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Impact of Stock liquidity on dividend payouts

by

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This thesis is dedicated to my parents for their enduring patience, encouragement, love and support and for putting me through the best education possible. I appreciate their sacrifices as I wouldn't have been able to get to this stage without them. I thank my brothers Mr. Haroon Akhtar Khan and Mr. Asim Akhtar Khan for the interest they showed in my studies and the motivation they gave me during those trying times when I had doubts about my abilities. Their confidence and faith in me helped me in achieving my goals.

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All errors in this thesis are my sole responsibility.

Abstract

This study examines the impact of stock liquidity on dividends payout. The study employs three measures of stock liquidity i.e. Amihud 2002 illiquidity measure, average value of share traded and trading volume to test the robustness of the variables. To measure dividend payout two proxies are used DVE, cash dividend divided by earnings and DVP, a dummy variable. Correlation and regression analysis are used to study the impact of stock liquidity on dividends payout. OLS regression models are used to study the effect of stock liquidity variables on DVE. Logit regression model is used to study the impact of stock liquidity variables on DVP. The sample of 100 non-financial firms listed at Pakistan stock exchange for the period of 2005-2015. Profitability, leverage, growth and firm's size are used as control variables. Variance inflation factor test is also run to check the multicollinearity among independent variables. The results of the study indicate a positive relationship between stock liquidity and dividends payout. These results are consistent with agency theory. Profitability and size are also positively associated with dividends payout whereas growth and leverage are negatively associated with dividend payout. It is also found that there is a significant difference in dividend payout across different industries. Moreover, goodness of fit statistics is statistically significant indicating that models are correctly specified

Key words: Dividends Payout, Stock Liquidity, Agency theory, Information asymmetry, Pakistan, OLS and Logit.

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Chapter 1

Introduction

This study is primarily inspired by the comprehensive research on the determinants of dividend payouts, in broad, and explores the relationship among stock liquidity and dividends payout in precise. Stock liquidity commonly defines as how instantly a security or stock might be traded in market without losing its value. Dividend is a distribution of a portion of firm's net profit, on the discretion of board of directors. Dividend is distributed in the form of cash payments or bonus shares. The conventional clientele transaction cost view shows an inverse association among liquidity and dividends payout. Miller and Modigliani (1961) advance their irrelevance propositions of dividends - in a frictionless world. They propose that if we assume there is no tax effect, transaction cost and agency problem then it is irrelevant to distribute the dividend or to retain it within company. Shareholders'wealth solely depends on investment opportunities available to the firm rather than payout policy. In reality the world is not frictionless, trading cost exist in financial markets. In case of stock liquidity, if an investor needs cash he can simply convert the stocks into cash by selling them in markets. Without incurring any cost because markets are frictionless an indication of Miller and Modigliani work is that, else factors remains constant, companies with high stock liquidity pay less dividends. Banerjee et al. (2007) has conducted a study by using US sample and concluded that companies with high stock liquidity are less probable to pay cash dividend, consistent with traditional clientele view that stock liquidity and dividend payout are negatively correlated. Though, the argument does not cater informational impact of liquidity on

dividends payouts. It is quite evident from previous studies that stock liquidity reduces the information asymmetries between insider management and outsider investors by generating new information in result of trading. Stock liquidity may help well informed parties to camouflage the secret information which is not imitated in price in informed trading model (Kyle, 1984). Many studies have been conducted on determinant of dividend payout by investigating the relationship among asymmetry information and dividend payout (Deshmukh, 2003, 2005; Li and Zhao, 2008). The study establishes an inverse association among dividends policy and asymmetric information as proxied by analyst following. Hussainey and Walker (2009) investigate the same phenomenon by using another proxy for asymmetrical information; (voluntary future oriented disclosure in financial reports) on share price anticipation of earning. They have reported that voluntary future disclosure and dividends payout are alternate mediums for communicating related information to stock market participators (i.e. shareholders). These findings are aligned with signaling theory. To re-validate the findings of Hussainey and Walker (2009), Hussainey and Al-Najjar (2011) has further investigated the relationship among level of future oriented voluntary disclosure and dividend policy, by controlling other factor affecting corporate dividend level. They establish significant direct relationship among the voluntary disclosures and dividend policy. Signifying that, dividends policy is inversely related with level of asymmetric information. The current study has investigated the informational impact of stock liquidity on dividend policy using the data from 2005 to 2015 of non-financial companies listed at Pakistan stock market.

1.1 Theoretical background

A dividend is a distribution of a portion of firm's net earnings, normally decided by the board of directors. Dividends could be issued as cash payments, bonus shares, or other property. The studies on the dividend policy have attempted to answer two questions: (a) is the value of firm is dependent on dividends payment? And (b) what are the determinants of the dividend payout? Among the early studies on this issue, Lintner (1956) argues that firms target their desired payout ratio, and it is determined by the current

earnings and past dividends of the companies. Considering certain unrealistic assumptions like (a) there is no tax, (b) there is no agency cost, (c) there is no asymmetric information, (d) there is no transaction costs and so on. Miller and Modigliani (1961) are of the view that the value of firm does not depend on dividend payouts in perfect market competition. With the passage of time ignoring all these assumptions taken by Miller and Modigliani which were unrealistic in real world, many studies have been carried out on company's dividend payouts. These researches result in number of related theories like; agency theory, signaling theory, pecking order theory, and transaction cost theory, tax clientele theory, and firm life cycle theory and so on to explain the dividends payouts of firms.

1.1.1 Agency Theory

According to Jensen and Meckling (1976) agency theory is an association among two or more than two individuals which is principal and agent. Principal is the owner or shareholder of the company who grants an authority and responsibility to the agent (manger) to work in the best interest of the principal by taking decisions on the behalf of investor, and it is the duty of agent to safeguard the interest of principal. Al-Najjar and Hussainey (2010) argues that it is quite evident that conflict of interest exist between both parties namely agent and principal which leads to agency problem. The core reason for this agency problem lies in the information asymmetry. One possible mechanism to overcome this issue is to pay dividend to stockholders (Easterbrook, 1984; Bhaduri, 2002). Experts are of view that dividends payments decrease the information asymmetries between insiders and outsiders hence eliminate the agency cost problem. Hence this theory suggest: that it is important to consider the measure of asymmetric information when drivers of dividend policy are examined (Al-Najjar and Hussainey 2010). It is evident from previous studies that stock liquidity removes the information asymmetry between insiders and outsiders (Kyle, 1984). The informational impact of liquidity perhaps shapes the firm's dividend policy. Easterbrook (1984) and Jensen (1986) are of view that dividend payments decrease the firm's retained earnings. These retained earnings might be used by mangers for their private use or they could use in projects with

negative net present values to increase their consumptions which leads to agency problem. Therefore, mangers try to retain as much cash as possible instead of distributing a dividend. This decision also includes a cost and benefit analysis of paying dividend. When markets are less efficient and informational asymmetries prevail in external environment mangers have strong initiatives to retain the cash within company and use this cash for their personal consumption. Because, when environment is opaque insiders are less vulnerable to be detected and they hide the private information (Stiglitz, 2000; Leuz et al., 2003). But, when liquidity is higher and there is informed trading more information is generated that put a pressure on managers that they could be easily detected now and cannot disguise private information (Li and Zhao, 2008; Petrasek, 2012). Thus, cost of holding cash within company exceeds as compare to its benefit. Further, in this scenario keeping free cash flow within company is riskier as it signals that agent is not working in best interest of principal and agent losses its credibility and reputation (Gomes, 2000). This further increases the cost of financing and results in poor access to external sources of fund due to adverse valuation of company (Gomes, 1996, Gomes, 2000; Kalcheva and Lins, 2007; Karpavicius and Yu, 2015). Hence, cost of retaining earning further increases. As compared to benefit associated with dividend payment that increases with increase in level of stock liquidity thus insiders prefer to distribute dividends instead of retaining cash (La Porta et al., 2000a, and 2000b). Thus, this theory predicts a positive relationship between stock liquidity and dividends payout.

1.1.2 Signaling Theory

Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985) argue that, signaling theory presumes that insiders (mangers) have more private information as compared to outsider (investors). Therefore, outsiders keep an eye on even a small change in dividend payout policy; as signal of company's future growth communicated from management side (Li and Zhao, 2008; Al-Najjar and Hussainey, 2010). Normally it is considered as if company announces an immense increase in dividends it is perceived that company is in sound financial position because dividend payment needs cash and are normally paid out of net incomes. Therefore at the same time increment in dividends is perceived as good news on investors end. Furthermore, Deshmukh (2003,

2005) assert that, if level of information asymmetry is high the dividend payments will be grossed up to communicate a positive signal and vice versa. As dividends policy is used as a tool to signal company's future performance a positive association between dividends policy and asymmetrical information is anticipated. Hence, direct relationship among dividends payout and profit is expected.

1.1.3 Pecking Order Theory

This theory was presented by Myers (1984) and Myers and Majluf (1984). It state that as mangers have more access to private information as compared to investors. Further, it presumes that mangers have a logical order in which they finance their investments. Retained earnings are the most inexpensive and easily accessible source of financing. Therefore managers give first preference to retained earnings. If retained earnings are not sufficient to meet the financing requirements of company mangers go for debt financing as it is considered as a cheap source of financing as compared to equity financing. And at the end if no option is available to mangers they finance their needs from equity which is least preferred (Al-Yahyaee, 2006; Faulkender et al., 2006; Al-Najjar and Hussainey, 2010). Dividend payments thus decrease the amount of retained earnings hence mangers go for debt financing, according to this theory a direct association among debt ratio and dividends is anticipated. Further profitable firms are heavily dependent on retained earnings a direct relationship among dividends payouts and profit is also estimated. Myers and Majluf (1984) assert, if there is asymmetric information within companies, it is more probable to have under-investment caused by the relation of lemons problem in the issue of new equity (Deshmukh 2003, 2005). This problem can be alleviated by reducing the level of dividends and retaining the amount earning (Myers and Majluf, 1984). Thus, the pecking order theory predicts an inverse relationship among information asymmetry and dividends payout.

1.1.4 Transaction-Cost Theory

One benefit of dividends payout is that it reduces information asymmetries and also helps to eliminate the agency cost. But on the other hand it increases the transaction

cost because financial markets are not frictionless that restrict external source of financing (Rozeff, 1982). Al-Najjar and Hussainey (2010) state, that large companies have incentive to decrease their transaction costs. Therefore, large companies have higher propensity to pay dividends and simultaneously are much likely depend on equity financing as compared to debt financing. Given the fact that larger companies are supposed to have an urge to reduce transaction cost, a direct association among dividend payouts and firm size is anticipated, and it is reasonable to suggest a positive relationship between profit and dividends payouts under transaction cost theory.

