pharmaceuticals
Coal India*	Mining
DLF*	Construction
Dr Reddy's Laboratories	Pharmaceuticals
GAIL	Oil Drilling
Grasim	diversified
HCL Tech	Computers
HDFC	Finance
HDFC Bank	Banking
Hero Motorcorp	Automobiles
Hindalco	Aluminium
HUL	Personal Care
ICICI Bank	Banking
IDFC	Finance
IndusInd Bank	Banking
Infosys	Computers
ITC	Ciggaretes
Jindal Steel	Steel
Kotak Mahindra	Banking
L&T	Infrastructure

Lupin	Pharmaceuticals
Mahindra & Mahindra	Automobiles
Maruti Suzuki	Automobiles
NTPC	Power
NMDC*	Mining
ONGC	Oil Drilling
Punjab National Bank	Banking
Power Grid Corp*	Power
Reliance Industries	Refineries
Sesa Sterlite	Mining
SBI	Banking
Sun Pharmaceuticals	Pharmaceuticals
TCS	Computers
Tata Motors	Automobiles
Tata Power	Power
Tata Steel	Steel
Tch Mahindra	Computers
Ultra Tech Cement	Cements
United Spirits	Breweries and Distilleries
Wipro	Computers
*Adani Enterprises	Trading
*ABB	Infrastructure
*Bosch	Auto Ancillaries
*Dabur	Personal Care
*Titan Company	Miscellaneous
*Motherson Sumi Systems	Auto Ancillaries
*Siemens	Infrastructure

* These companies were replaced with the ones mentioned in the end due to data missing or them not being on the Stock Exchange for the time of the study.