Tax clientele theory state that when tax is not high investors prefer stocks with high dividends payout, and when tax is high investors prefer stocks with less dividends payout (Litzenberger & Ramaswamy, 1979). Second view relevant to tax is if the tax on dividend is greater than tax on capital gains the investors give less prefer to dividends (Elton & Gruber, 1970). Proponents of signaling theory assert that dividends payout communicate secret information about present and potential profits, and it could be used to reduce the asymmetric information among the management and investors, that's why the value of firm is dependent on dividend payout (Aharony & Swary, 1980; Bhattacharya, 1979). The agency theory proposes that dividends would decrease the unrestricted supremacy of the management thus decrease the agency issue arising among the stockholders and management (Jensen & Meckling, 1976; Easterbrook, 1984). Therefore, direct association could be anticipated among dividends payment and company value. Life cycle theory of dividend state, large companies have large amount of accumulated profits, i.e. retained earnings and few growth opportunities are available as compared so small and growth firms; so, large scale companies are more prone to pay high dividends than small companies (DeAngelo, DeAngelo, &Stulz, 2006). Baker and Wurgler (2004) give behavioral explanation for dividend payout identified as 'Catering theory of dividends', which states that managers accommodate the demands and needs of investors for dividend, rationally and pay dividends when investors demand dividend-paying firms instead of non dividends paying firms. And they prefer to retain dividends when investor does not demand for dividend paying stock. However, still there is no agreement on any particular theoretical explanations of the dividend policy after several decades of studies. In this context, Black (1976) stated, 'The more we look into the

dividend policy, further it seems like a riddle, with pieces that just don't fit together'. Therefore, researchers are trying to examine dividend policy in depth so that this riddle can be solved. These questions can be counter like: Why firms pay dividends? Or, what are the determinants of dividends? The empirical studies on the factors that determine the dividend policy are mainly based on the various theoretical explanations given in the different competing theories. However, the results are contextual in nature that widely varies across the time periods and the countries.

1.2 Literature Gap

Many studies have been conducted on the determinants of dividends payout. Few studies are conducted to capture the informational impact on dividends payout. Scarce studies are conducted to study the informational impact of stock liquidity on dividends payout. Researchers use different proxies to capture the informational impact i.e. Deshmukh's (2005) examine the association among information asymmetry and dividend payout by using a logarithm of an analyst following as a firm as a proxy of information asymmetry in a pecking order framework. Hussainey and Walker (2009) investigated the same phenomenon by using another proxy for asymmetrical information; (voluntary future oriented disclosure in financial reports) on share price anticipation of earning. They have reported that voluntary future disclosure and dividends payout are alternate mediums for communicating related information to stock market participators (i.e. shareholders). These findings are aligned with signaling theory. To re-validate the findings of Hussainey and Walker (2009), Hussainey and Al-Najjar (2011) has further investigated the relationship among level of future oriented voluntary disclosure and dividend policy, by controlling other factor affecting corporate dividend level. They establish significant direct relationship among the voluntary disclosures and dividend.

The results of these studies are mixed because these results might be driven by the choice of proxy used. Like Miller and Modigliani (1961) and Banerjee et al. (2007) state that stocks with high liquidity does not require regular dividend payments. Whereas recent study conducted by Jiang, Ma and Shi (2017) in Chinese market study shows positive association among stock liquidity and dividends payout. High Stock liquidity

results in high dividends payments by removing the asymmetric information in-between insiders and outsiders. It is quite evident from previous studies that stock liquidity reduces the information asymmetries between insider management and outsider investors by generating new information in result of trading (Kyle, 1984). In this study informational impact of stock liquidity on dividend payout by using three proxies of stock liquidity is studied in agency framework.

Secondly, a few studies have been conducted on the contextual setting of Pakistan; no such study according to best of my knowledge has been conducted to check the robustness of different proxies. Black (1976) stated that dividend policy varies from country to country so there is a need to conduct this study in contextual setting of Pakistan.

1.3 Problem Statement

There is a mix evidence of stock liquidity on dividends payout some studies suggest that there is negative association among stock liquidity and dividends payout like Miller and Modigliani (1961) and Banerjee et al. (2007) because stocks with high liquidity do not require regular dividend payments. Whereas recent study conducted by Jiang, Ma and Shi (2017) in Chinese market study shows positive association among stock liquidity and dividends payout. High Stock liquidity results in high dividends payments by removing the asymmetric information in-between insiders and outsiders. These mix evidence could be driven by the choice of proxy used for measurement of liquidity.

So, this study empirically investigated the impact of Stock liquidity on Dividends payout by employing more than one proxy in order to conclude this relationship and to check the robustness of the study.

1.4 Research Questions

The research questions of study are as follow:

I. Does Stock liquidity effect dividend payouts?

II. Is there any impact of Firm Size on dividends payouts?

III. How leverage effect dividends payouts?

IV. What is the impact of firm growth on dividend payouts?

V. Is there any impact of profitability on dividends payouts?

VI. Is there any difference in dividend payout among the different industries?

1.5 Research Objectives

This study has two main objectives:

I. To examine the relationship between dividend policy and stock liquidity.

II. To study the impact of different firm specific factors on dividend payout policy.

III. To check the robustness of different measure of stock liquidity on DVE and DVP.

1.6 Significance of the Study

Number of studies contributed on this topic and still there is mix evidence by studies. So it is difficult to conclude whether there is direct or inverse association among liquidity and dividends payout. This study will help to understand and conclude the association among stock liquidity and dividends payout. As well as how firm size, leverage, growth opportunities and profitability are correlated to dividends payouts. Secondly, a few studies have been conducted on the contextual setting of Pakistan; no such study according to best of my knowledge has been conducted to check the robustness of different proxies. Black (1976) stated that dividend policy varies from country to country.

This study will also be helpful for managers to make better understand the association among stock liquidity and dividend policies. The findings of study will serve as a tool to make better dividend payout policy to attract the investors. Individual investors will also be able to forecast the future dividend payout by simply looking into liquidity of stock.

1.7 Plan of Study

The rationale of the study is to examine the impact of stock liquidity on dividends payout. This study is planned into following five chapters.

Chapter 1: In this chapter introduction, theoretical background, research questions, problem statement, and significance of the study are discussed. Chapter 2: Literature review is narrated in this chapter. Chapter 3: Data and methodology is discussed in this chapter. Chapter 4: It comprises of results and findings. Chapter 5: Conclusion, key findings, policy implications, future research and limitation are discussed.

Chapter 2

Literature Review

2.1 Dividend payouts

The dividend policy of firm can be explained with the help of these theoretical backgrounds. Information asymmetry, tax adjusted theories or behavioral explanations. The information asymmetry explanation of dividends policy consists of following aspects, signaling models; agency cost framework and free cash flow hypothesis. Akerlof (1970) has defined the signalling effect in labor market as it the unique framework in which a job hunter signals his/her worth to a potential employer. But now this framework has been used by researcher in financial scenario as well. The advocators of signalling theory argue that dividend policy is used to communicate the specific information to outsiders. The cost of conveying massage through dividends is much lower than other mediums of communication. It suggests that other mediums of communicating information are not perfectly substitute to dividends signaling. The signaling theory state that dividend payout are used to convey a massage and it has a lower cost as compared to other alternatives. By using dividend as a mean of communicating information shows that means to signal information are not much effective (Bhattacharya, 1980; Talmor, 1981; Miller and Rock, 1985; Asquith and Mullins, 1986; Ofer and Thakor, 1987; Rodriguez, 1992).

Jensen (1986) states that cash flows available to the company after financing all the positive net present value projects cause an agency problem between mangers and investors.

Interest and dividend payments to the fund providers reduce the value of free cash flow that's why mangers try to invest these funds in marginal net present value projects to increase their consumption instead of paying dividends.

Tax-adjusted models assume that shareholders entail and earn higher expected returns on dividends paying shares. The outcome of tax adjusted theory is that it divides the investors into different tax clientele. Modigliani (1982) assets, that this clientele effect is the reason of difference in portfolio formation. Masulis and Trueman (1988) model asserts that investors with different tax liabilities will not be consistent in their ideal firm dividend payout policy. They concluded that when tax liabilities increase the dividend payments decreases and earnings are reinvested vice versa when tax liability decrease dividends payment increases.

A tax-adjusted model also presumes that investor's earnings after tax increases. Farrar and Selwyn (1967) are of view that in fractional equilibrium framework, individual investors choose the amount of personal and corporate leverage and also decide how to get returns either in the form of capital gains or dividends payments. Auerbach (1979) constructs a discrete time, infinite horizon model through which shareholders wealth is maximized. Auerbach (1979) argues that if difference exists between capital gains and tax on dividends payments, wealth maximization is not dependent on market price appreciation.

Main criticism on tax-adjusted theories is that it is not consistent with the rational behavior. Dividends payment could be view as the socio-economic repercussion of corporate evolution. Frankfurter and Lane (1992) predict that the level of information asymmetry between insiders and outsiders cause the dividend payments in order to remove this asymmetrical information and to make stocks more attractive and appealing to investors.

Michel (1979) reveals that dividends are stylized by industry types and mangers are rationally bounded with the dividend policy of their industry type. Hence mangers are influenced by the actions of mangers of competing firms within industry. Managers may tailor the dividend payout policy according to the needs of investors to keep their firm's stock appealing and to keep shareholders pleased.

Fankfurter and Lane (1992) explain that dividends policy is semi a convention and semi a technique to reduce investor anxiety. The dividend payments to stockholders must

serve as a cue of the principle and agent association and would therefore, increase the stability of the firm by removing agency problem. This study is mainly focused on the information asymmetry on dividends payout.

2.1.1 Impact of information asymmetry on dividend payout

Previous studies show that there is linkage among information asymmetry and dividends payout (Deshmukh, 2003, 2005; Li and Zhao, 2008). Deshmukh (2003) has examined the association of information asymmetry and dividend payouts in a pecking order theory framework. Sample used was of small scale companies who went public in recent past. Small companies have high level of information asymmetries due to less trading volumes and less information disclosures. It is also observed that small companies or new startups have more growth opportunities but at the same time they have less cash flow available due to reinvestment opportunities. To finance their needs these firms more likely depend on the external sources of finance. Li and Zhao (2008), ascertain an inverse association among information asymmetry and dividend payouts. Simply stated as firms with high level of information asymmetry are less likely to pay dividends and vice versa firms with lowest level of information asymmetries pay more dividends. Deshmukh (2005) has found that these results are aligned with the pecking order theory whereas not consistent with signalling theory. Likewise, Li and Zhao (2008) also concluded that relationship among information asymmetry and dividends payout is not consistent with signalling theory. Hence, from the above discussion and empirical literature it is concluded that information asymmetry is negatively associated with dividends payout. Deshmukh's (2005) examine the association among information asymmetry and dividend payout by using a logarithm of an analyst following as a proxy of information asymmetry in a pecking order framework. It is quite evident that stock liquidity generates information and removes information asymmetries between insiders and outsiders (Kyle, 1984). In this study the researcher is using stock liquidity to capture the informational impact of stock liquidity on dividends payout.

2.2 Stock Liquidity

To check the association among stock liquidity and dividends payout in Pakistani context, there is a need to find a suitable proxy of liquidity. Yet, liquidity is not directly observed and it is difficult to calculate. Kyle (1985) notes that; "liquidity is a slippery and elusive concept, in part because it encompasses a number of transactional properties of markets. These include tightness, depth, and resiliency". In many studies, trading cost and bid ask spread is used as to the stock liquidity (Amihud & Mendelson, 1986; Brennan & Subrahmanyam, 1996). But in practice there are issues of data availability in many markets especially in emerging markets like Pakistan, data on bid-ask spread is not available. For this reason trading volume and turnover ratio are normally used to measure stock liquidity (Berkman & Eleswarapu, 1998; Levine & Schmukler, 2006; Rouwenhorst, 1999). It is noted practically trading volume and turnover ratio are failed to capture the trading cost and price impact per trade, especially in the times of financial crisis and market volatility. Historically, it was observed that in the crisis period of Asian flu in 1997, Argentine turmoil in 1999 and credit risk in financial markets in 2008 the trading volumes were high but in actual stock liquidity was low.

To overcome these problems associated with the measurement of stock liquidity researchers developed many other measures of liquidity and illiquidity by using econometric tools and techniques. Kyle (1985) proposed the price impact measurement; the traditional approach predicts that the association among prices and order flow should be emphasized in defining liquidity (Brennan & Subrahmanyam, 1996 and Foster & Viswanathan, 1993). Motivated by the previous studies on returns volatility, Amihud (2002) proposes a concept of illiquidity that captures the price, volume, and volatility impacts (Lesmond, 2005; Sadka, 2006). Specifically, Amihud (2002) defines illiquidity as the average ratio of absolute daily returns to daily dollar trading volume.

2.2.1 Impact of stock liquidity on dividends payout

The conventional clientele transaction cost view shows an inverse association among liquidity and dividends payout. Miller and Modigliani (1961) advance their irrelevance

propositions of dividends - in a frictionless world. They propose that it we assume there is no tax effect, transaction cost and agency problem than it is irrelevant to distribute the dividend or to retain it within company. Shareholders'wealth solely depends on investment opportunities available to the firm rather than payout policy. But, in reality and practice, world is not frictionless, trading cost exist in financial markets. In case of stock liquidity, if an investor needs cash he can simply convert the stocks into cash by selling them in markets. Without incurring any cost because markets are frictionless an indication of Miller and Modigliani work is that, else factors remains constant, companies with high stock liquidity pay less dividends. Banerjee et al. (2007) conducted a study by using US sample and concluded that companies with high stock liquidity are less probable to pay cash dividend, consistent with traditional clientele view that stock liquidity and dividend payout are negatively correlated. Though, the argument does not cater informational impact of liquidity on dividends payouts. It is quite evident from previous studies that stock liquidity reduces the information asymmetries between insider management and outsider investors by generating new information in result of trading. Stock liquidity may help well informed parties to camouflage the secret information which is not imitated in price in informed trading model (Kyle, 1984). In this regard when liquidity of stock is high, marginal amount of information is also high (HolmstrÃűm and Tirole, 1993) to earn the trading returns, gamblers will have to serve more time in collecting information.

The informational impact of liquidity perhaps shapes the firm's dividend policy. Easterbrook (1984) and Jensen (1986) are of view that dividend payments decrease the firm's retained earnings. These retained earnings might be used by mangers for their private use or they could use in projects with negative net present values to increase their consumptions which leads to agency problem. Therefore, mangers try to retain as much cash as possible instead of distributing a dividend. This decision also includes a cost and benefit analysis of paying dividend. When markets are less efficient and informational asymmetries prevail in external environment mangers have strong initiatives to retain the cash within company and use this cash for their personal consumption. Because, when environment is opaque insiders are less vulnerable to be detected and they hide the private information (Stiglitz, 2000; Leuz et al., 2003). But, when liquidity is

higher and there is informed trading more information is generated that put a pressure on managers that they could be easily detected now and cannot disguise private information (Li and Zhao, 2008; Petrasek, 2012). Thus, cost of holding cash within company exceeds as compare to its benefit. Further, in this scenario keeping free cash flow within company is riskier as it signals that agent is not working in best interest of principal and agent losses its credibility and reputation (Gomes, 2000). This further increases the cost of financing and results in poor access to external sources of fund due to adverse valuation of company (Gomes, 1996, Gomes, 2000; Kalcheva and Lins, 2007; Karpavicius and Yu, 2015). Hence, cost of retaining earning further increases. As compared to benefit associated with dividend payment that increases with increase in level of stock liquidity thus insiders prefer to distribute dividends instead of retaining cash (La Porta et al., 2000a, and 2000b). Dong, Robinson, and Veld (2003), for example, present survey support that retail investors desire dividends, somewhat because their costs of cashing in dividends are low as compared to trading cost implicated in selling shares. Additionally, Brav, Graham, Harvey, and Michaely (2005) present survey facts that managers are concerned about stock market liquidity when deciding on a dividend payout policy. More accurately, they find that a company may limit repurchases if it feels that repurchases would reduce liquidity below some critical level suggesting a direct association among liquidity and dividends payout. Therefore it is hypothesized as.

Hypothesis 1: There is a significant positive impact of stock liquidity on dividends payout.

2.3 Other independent variables and Hypotheses Development:

A lot of studies have been conducted on determinants of dividend payout policy. Among these firm specific factors firm's size, growth, leverage, profitability and industry type are of main interest. Therefore a detailed review of previous literature is needed.

2.3.1 Corporate Size

The existing literature shows an association of firm's size and dividend payout policy (Al-Shubiri, 2011; Subramaniam et al., 2011; Kim et al., 2013; Baah et al., 2014; Movalia & Vekariya, 2014; Saeed et al., 2014; Kumar & Whaheed, 2015). Larger firms normally pay-more dividends as compared to small scale organizations because large companies have smooth cash flows and few growth opportunities available for expansion. Another reason is that large companies are more noticeable. Hence these companies refrain from retaining cash within company and distribute dividends to signal their company's performance.

Another factor effecting the dividend payout and firm's size is transaction cost. Large firm's have easy access to external finances due to their repute as compared to small firms. There cost of capital is also lower as compared to small firms because fund providers are willing to provide fund to large companies because their risk of default is much less than small firms. Ease to capital markets and lower cost of capital allows large firms to pay more dividends as compared to small firms they also use this divided to mitigate the agency problem. In this regard, Jensen and Meckling (1976) proposed an association among firm's size and agency cost. Ownership of large firms is also not concentrated in few hands this result in increase bargaining power of insiders which may lead firm to agency problem. Sawicki (2009) state, that dividend payments can also serve the purpose of management scrutiny. Therefore it can be hypothesized that.

Hypothesis 2: There is a significant positive impact of firm's size on dividends payout.

2.3.2 Corporate Profitability

It is evident that corporate dividend is paid out of net incomes of profits. Changes in profitability effect the dividend payments. Therefore an association between profits and dividends payouts is predicted. Previous studies also show an association between dividends and profitability (Gill et al., 2010; Al-Shubiri, 2011; Subramaniam et al., 2011, Kim et al., 2013; Salehnezhad, 2013; Movalia & Vekariya, 2014). It is not essential, that firms must pay dividends out of its profits. Fudenberg and Tirole (1995) are of opinion that it is also possible that firms may pay dividend while their performance is not

up-to the mark. Vice-versa managers may restrict the dividend payments when they are making good profits. By doing so, they try to gain the interest of stockholders. There are different proxies available to operationalize the profitability which is as fallow, such as return on equity, net profit, earnings per share, return on assets, and others. Existing literature shows an association between profitability and dividends payout which can be hypothesized as:

Hypothesis 3: There is a significant positive impact of profitability on dividend payout.

2.3.3 Growth

Dividends payout policy is also affected by growth opportunities available to firm. If a company foreseen any potential growth opportunities in future they try to retain the earnings within company. Retained earnings are the most easily available source of financing that's why companies try to finance their growth opportunities with retained earnings. More reliance on internal sources of fund decreases the value of profits to be distributed as dividend and vice versa.

On the other hand, firms with investment opportunities but operating countries having less legal protection to investors may have higher dividends payout. They are inclined to raise their dividend payout in order to develop or maintain their repute and comfort shareholders. The association among dividend payment and company growth has been studied by a number of researchers (see for example: Gill et al., 2010; Al-Shubiri, 2011; Kim et al., 2013; Movalia & Vekariya, 2014; Baah et al., 2014).

Amidu and Abor (2006) examine the determinants of dividend policy in Ghana. The result of the study is that growth is negatively associated with dividends payout. Marfo-Yiadom and Agyei (2011) examined the dividend payout in Ghana for the period of 1999 to 2003. The results of the study are profitability is positively associated with the dividends payout whereas growth is inversely associated with dividends payout. Al-Shubiri (2011) examines the determinants of the dividend payout of companies firms listed on the Amman Stock market for the period of 2005 to 2009. Using Logit and Tobit regression model both. The results of the study show that growth opportunity is negatively related with dividend payout ratios. Alam and Hossain (2012) investigated the

determinants of the dividend payout of companies listed at London stock market. The results of the study show that growth is negatively related with dividend payout ratios. Islam, Aamir, Ahmed and Saeed (2012) studied the determinants of corporate dividend payout of firms in Pakistan stock market for the period of 2004 to 2009. Results indicate that growth is found to have negative association with dividend payout. Empirical literature shows an inverse association between dividends and leverage. Therefore, it is hypothesized that:

Hypothesis 4: There is a significant negative impact of firm's growth on dividend payout

2.3.4 Leverage

A lot of studies have been conducted to study the association of leverage with firm's dividends payout (Asif et al., 2011; Al-Shubiri, 2011; Subramaniam et al., 2011; Utami & Inanga, 2011; Kim et al., 2013; Cheng et al., 2014; Movalia & Vekariya, 2014).

Only two options are available to firms to finance their investments it could be internal source or external source. Dividend payments reduce the amount of retained earnings within the firm hence firms go for external financing and according to pecking order theory mangers prefer debt financing before equity issue. So there is an association between firm leverage and dividend payout policy. But firms also strive for their ideal capital structures so in this regard mangers have to keep a balance between debts to equity ratio while financing the projects from external sources.

Al-Malkawi (2008) studied the determinants of corporate dividend payout in Jordon market which is considered as an emerging market and these results were quite similar to the studies conducted in developed markets the results of the study are leverage is negatively associated with dividends payout. Al-Kuwari (2009) examined the dividend payout determinants of the companies listed in Co-operation Council (GCC) countries, stock market for the period of 1999 to 2003. The results of the study were profitability is positively associated with the dividends payout whereas leverage is inversely associated with dividends payout. Al-Shubiri (2011) investigates the determinants of the dividend payout of companies firms listed on the Amman Stock market for the period of 2005 to

2009. Using Logit and Tobit regression model both. The results of the study show that leverage is negatively related with dividend payout ratios.

Alam and Hossain (2012) investigates the determinants of the dividend payout of companies firms listed London Stock Exchange. The results of the study show that leverage is negatively related with dividend payout ratios. Islam, Aamir, Ahmed and Saeed (2012) studied the determinants of corporate dividend payout of firms in Pakistan stock market for the period of 2004 to 2009. Results indicate leverage is found to have negative association with dividend payout. El-Essa, Hameedat, Altaraireh and Nofal (2012) investigates the determinants of the dividend payout of companies firms listed on the Amman Stock market for the period to 2005 to 2011. They find a positive relationship between dividends and firm size. The study further finds a negative relationship between leverage and dividend payout. Empirical literature shows an inverse association between dividends and leverage. Therefore, it is hypothesized that:

Hypothesis 5: There is a significant negative impact of leverage on dividend payout

2.3.5 Industry

Baker and Wurgler (2004) give behavioral explanation for dividend payout identified as 'Catering theory of dividends', which states that managers accommodate the demands and needs of investors for dividend, rationally and pay dividends when investors demand dividend-paying firms instead of non dividends paying firms. And they prefer to retain dividends when investor does not demand for dividend paying stock. Michel (1979) reveals that dividends are stylized by industry types and mangers are rationally bounded with the dividend policy of their industry type. Hence mangers are influenced by the actions of mangers of competing firms within industry. Managers may tailor the dividend payout policy according to the needs of investors to keep their firm's stock appealing and to keep shareholders pleased.

Type of industry has an impact on firm's dividend policies. Firms operating within an industry normally have similar capital structure or they strive for industry average capital structure. And capital structure is linked with the dividends payout that's why same industry payout pattern are stylized or identical. For example; manufacturing

industries are capital incentive and service industries are labor incentive. Hence more funding is required for manufacturing industries than labor industry. This is the reason service industries pay dividend more often as compared to manufacturing industry. The association among industry type and dividend payout has been empirically examined in a number of studies (Gill et al., 2010; Al Shabibi & Ramesh, 2011, Subramaniam et al., 2011; Sarwar & Naseem, 2014). Previous literature predicts that managers are influenced by the dividends payout of the industry. Therefore, It is maybe hypothesized that:

Hypothesis 6: There is a significant difference in dividend payout across different industries.

Chapter 3

DATA DESCRIPTION AND METHODOLOGY

3.1 Data Description

The current study aims to explore the impact of stock liquidity on corporate dividend payouts, for 100 non-financial companies listed at Pakistan Stock exchange. The sample period is of 11 years from 2005 to 2015. Firms with incomplete financial data are not included in sample because they cannot serve the purpose of study as all proxies cannot be applied on incomplete data. Only non-financial companies are used for analysis because year closing of non-financial companies in 30th June whereas the year closing of financial companies is end of December and dividends are paid at year closing so financial and non financial companies cannot be studied at a same time.

Tests are based on lagged and forward year information. That's why few years'observations are lost in regression. Firms with negative DVE or dividend to earnings ratio are also excluded from study because normally dividends are paid from earnings but in this case firm is paying dividend but not from earnings this is an abnormal behavior and only normal data is included in study and analysis. The study uses the panel data for analysis. Panel data is also known as cross sectional time series, that is resulting from a (typically small) number of observations over time on a (typically large) number of cross sections

like persons, household, companies, or government. In econometrics, panel data includes both the time series and cross sectional data it measures the effect of many cross sections over the time series and is denoted as “it”showing that data has both effect time series as well as cross sections.

3.2 Sources of data

In this study secondary data is used for analysis. Annual data is used for analysis. Stock liquidity is measured by using the daily trading data of stock then it is averaged out to get the annual data starting from July and ending at June. The data of other variables is collected from the annual financial statements of firms. Data is collected from the following sources:

- Pakistan Stock Exchange website, PSX
- Business recorder website
- State bank of Pakistan website
- Websites of companies used in analysis

3.3 Measurement of Variables

3.3.1 Dependent Variable

3.3.1.1 Dividend payouts

Dividends payout is the policy that how dividend will be paid annually. A company will pay cash dividend or not or if dividend is paid then how much dividend will be paid out of net income. To answer these two questions two proxies are used DVP and DVE. First is the DVP which is the propensity to pay dividend it shows that firm has paid dividend in this year or not. DVP is a dummy variable which take the value of one if dividend is paid or otherwise zero when no dividend is paid.

3.3.1.1.1 DVP

A dummy variable it takes the value one if firm pays dividend and zero if dividend is not paid. This proxy is used by Jiang, Ma and Shi (2017).

3.3.1.1.2 DVE

It is the second measure of dividends payout it shows how much dividend is out of the net income. In some studies it is also computed as DPS/EPS dividend per share divided by earning per share to check ratio of cash divided as compared to earnings on each share basis. But in this study cash dividend scaled by earnings is used. It is calculated as total value of annual cash dividend paid divided by annual net income. Allen et al. (2005) measure dividends payout by using this proxy.

$$\textbf{DVE} = \frac{Cash\ Dividend}{Net\ Income} \tag{3.1}$$

3.3.2 Independent variable:

3.3.2.1 Stock liquidity

Stock liquidity is the smooth trading of shares. Stock liquidity is calculated by using three proxies. In this study Amihud (2002), Average value of trading volume and traded volume are used to measure liquidity. These three proxies are measured by using the daily trading data.

3.3.2.1.1 Amihud Illiquidity (2002)

Illiquidity of stock is calculated by using illiquidity measure of Amihud (2002). Amihud (2002) Illiquidity is based on price sensitivity divided by trading volume. Its calculation is; Amihud (2002) defines illiquidity as the average of the absolute daily return to daily dollar trading volume. Amihud (2002) defines illiquidity as the average ratio of absolute daily returns to daily dollar trading volume.

$$\textbf{Amihud Illiquidity } (\textbf{2002}) = \frac{avg\ of\ the\ abs\ daily\ return}{average\ of\ the\ daily\ dollar\ trding\ avolume} \quad (3.2)$$

3.3.2.1.2 Average value of share traded

The second measure of liquidity is average value of shares trading in day i.e. annual average of number of share traded in a given day into MPS on that day. Turnover and trading volumes are mainly used when data is not available for other proxies (Berkman & Eleswarapu, 1998)

$$\textbf{Average value of share traded} = Avg\ value\ of\ share\ trading\ in\ a\ day \times\ MPS \quad (3.3)$$

3.3.2.1.3 Trading volume

Third measure of stock liquidity is yearly average number of share traded, it is the trading volume used by Baruch and Saar (2009).

$$\textbf{Trading Volume} = Avg\ number\ of\ share\ trading\ in\ given\ day \quad (3.4)$$

3.3.3 Other Independent variables:

These firms specific variable are also included in regression analyses. The variables need to control are.

3.3.3.1 Firm Size

It shows the size of firm. The natural log of total asset is used to measure firm size. The proxy is used by (Kumar & Whaheed, 2015).

$$\textbf{Size} = Natural\ log\ of\ total\ assets \quad (3.5)$$

3.3.3.2 Profitability

It shows the profitability of firm. It is computed by return on assets (ROA) as net income divided by total assets. This proxy is also used by (Movalia & Vekariya, 2014).

$$\textbf{Return on assets} = \frac{Net\ Income}{Total\ assets} \tag{3.6}$$

3.3.3.3 Leverage

It is the measure of firm's capital gearing. It is measured by debt ratio which is long term liabilities divided by total asset. The proxy is also used by (Cheng et al., 2014).

$$\textbf{Debt ratio} = \frac{Long\ term\ liabilities}{Total\ assets} \tag{3.7}$$

3.3.3.4 Growth

It shows the firms growth. The proxy for growth is change in sales. This proxy is also used by (Baah et al., 2014). It is calculated by current year sales minus previous year sales divided by previous year sales.

$$\textbf{Growth} = \frac{Current\ yearsales\ -\ previous\ year\ sales}{previous\ year\ sales} \tag{3.8}$$

3.4 Methodology

To check the impact of stock liquidity on dividends payouts policy using the following basic regression models by using panel data.

$$\begin{aligned}\textbf{Payout}_{\textbf{it}} = \alpha_{\text{it}} + \beta_1 Liquidity_{\text{it}} + \beta_2 Size_{\text{it}} + \beta_3 Profitability_{\text{it}} + \beta_4 Leverage_{\text{it}} \\ + \beta_5 Growth_{\text{it}} + indD_{\text{it}} + Ut_{\text{it}}\end{aligned} \tag{3.9}$$

Where,

Payout = dividends payouts

Liquidity = stock liquidity

Size = firm's size

Profitability = profitability and its measure is return on assets

Leverage = leverage or debt ratio

Growth = firm's growth

beta = beta

IndD = Industrial dummy

Ut = error term.

The following regression models are used in study. Three proxies of stock liquidity (amihud illiquidity, average value of shares traded and traded volume) and two proxies of dividend payout (DVP and DVE) are used in this study. From model (1 to 8) dependent variables is DVE and from model (9 to 14), dependent variable is DVP. For the analysis of DVE OLS regression model (OLS) is used whereas for the analysis of DVP logit regression model is used.

The nature of data in this study is panel data set and for the analysis of panel data set OLS models are commonly used that's why from model 1 to 8 OLS model is used. Second dependent variable DVP is a dummy variable and whenever dependent variable is a dummy variable then logit or probit regression models are used for analysis. It does not lay any significant difference in results if logit or probit is used for analysis. Nature of data decides that logit model is preferable or probit model is preferable. Commonly for normal data probit is used and for abnormal data logit is used in this study the value of kurtosis is high than 3 in some variables that's why logit regression model is used. List of these models is given in Appendix-B.

3.5 Robustness tests

This section look at the robustness of results across measures of stock liquidity the predictable direct association among stock liquidity and dividends payout policy outcome

might get driven by our choice of stock liquidity measure. To mitigate this problem, the study considers the following three alternative measures of stock liquidity Amihud illiquidity ratio, Average value of shares traded and Trading Volumes. Further, we use two proxies for dependent variable dividend payouts which are DVE, and DVP to check the robustness of the model.

3.6 Variance inflation factor (VIF) test

If the correlation between independent or predictor variables is very high then the issue of multicollinearity arises and it may affect the regression results because instead of affecting the dependent variables independent variables start effecting each other and overall results get affected. The check the multicollinearity issue VIF variance inflation factor is used. Results of VIF are reported in table 3.

Chapter 4

Results and Discussion

4.1 Descriptive statistics

The descriptive statistics shows the behavior of data. Statistical behavior of data panel data of the independent variables and dependent variables for the period of (2005 to 2015) is presented in Table 1.

Average value of DVP, propensity to pay dividends is 0.68 which means 68 % firms pay dividends. The average of dividend to earnings ratio DVE for the sample firms are mean 38% which means on average firms pays 38% dividend of their earnings (median 21%), Using Dividend to earnings ratio as measure for dividends payout, as Allen et al. (2005) establish, we discover that on average Pakistani companies try to overpay dividend to their stockholders in-comparison with companies in countries studied by Jiang, Ma and Shi (2017). The maximum value of DVE is 19 which mean a firm has paid much more dividend as compared to its earnings. Normally the firms pay a portion of their dividend out of their profit but here this is an unusual trend. The reason for this high value is that a firm Pak Electron in year 2010 made a dividend payment which was much more than its earnings. The reason for this large payment is that this company does not pay dividend every year and in 2010 it paid dividend after many years out of its retained earnings because keeping high value of retained earnings may increase the cost of capital. So when firms have no growth opportunities they pay dividend instead of keeping cash idol. Minimum value of DVE is zero which means firm have not paid

TABLE 4.1: Descriptive Statistics.

	DVE	**DVP**	**ILL**	**VT**	**TV**	**S**	**L**	**P**	**G**
Mean.	0.38	0.68	71.89	45.15	0.423	8.59	0.14	0.09	0.16
Median.	0.21	1.00	2.49	0.661	0.010	8.57	0.09	0.06	0.14
Max.	19.84	1.00	11709.6	4380	30.24	12.83	2.78	1.94	1.72
Min.	0.00	0.00	0.00	0.00	0.00	1.63	0.00	-0.32	-1.00
Std. DEV.	1.09	0.47	590.36	222.0	1.608	1.68	0.20	0.18	0.31
Skew.	13.10	-0.76	14.45	11.04	9.21	-0.16	5.72	5.33	0.61
Kurt.	214.7	1.57	236.67	172.27	135.64	3.440	7.085	42.44	58.9
P. Jar Bera.	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00

Note: This table shows the behavior of data where, DVE and DVP are the dependant variables. DVE is dividends scaled by earnings. DVP is a dummy variable which takes the value one if a firm pays cash dividend and zero if firm does not pay dividends. ILL is the illiquidity measured by the Amihud 2002 illiquidity measure. VT and TV are alternate measures of liquidity. VT average value of shares traded is measured by multiplying the MPS and volume traded and then taking their aver-age. TV traded volume is measured by the simply taking the average of traded volumes. S, P G and L are control variables, where S stands for firm size measure by natural log of assets, G stands for firm growth measure by the change in sales. P stands for profitability of firm measured by the net income divided by total assets. L stands for leverage measured by the fixed liabilities divided by total assets. Total no of observations are 974.

any dividend in this year. Standard deviation shows the deviation from the mean and its value is 1.09. DVE value of skewness is 13.10 in that order, showing that the allocation of dividends payout is skewed to the right.

Three measures of stock liquidity are used in study. The values of Amihud illiquidity, average value of share traded and traded volume are divided by 1 million for the ease of interpretation. Amihud illiquidity is the measure of firm's stock illiquidity which is measured by using the daily data. Highest value of illiquidity represents the lowest value of liquidity or how illiquid a stock is. The average value of illiquidity is 71.86 with a standard deviation of 590.36. It is a normal behavior because few firms are very liquid at a certain time and few firms liquidity is zero when their stock is not traded at any particular day because sometimes the trading volumes of particular days is zero due to no trading in stock market. Highest value of illiquidity is 11709.62. This is the value of Apollo textile mills in 2010. The overall data of illiquidity is also positively skewed.

VT and TV are alternative measures of stock liquidity. The average value of VT and TV is “45.15 and 0.423”with standard deviation of 222.0 and 1.608. Maximum value of VT and TV showing the most liquid stock value is “4380 and 30.24”. Minimum value of VT and TV showing the most illiquid stock is “0.00 and 0.00”. The value of skewness shows the VT and TV are positively skewed. The most liquid stock on the basis of VT was of Pakistan oilfield limited in 2006 and on the basis of traded volume TV it was Pakistan Telecommunication in 2006. These are large scale companies so their liquidity is also high. The most illiquid stock on the basis of VT was of Apollo textile mills in 2012 and on the basis of TV most illiquid stock was of Premium textile mills in 2009.

Firm's size is measured by the natural log of total assets. Its average is 8.59 with standard deviation of 1.68 and it is negatively skewed. Leverage is measured by fixed liabilities divided by total assets. Average of leverage is 0.14 with standard deviation of 0.20. Highest value of leverage was of Kohat Cement Limited in 2011 and minimum value is zero because many companies have no fixed liabilities in many years. The data of leverage is positively skewed. Profitability is measured by the net income divided by total assets. Average value of profitability is 0.09 which means normally companies earn 9% by using its total assets with a standard deviation of 0.18. Minimum profitability is of Kohinoor energy limited in 2003 which is -0.32 and maximum profitability is of Khyber tobacco in 2007 which is 1.94. The data of profitability is also positively skewed. Growth of firm is measured by the change is sales average value of growth is 0.16 with a standard deviation of 0.31. Maximum value of growth is 1.72 which is of Khyber Tobacco Company in 2008 and minimum value of growth is shown by Apollo Textile mill in 2015. The data of skewness is positively skewed. If Kurtosis is around 3 then normal distribution and it is mesokurtic. If kurtosis is greater than 3 then it is leptokurtic and are associated with concurrently “peaked”and fat tail. But when kurtosis < 3 it is platykurtic and are associated with concurrently “less peaked”and have “thinner tail”. The values of Jarque-Bera are significant which shows that data is normally distributed. Total numbers of observations are 974.

4.2 Panel-correlation of Stock market illiquidity and other variables for the period of 2005 to 2015

Correlation shows the association of two variables or direction of variables whether they are positively or negatively associated with each other. It also shows the strength of this association whether it is weak, medium or strong. The correlation matrix of independent and dependent variables for the period of 2005-2015 is presented in the table 2.

TABLE 4.2: Panel-correlation of Stock market illiquidity and other variables for the period of 2005 to 2015

	DVE	**DVP**	**ILL**	**VT**	**TV**	**G**	**S**	**P**	**G**
DVE	1								
DVP	0.474	1							
ILL	-0.078	-0.090	1						
VT	0.102	0.224	0.032	1					
TV	0.020	0.032	0.025	0.897	1				
G	-0.023	-0.013	0.095	0.011	0.016	1			
S	0.038	0.134	0.062	0.621	0.533	-0.003	1		
P	0.025	0.097	-0.173	-0.004	-0.032	0.090	-0.013	1	
L	-0.095	-0.209	0.044	-0.007	0.134	-0.009	0.128	-0.016	1

Note: This table presents the correlation matrix of independent and dependent variables where, DVE and DVP are the dependant variables. DVE is dividends scaled by earnings. DVP is a dummy variable which takes the value one if a firm pays cash dividend and zero if firm does not pay dividends. ILL is the illiquidity measured by the Amihud 2002 illiquidity measure. VT and TV are alternate measures of liquidity. VT average value of shares traded is measured by multiplying the MPS and volume traded and then taking their aver-age. TV traded volume is measured by the simply taking the average of traded volumes. S, P G and L are control variables, where S stands for firm size measure by natural log of assets, G stands for firm growth measure by the change in sales. P stands for profitability of firm measured by the net income divided by total assets. L stands for leverage measured by the fixed liabilities divided by total assets.

Table 2 shows the Pearson correlation between the variables. Not unexpectedly, the two dividends payout proxies (DVE and DVP) show positive correlation of 0.474. The reason for this positive association between DVE and DVP is that these two variables are

the measure of same phenomenon the dividends payout. The negative correlation between illiquidity and dividend payout proxies (-0.078 and 0.090) shows that companies pay more dividends those stock liquidity is high throughout the period of 2005 - 2015. Because the high stock liquidity helps to remove the information asymmetry between insider and outsiders hence insiders cannot hold cash within firm that could be used for their personal use as a result they pay more dividends. The alterative proxies of stock liquidity VT (Average Value of shares traded) and TV (average traded volume) also show the positive association with DVE and DVP which are aligned with the Amihud proxy of illiquidity that stock liquidity and dividends payout are positively associated. Among the liquidity proxies, the VT shows the highest correlation with dividends proxies (0.102 and 0.224). TV shows the weakest correlation with dividend proxies (0.020 and 0.032). These results are consistent with the most recent study of (Jiang, Ma and Shi. 2017).

The growth is weekly negatively associated with dividend proxies DVE and DVP (-0.023 and -0.013). The reason for this negative relationship is that when companies have growth opportunities they tend to retain cash within firm and invest in growth opportunities and refrain from paying cash dividends whereas when companies have no growth opportunities they tend to distribute available free cash flow to the stockholders. There is a negative association between firm's growth and dividend payout (Baah et al., 2014).

Firm's size is also weekly positively associated with DVE and DVP (0.038 and 0.134). It is evident from the previous research that larger companies pay more cash dividend as compared to small companies because they have less growth opportunities and more available free cash flow so they tend to pay more dividends. There is a positive association between firms size and dividend payout (Kumar & Whaheed, 2015).

Firm profitability is also positively associated with the dividend payout proxies DVE and DVP (0.025 and 0.097). Dividend is normally paid out of net income or profits. So, if a firm is earning high profit it has more propensities to pay cash dividend. Al-Najjar and Hussainey (2009) also establish a positive relation among dividends payments and profitability.

Leverage is negatively associated with DVE and DVP (-0.095 and -0.209). It is a normal practice that debt providers put a restriction on the management that they cannot announce dividends until they payback their debt payments. Hence companies with high debt ratios refrain from debt payments and result in negative association between leverage and dividends payment. Kowalewski et al. (2007) also examined the determinants of dividend payout. The findings of study indicated a negative relationship between leverage and firms dividend policy.

The correlation between VT and TV is very high (0.897) because these are the proxies of stock liquidity. And both proxies use the average of volume traded that is why the correlation among these two variables is high. The correlation between size and VT is also high 0.621 and correlation between size and TV is also high 0.533. The correlation between other independent variables is within tolerable limits. Because of this high correlation between independent variables there is a need to run the VIF test (variance inflation factor) in order to check the multicollinearity among variables that these variables can be run together in regression equation or not.

4.3 Multicollinearity check of the independent variables for the period of 2005 to 2015:

If the correlation between independent or predictor variables is very high then the issue of multicollinearity arises. It may affect the regression results because instead of affecting the dependent variables independent variables start affecting each other. So, overall results get affected. The check the multicollinearity issue VIF variance inflation factor is used. The results of VIF test are presented in table 3

When the centered value of VIF is less than 5 there is no concern of multicollinearity. If the centered value is more than 5 there is a problem of multicollinearity that must be resolved before running the regression equation.

In this data, the centered value of VT (average value of shares traded) and TV (traded volume) are more than 5 (6.792 and 5.797) which show the concerns of multicollinearity. The reason for this high value is that these both are the proxies of liquidity and both

TABLE 4.3: Variance Inflation Factors of the Stock liquidity variables and other independent variables for the period of 2005-2015

Variable	**Coefficient**	**Un-centered**	**Centered**
	Variance	VIF	VIF
C	0.01	245.74	NA
ILL	0.00	2.13	1.050
VT	0.00	140.73	6.792
TV	0.00	67.94	5.797
S	0.00	46.60	1.710
G	0.00	29.43	1.022
P	0.01	91.56	1.048
L	0.01	108.30	1.160

Note: This table shows (VIF) Variance Inflation Factors for various independent variables. ILL is the illiquidity measured by the Amihud 2002 illiquidity measure. VT and TV are alternate measures of liquidity. VT average value of shares traded is measured by multiplying the MPS and volume traded and then taking their average. TV traded volume is measured by the simply taking the average of traded volumes. S, P G and L are control variables, where S stands for firm size measure by natural log of assets, G stands for firm growth measure by the change in sales. P stands for profitability of firm measured by the net income divided by total assets. L stands for leverage measured by the fixed liabilities divided by total assets.

use average of volume traded which cause a concern of multicollinearity in data. The solution of this problem is that these variables VT and TV could be used in univariate regression where they are regressed independently. They cannot be run together in multivariate regression because of multicollinearity issue.

The centered value of illiquidity, growth, profitability and leverage are less than 5 which means there are no concerns of multicollinearity in the data. These variables can be regress simultaneously. The centered value of illiquidity is 1.051 and centered value of size is 1.710. Whereas, the centered value of growth is 1.022, centered value of profitability is 1.049 and of leverage is 1.161.

4.4 OLS regression with random effect model showing the impact of Stock liquidity variables and other independent variables on DVE (Dividend payout) for the period 2005-2015.

The results of random effect model for the impact of stock liquidity and other variables on DVE (dividends scaled by earnings) are presented in table 4.

To select between common and fixed effect model likelihood test is used. In our result value of chi-square is significant which shows that between common and fixed model fixed model is appropriate. Houseman test is used to select the model between fixed or random effect models. The value of cross-section random is insignificant which mean that random effect model is most appropriate for this equation. Results of likelihood and houseman test are reported in appendix E.

In equation 1, control variables are regress to check their significance on DVE (dividend scaled by earning). Then by using the general to specific approach each variable of stock liquidity is added with significant control variable to check the impact of stock liquidity variables on DVE. In equation 2, illiquidity is added with control variables. In Equation 3, VT is added with control variables and then in equation 4 TV is run with control variable. In equation 5 and 6 combine effect of stock liquidity variables and significant control variables is studied. The VT and TV are highly correlated that's why they are regressed in two equations separately. The results for models 1 to 6 are presented in table 4; the list of econometric models is given in appendix-B:

In case of OLS regression, results of model 1 to model 6 report R-square between 0.009 to 0.025 approximately. These R squares specify that stock liquidity variables have less explanatory power of the models. This is because in these models variables are run separately along with only one significant control variable of leverage. Value of R-square is high in model 5. So, model 5 is the most suitable model among mode 1 to 6. It shows VT is the most suitable proxy for dividends payout. In model 1 to 6 industry effects is not included then to check the industry effect model 7 and 8 are regressed

along with industry dummy to check the industry affect. Furthermore, goodness of fit statistics is statistically sig demonstrating that model is correctly specified.

TABLE 4.4: OLS regression with random effect model showing the impact of Stock liquidity variables and other independent variables on DVE (dividend ratio) for the period 2005-2015.

Variables	**1**	**2**	**3**	**4**	**5**	**6**
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
C	0.969	1.010	0.918	0.990	0.930	1.001
Prob.	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
ILL		-0.009			-0.009	-0.009
Prob.		(0.033)**			(0.031)**	(0.032)**
VT			0.006		0.006	
Prob.			(0.039)**		(0.039)**	
TV				0.001		0.001
Prob.				(0.708)		(0.684)
S	0.007					
Prob.	(0.181)					
P	-0.007					
Prob.	(0.928)					
G	-0.026					
Prob.	(0.535)					
L	-0.229	-0.211	-0.214	-0.229	-0.209	-0.215
Prob.	(0.025)**	(0.034)**	(0.031)**	(0.029)**	(0.035)**	(0.0324)**
R-square	0.011	0.014	0.019	0.009	0.025	0.015
F-stat	1.728	4.646	4.523	2.415	4.572	3.148
F-Sig	(0.141)	(0.009)	(0.011)	(0.089)	(0.003)	(0.024)

Note: This table shows the OLS regression of least square. Further * denotes significance at 10% level, ** denotes confidence at 5% level and *** denotes significance at 1% level. ILL is the illiquidity measured by the Amihud 2002 illiquidity measure. VT and TV are alternate measures of liquidity. VT average value of shares traded is measured by multiplying the MPS and volume traded and then taking their average. TV traded volume is measured by the simply taking the average of traded volumes. S, P G and L are control variables, where S stands for firm size measure by natural log of assets, G stands for firm growth measure by the change in sales. P stands for profitability of firm measured by the net income divided by total assets. L stands for leverage measured by the fixed liabilities divided by total assets.

In model 1 profitability, size, and growth are insignificant whereas the leverage is significant at 95%. The coefficient of leverage is negatively associated with DVE -0.209 to -0.229 from model 1 to 6 significant at 99% confidence interval which shows if there is one unit increase in leverage the dividend payment will reduce by 0.229 units. The results are consistent with previous studies and economically viable because creditors may put any restriction on dividends payout to secure their interest payment. Another reason for this relationship is that when companies have high debt levels they have to pay more interest payment which reduce the free cash available to the firm hence companies refrain from paying the cash dividend. Kowalewski et al. (2007) also examined the determinants of dividend payout. The findings of study indicated a negative relationship between leverage and firms dividend policy.

The co-efficient of illiquidity is negatively associated with DVE -0.009 significant at 95% confidence interval in model 2, 5 and 6 which means one unit increase in stock liquidity will cause a 0.009 unit increase in dividends payout. The co-efficient of VT (average value of shares traded) is also positively linked with DVE 0.006 in model 3 and 5 significant at 95% confidence interval. It means one unit increase in volume traded will cause an appreciation in dividends payment by 0.006 units. TV (traded volume) the third proxy of stock liquidity is insignificant because it is considered as a weak proxy of stock liquidity as it only capture the affect of volume traded and does not capture the MPS in computation. It is noted practically trading volume failed to capture the trading cost and price impact per trade, especially in the times of financial crisis and market volatility. Historically, it was observed that in the crisis period of Asian flu in 1997, Argentine turmoil in 1999 and credit risk in financial markets in 2008 the trading volumes were high but in actual stock liquidity was low. These results are consistent with previous studies like of Jiang, Ma and Shi (2017) they establish a positive association among stock liquidity and dividend payouts. Because when liquidity is higher and there is informed trading more information is generated that put a pressure on managers that they could be easily detected now and cannot disguise private information (Li and Zhao, 2008; Petrasek, 2012). Hence, cost of retaining earning which could be used for personal use is higher that benefits of distributing cash dividends as a result mangers prefer to pay cash dividend (La Porta et al., 2000a, and 2000b).

4.5 OLS regression with fixed effect model Sugar industry as base for the period 2005-2015.

The results of fixed effect model showing the impact of stock liquidity and leverage on DVE (dividends scaled by earnings) with sugar industry as base are presented in table 4. In model 7 leverage, illiquidity and VT is regress with 17 industries where sugar industry is taken as base industry whereas in model 8, leverage, illiquidity and TV are regressed along with 17 industries to check the industry effect. The results for model 7 to 8 are presented in table 5, the list of econometric models used are given in appendix-B:

In case of fixed effect model, result of model 7 and model 8 reports R square in the region of "0.084 to 0.081". These R squares point out that stock liquidity variables have significant explanatory power of the models which is around 8%. This shows that dividends payout is 8% explained by these variables and 92% explained by other variables which are not included in model. The value of Schwarz criterion in model 7 and model 8 are "-280 and -277". The lowest value is in model 7 which means it is a better model in comparison with model 8. In model 7 VT is regressed along with other variables whereas in model 8 TV is used instead of VT. It shows that VT is a better measure as compared to TV. Furthermore, goodness of fit statistics is statistically sig demonstrating that model is correctly specified.

TABLE 4.5: OLS regression with fixed effect model Sugar industry as base showing impact of Stock liquidity & leverage on DVE for the period 2005-2015

	7		**8**	
Variable	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
C	0.815	0.000***	0.870	0.000***
ILL	-0.011	0.005***	-0.011	0.005***
VT	0.005	0.069*		
TV			0.000	0.964
L	-0.087	0.339	-0.088	0.340
Chemicals	0.044	0.098*	0.052	0.048**
Spinning	0.024	0.310	0.022	0.341
Motor Vehicles	0.086	0.004***	0.097	0.001***
Petroleum Prod	0.041	0.263	0.068	0.052**
Misc Sector	0.009	0.888	0.016	0.805
Other textiles.	-0.053	0.419	-0.050	0.443
Energy Sector	0.151	0.000***	0.167	0.000***
Cement	-0.030	0.345	-0.015	0.630
Food products	0.108	0.000***	0.110	0.000***
Manufacturing	0.078	0.006***	0.083	0.004***
Made-up textile	-0.064	0.331	-0.063	0.335
Paper Products	0.011	0.785	0.017	0.680
Machinery & Appar	0.165	0.003***	0.179	0.001***
Info and Comm Services	0.048	0.203	0.062	0.097*
Other Services	-0.072	0.272	-0.077	0.248
Mineral products	-0.057	0.256	-0.055	0.280
R-square	0.084		0.081	
F-stat	4.592		4.402	
F-Sig	0.000		0.000	
Schwarz Crit.	-0.280		-0.277	

Note: 1) This table shows the regression of least square by using the fixed effect model. Further * denotes significance at 10% level, ** denotes confidence at 5% level and *** denotes significance at 1% level. 2) Variables description is as same as used in table 4. 3) Sugar industry is used as a reference industry. Chemicals is chemical industry, Spinning is Spinning Weaving Finishing of Textiles industry, Motor Vehicles is Motor Vehicles Trailers & Autoparts Industry, Petroleum Prod is Coke and Refined Petroleum Products Industry, Misc Sector is Miscellaneous Sector Industry, Other textiles is Other textiles n.e.s Industry, Energy Sector is Fuel and Energy Sector Industry, Cement is Cement Industry, Food products is Food products Industry, Manufacturing is Manufacturing Industry, Made-up textile is Made-up textile Industry, Paper Products is Paper, Paperboard and Products Industry, Machinery & Appar is Electrical Machinery and Apparatus Industry, Info and Comm Services is Information and Communication Services Industry, Other Services is Other Services Activities Industry, Mineral products is Mineral products Industry.

The table above presents the results of fixed effect model. The co-efficient of illiquidity

is negatively associated with DVE "-0.011"significant at 99% confidence interval in model 7, 8 which means one unit increase in stock liquidity will cause a 0.011 unit increase in dividends payout. The co-efficient of VT (average value of shares traded) is also positively linked with DVE "0.005"in model 7 significant at 90% confidence interval. It means one unit increase in volume traded will cause an appreciation in dividends payment by 0.005 units. TV (traded volume) the third proxy of stock liquidity is insignificant in model 8. Because it is considered as a weak proxy of stock liquidity as it only capture the affect of volume traded and does not capture the MPS in computation. It is noted practically trading volume failed to capture the trading cost and price impact per trade, especially in the times of financial crisis and market volatility. Historically, it was observed that in the crisis period of Asian flu in 1997, Argentine turmoil in 1999 and credit risk in financial markets in 2008 the trading volumes were high but in actual stock liquidity was low. These results are consistent with previous studies like of Jiang, Ma and Shi (2017) they establish a positive association among stock liquidity and dividend payouts.

The table above presents the results of fixed effect model. Sugar industry is taken as reference industry. The value of intercept is significant in model 7 and 8 which shows there is an industry effect in dividends payout. These results are consistent with previous studies like of Jiang, Ma and Shi (2017) they found an industry affect in dividend payouts. Chemicals industry, motor vehicles industry, Energy sector Industry, food industry, manufacturing industries and machinery industry have a significant intercept. Other industries have insignificant intercept. Intercept of chemicals industry is 0.044 and 0.056 in model 7 and model 8. The intercept of motor vehicles is 0.086 and 0.097. Intercept of energy sector is 0.151 and 0.167. Intercept of food industry is 0.108 and 0.110. Intercept of manufacturing industry is 0.078 and 0.083. Machinery and apparatus industry has intercept value of 0.165 and 0.179.

4.6 OLS regression with fixed effect model Sugar Industry as base showing impact of stock liquidity and leaverage on DVE (Dividend Ratio) for the period 2005 - 2015

TABLE 4.6: OLS Regression with fixed effect model SugarIndustry as base showing impact of stock liquidity and leaverage on DVE (Dividend Ratio) for the period 2005 - 2015

	9		10	
Variable	Coefficient	Prob.	Coefficient	Prob.
C	0.870256	0	0.947448	0
ILL	-0.010704***	0.0059	-0.010594***	0.0066
VT	0.001606	0.6104		
TV			-0.005079	0.1638
L	-0.109213	0.2273	-0.126185	0.1671
Chemicals	0.003276	0.1074	0.005209*	0.0672
Spinnig	0.001289	0.5032	0.002211	0.416
Motor Vehicles	0.006225***	0.0052	0.009457***	0.0029
Petroleum Prod	0.003152	0.1733	0.006696**	0.0344
Misc Sector	0.00078	0.873	-0.00056	0.9511
Other textiles	-0.004121	0.4242	-0.005127	0.4706
Energy Sector	0.009326***	0.0001	0.01394***	0
Cement	0.000913	0.6861	0.000842	0.7803
Food Products	0.008324***	0.0007	0.012539***	0.0028
Manufacturing	0.006102***	0.006	0.009254***	0.0035
Made-up textile	0.004122	0.4315	-0.004805	0.5145
Paper Products	0.001109	0.7211	0.001947	0.665
Machinery & Appar	0.00984***	0.0077	0.01423	0.005
Info and Comm Services	0.003903	0.131	0.006948**	0.042
Other Services	-0.006687	0.2527	-0.015824	0.1661
Mineral Products	-0.004376	0.2662	-0.004626	0.6392
R-squared	0.077967		0.068962	
F-statistic	4.245811		3.719101	
Prob(F-statistic)	0		0	
Schwartz criterion	-0.274126		-0.264407	

The table above shows the industry pattern of dividends payment in the nexus of stock liquidity impact on dividends payout. The model 7 and 8 shows the dividends pattern of

industries but they are not capturing the dividend pattern of industries in the framework of stock liquidity. To capture this effect in the model 9 and 10 industry is multiplied by the proxies of liquidity. In model 9 industries are multiplied by VT. In model 10 industries are multiplies by TV. The value of constant is significant in both models which show there is an industry effect. Whereas the industries chemicals, motor vehicles, petroleum, energy sector, food products, manufacturing, machinery info and communication services have significant positive value which means these industries pays more dividends as compared to sugar industry. The R-square is 8 percent in model 9 and 7 percent in model 10. The value of Schwarz criterion is less in model 9 which shows predictive power of model 9 is better than model 10. The value of F-stat is significant which shows overall model is correctly specified.

4.7 Logit regression model showing the impact of Stock liquidity variables and other independent variables on DVP for the period 2005-2015.

The results of logit regression model showing the impact of stock liquidity and other variables on DVP (propensity to pay dividend) are presented in table 4.7.

Linear probability models (LPM) are used whenever the dependent variable is a dummy or dichotomous meaning it has only two possible answers yes or no or 1 or zero. The two main types of LPM are Probit or logit. To select between these two models distribution of data plays an important part. If data is normally distributed it is more preferable to use probit model and if data is not normally distributed logit model is preferable. But both models give almost same results whether logit or probit is used. In this study the DVP is a dummy variable which takes the value of one if the firm has paid cash dividend in a year and it takes the value of zero if firm has not paid any cash dividend. In this study the value of kurtosis is high than 3 in many variables due to this reason the logit regression model of linear probability has been used.

The results for model 11 to 16 are presented in table 4.7; list of econometric models used is given in appendix-B:

In case of logit regression model, result of model 11 to model 16 report R square between ”0.072 to 0.095” approximately. These R squares point out that stock liquidity variables have significant explanatory power of the models which is around 8%. This shows that dividends payout is 8% explained by these variables and 92% explained by other variables which are not included in model.

TABLE 4.7: Logit regression model showing the impact of Stock liquidity variables and other independent variables on DVP (Dividend payout) for the period 2005-2015

Variable	**11**	**12**	**13**	**14**	**15**	**16**
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
C	2.026	2.379	0.825	2.068	1.208	2.422
Prob.	(0.124)	(0.070)*	(0.537)	(0.118)	(0.362)	(0.065)*
ILL		-0.084			-0.088	-0.0855
Prob.		(0.048)**			(0.043)**	(0.045)**
VT			0.148		0.149	
Prob.			(0.000)***		(0.000)***	
TV				-0.029		-0.030
Prob.				(0.340)		(0.320)
S	0.249	0.254	0.082	0.274	0.087	0.280
Prob.	(0.000)***	(0.000)***	(0.150)	(0.000)***	(0.130)	(0.000)***
P	4.364	3.775	4.274	4.373	3.649	3.784
Prob.	(0.001)***	(0.005)***	(0.002)***	(0.001)***	(0.007)***	(0.005)***
G	-0.913	-0.794	-0.906	-0.913	-0.786	-0.793
Prob.	(0.077)***	(0.126)	(0.080)*	(0.077)***	(0.131)	(0.127)
L	-7.753	-7.629	-6.824	-7.748	-6.709	-7.622
Prob.	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
R-square	0.072	0.076	0.091	0.073	0.095	0.076
F-stat	88.703	92.600	111.847	89.616	115.930	93.953
F-Sig	0.000	0.000	0.000	0.000	0.000	0.000
Schwarz Crit.	1.203	1.206	1.186	1.209	1.189	1.212
Total Obs.	974	974	974	974	974	974
Obs dep= 0	315	315	315	315	315	315
Obs dep= 1	659	659	659	659	659	659

Note: This table shows the logit regression. Further * denotes significance at 10% level, ** denotes confidence at 5% level and *** denotes significance at 1% level. ILL is the illiquidity measured by the Amihud 2002 illiquidity measure. VT and TV are alternate measures of liquidity. VT average value of shares traded is measured by multiplying the MPS and volume traded and then taking their average. TV traded volume is measured by the simply taking the average of traded volumes. S, P G and L are control variables, where S stands for firm size measure by natural log of assets, G stands for firm growth measure by the change in sales. P stands for profitability of firm measured by the net income divided by total assets. L stands for leverage measured by the fixed liabilities divided by total assets.

In model 11 all control variables are regress to check their impact on DVP. All control variables size, profitability, growth and leverage are found significant then each variable of stock liquidity is regress along with control variables to check the impact of stock liquidity variables on DVP. Then all variables are regressed simultaneously to

study the combine affect of model. The correlation between VT and size is strong but after running the VIF (variance inflation factor) it is found that there is no concern of multicollinearity and these two variables can be regressed together. The centered value of VIF test for these two variables is less than 5. The coefficient of size is positively associated with DVP and significant at 99% confidence interval in all models except model 13 and 15. The coefficient of size is around ”0.274” in table 4.7. It shows larger firms tend to pay dividend. In model 13 and 15 size is found insignificant the reason for this insignificant relationship is that in these two models size is regress with VT and size has high correlation of ”0.621” with VT and this strong correlation between these two independent variables is affecting the results of size in model 13 and 15. It is quite evident from the previous studies that large companies pay more dividends as compared to small companies because they have less growth opportunities and more free cash flow available so these large companies pay more cash dividend as compared to small companies. There is a positive association between firms size and dividend payout (Kumar & Whaheed, 2015).

The coefficient of profitability is around “4.274”in all models from 11 to 16 significant at 99% confidence interval. It shows profitable firms pay dividend. The reason for this positive relationship is that dividend is normally paid out of profits and if firm is making high profit it will distribute more cash dividend because it has more cash available. Aivazian et al. (2003a), Al-Najjar and Hussainey (2009) also establish a positive relation among dividends payments and profitability.

The coefficient of growth is around ”-0.913” in model 11, 13 and 14 significant at 90% confidence interval. It shows growth firms refrain from paying cash dividends. The reason for this negative association is that when firms have growth opportunities they invest in growth opportunities instead of paying the cash dividends that will further contribute in firm's growth. And vice versa if firm have no growth opportunity they will refrain from keeping the cash idol and will distribute the available cash in the form of cash dividend. There is a negative association between firm's growth and dividend payout (Baah et al., 2014).

The coefficient of leverage is negatively associated with DVP “-6.7 to -7.7”from model 11 to 16 significant at 99% confidence interval which shows highly levered firms does

not pay cash dividend. The results are consistent with previous studies and economically viable because creditors may put any restriction on dividends payout to secure their interest payment. Another reason for this relationship is that when companies have high debt levels they have to pay more interest payment which reduce the free cash available to the firm hence companies refrain from paying the cash dividend. Kowalewski et al. (2007) also examined the determinants of dividend payout. The findings of study indicated a negative relationship between leverage and firms dividend policy.

The co-efficient of illiquidity is negatively associated with DVP "-0.084 to -0.088" significant at 95% confidence interval in model 12, 15 and 16 which means illiquid firms do not pay cash dividends. The co-efficient of VT (average value of shares traded) is also positively linked with DVP "0.148 to 0.0149"in model 13 and 15 significant at 99% confidence interval. It means liquid firms pay cash dividends. TV (traded volume) the third proxy of stock liquidity is insignificant because it is considered as a weak proxy of stock liquidity as it only capture the affect of volume traded and does not capture the MPS in computation. It is noted practically trading volume failed to capture the trading cost and price impact per trade, especially in the times of financial crisis and market volatility. Historically, it was observed that in the crisis period of Asian flu in 1997, Argentine turmoil in 1999 and credit risk in financial markets in 2008 the trading volumes were high but in actual stock liquidity was low. These results are consistent with previous studies like of Jiang, Ma and Shi (2017) they establish a positive association among stock liquidity and dividend payouts. Because when liquidity is higher and there is informed trading more information is generated that put a pressure on managers that they could be easily detected now and cannot disguise private information (Li and Zhao, 2008; Petrasek, 2012). Hence, cost of retaining earning which could be used for personal use is higher that benefits of distributing cash dividends as a result mangers prefer to pay cash dividend (La Porta et al., 2000a, and 2000b).

Value of Schwarz criterion in model 11 is "1.203" in model 12 it is "1.206" in model 13 it is "1.186" in model 14 it is "1.209" in model 15 it is "1.189" and in model 16 it is "1.212". The lowest value of Schwarz criterion is in model 13 so model 13 is the best model among competing models in logistic regression. In model 13 VT is regressed along with control variables, so VT is most suitable proxy for stock liquidity in logistic

regression model. The Total numbers of observations are 974, of which 659 are paying dividend and in 315 observations dividend is not paid. Furthermore, goodness of fit statistics is statistically sig demonstrating that model is correctly specified.

Chapter 5

Conclusion and Implications

5.1 Conclusion

The first purpose of study is to examine the impact of stock liquidity on dividends payout using a sample of 100 firms listed at Pakistan stock market for the period of 2005 to 2015. For this purpose two regression models OLS regression model and logistic regression model are used. Three proxies of stock liquidity (amihud illiquidity measure, average value of share traded and traded volume) and two proxies of dividends payout (DVP and DVE) are used. The results of the study indicate a positive significant relationship between stock liquidity and dividend payout. Companies with higher stock liquidity have elevated dividends payment, and higher tendency to pay dividend, than firms with lower stock liquidity. It is quite evident from previous studies that stock liquidity reduces the information asymmetries between insider management and outsider investors by generation new information in result of trading. When stock liquidity is high the outsiders or investors have more information regarding the company's operations and financial position as compared to the situation when liquidity is low. Because when trading volumes are high then financial markets will be more informed. This informed trading will help to reduce the information asymmetries between the insiders and outsiders. When outsiders will be informed about company's financial position it will be less likely and difficult for the insiders to retain the cash for their personal use because they cannot hide the true picture of financial position from outsiders and shareholders.

This will eventually put a pressure on insiders to declare the dividends. Vice-versa when liquidity will be low there will be more information asymmetry among insiders and outsiders. So insiders will try to retain the cash within company instead of distributing as dividend which they will use for their personal use. Thus there is a positive relationship among stock liquidity and dividends payout. This relationship is consistent with agency cost theory which states that when information asymmetry is less between the insiders and outsiders, the insider has fewer chances to expropriate the shareholders and they have to conform in the best interest of shareholder. These results are consistent with the prior studies like Deshmukh (2003, 2005) and Li and Zhao (2008); they establish a negative association between asymmetric information and dividend payout. It means when firms are subject to less information asymmetry they distribute more dividends. Vice-versa when firms are subject to high level of information asymmetry they try to underpay the dividends and retain the earnings within firm. Deshmukh (2003, 2005) asserts that the relationship among dividend policy and information asymmetry is consistent with pecking order theory and not consistent with signalling theory. Results are consistent with the previous studies like Jiang, Ma and Shi (2017) also found a positive relationship between stock liquidity and dividends payout. These results are robust in nature as two proxies amihud illiquidity and VT (average value of shares traded) predict the same relationship. Whereas only TV (traded volume) is found insignificant, because it is considered as a weak proxy of stock liquidity as it only capture the affect of volume traded and does not capture the MPS in computation. It is noted practically trading volume failed to capture the trading cost and price impact per trade, especially in the times of financial crisis and market volatility. Historically, it was observed that in the crisis period of Asian flu in 1997, Argentine turmoil in 1999 and credit risk in financial markets in 2008 the trading volumes were high but in actual stock liquidity was low.

The second purpose of study is to check the relationship between firm's size and dividend payout. There is positive relationship between firm's size and growth. It is quite evident from the previous studies that large companies pay more dividends as compared to small companies because they have less growth opportunities and more free cash flow available so these large companies pay more cash dividend as compared to small companies. There is a positive association between firms size and dividend payout (Kumar

& Whaheed, 2015).

The third purpose of examine the relationship between firms profitability and dividends payout. Profitability is positively linked with dividends payouts companies normally pay dividend out of their profits so if company is making good profit it will give more dividend to its shareholders. When company will be making less profit it will have less cash flow available so it will refrain from paying dividends. These results are aligned with previous researches Aivazian et al. (2003a), and Al-Najjar and Hussainey (2009), also studied the association between profitability and dividend payout. They concluded that profitable firms are more likely to pay dividends as compared to less profitable firms. Further, these studies show a significant and positive relationship between profitability.

The fourth purpose of the study is to examine the relationship between firm's growth and dividends payout. There is a negative relationship found between firm's growth and dividends payout. The reason for this negative association is that when firms have growth opportunities they invest in growth opportunities instead of paying the cash dividends that will further contribute in firm's growth. And vice versa if firm have no growth opportunity they will refrain from keeping the cash idol and will distribute the available cash in the form of cash dividend. There is a negative association between firm's growth and dividend payout. Islam, Aamir, Ahmed and Saeed (2012) results also indicate that growth is found to have negative association with dividend payout.

The fifth purpose of the study is to examine the relationship between leverage and dividends payout. It is found that leverage and dividend payouts are negatively associated because normally debtors put restrictions on firm to secure their loans and firms that cannot pay dividends as long as they repay the debt to their debtor. Kowalewski et al. (2007) examined the determinants of dividend payout. The findings of study indicated a negative relationship between leverage and firms dividend policy. Sixth purpose of the study is to validate the association of dividends payout with industry type. Sugar industry is taken as reference industry. The value of intercept is significant in model 7 and 8 which shows there is an industry effect in dividends payout. These results are consistent with previous studies like of Jiang, Ma and Shi (2017) they found an industry affect in dividend payouts. Chemicals industry, motor vehicles industry, Energy sector Industry,

food industry, manufacturing industries and machinery industry have a significant intercept. Other industries shave insignificant intercept. Intercept of chemicals industry is 0.044 and 0.056 in model 7 and model 8. The intercept of motor vehicles is 0.086 and 0.097. Intercept of energy sector is 0.151 and 0.167. Intercept of food industry is 0.108 and 0.110. Intercept of manufacturing industry is 0.078 and 0.083. Machinery and apparatus industry has intercept value of 0.165 and 0.179.

The seventh purpose of the study was to check the best model among OLS regression model and logistic regression model. It is concluded that logistic regression model explain the dividends payout phenomenon much better than simple OLS regression model. In OLS regression only leverage, amihud illiquidity measure and VT are found significant. Whereas in logistic regression model all control variables size, growth, profitability and leverage are found significant and variables of stock liquidity amihud illiquidity measure and VT are also found significant only TV is found insignificant. The value of R-square is also high in logistic regression model as compared to OLS regression model.

R squares of study lie between "0.072 to 0.095"approximately. These R squares indicate that stock liquidity variables have significant explanatory power of the models which is around 8%. This shows that dividends payout is 8% explained by these variables and 92% explained by other variables which are not included in model. Total numbers of observations are 974, of which 659 are paying dividend and in 315 observations dividend is not paid. Furthermore, goodness of fit statistics is statistically sig demonstrating that model is correctly specified.

5.2 Implications of study

This study focuses on the determinants of dividends payout in broad and impact of stock liquidity on dividends payout in precise. Hence it will help to better understand and conclude the association among stock liquidity and dividends payout. As well as how firm specific factors like size, leverage, growth and profitability are impacting dividends payouts. The results of the study indicate a significant positive relationship between stock liquidity and dividends payout. Study will be helpful for managers to better understand

the association among stock liquidity and dividend policies and if stock is more liquid mangers shall strive to pay more cash dividend. The firm specific factors like size, leverage, growth and leverage are found significant. It implies that these factors must be considered by managers when devising dividends payout. Individual investors will also be able to forecast the future dividend payout by simply looking into liquidity of stock. According to this study if stock liquidity is high then there is higher propensity of firm to pay cash dividend. Few studies have been conducted on the contextual setting of Pakistan; no such study according to best of my knowledge has been conducted to check the robustness of different proxies. Black (1976) stated that dividend policy varies from country to country. This study will be helpful for researchers and practitioners working in Pakistan.

5.3 Directions of the future research

The study may propose the following future directions.

- The corporate board independence may also have an impact on dividends payout it could be included in the future study.
- Percentage of shares holding may also affect dividends payout so it should be include in study.
- Availability of free cash flow may also affect the dividends payout it can also be included in the study.
- This study is only limited to non-financial companies; pattern of financial firms shall also be studied.

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Appendices

Appendix A
Description of variables

Serial Number	Variables	Definition
1	DVE	It is a measure of dividends payout. It is measured by cash dividend by net income. It is used by (Jiang, Ma and Shi 2017).
2	DVP	It is a dummy variable which shows the propensity to pay dividend. It takes the value of 1 if firm pays dividend and otherwise zero if firm does not pay cash dividend. Allen et al. (2005) measure dividends payout by using this proxy.
3	Amihud 2002 Illiquidity ratio.	It is the measure of illiquidity. Its calculation is; as the average of the absolute daily return to daily dollar trading volume. This proxy is used introduced by (Amihud 2002)
4	Average value of share traded	It is the measure of stock liquidity. It is computed as Average value of share traded * Market price of share. Turnover and trading volumes are mainly used when data is not available for other proxies (Berkman & Eleswarapu, 1998).
5	Traded volume	It is the second measure of stock liquidity. It is computed as taking Average of volume traded. Turnover and trading volumes are mainly used when data is not available for other proxies (Berkman & Eleswarapu, 1998).
6	Leverage	It is the measure of firm's capital gearing. It is measured as total liabilities divided by total asset. The proxy is also used by (Cheng et al., 2014).
7	Growth	It shows the firms growth. The proxy for growth is change in sales. This proxy is also used by (Baah et al., 2014).
8	Size	It shows the size of firm. The natural log of total asset is used to measure firm size. The proxy is used by (Kumar & Whaheed, 2015)

9	Profitability	It shows the profitability of firm. It is computed by return on assets (ROA) as net income divided by total assets. This proxy is also used by (Movalia & Vekariya, 2014)
10	IndD	It is the industry dummy which is used to check the industry impact in dividends payout.

Appendix B
Econometric Models used in study

Model : 1 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Size}_{it} + \beta_2 \text{Profitability}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \text{Ut}_{it}$
Model : 2 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \text{Ut}_{it}$
Model : 3 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{VT}_{it} + \text{Ut}_{it}$
Model : 4 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{TV}_{it} + \text{Ut}_{it}$
Model : 5 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{III}_{it} + \beta_3 \text{VT}_{it}\ \text{Ut}_{it}$
Model : 6 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \beta_3 \text{TV}_{it} + \text{Ut}_{it}$
Model : 7 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \beta_3 \text{VT}_{it} + indD_{it} + \text{Ut}_{it}$
Model : 8 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \beta_3 \text{TV}_{it} + indD_{it} + \text{Ut}_{it}$
Model : 9 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \beta_3 \text{VT}_{it} + indD_{it} \times \text{VT} + \text{Ut}_{it}$
Model : 10 $\mathbf{DVE_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Ill}_{it} + \beta_3 \text{TV}_{it} + indD_{it} \times \text{TV} + \text{Ut}_{it}$
Model : 11 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \text{Ut}_{it}$
Model : 12 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Ill}_{it} + \text{Ut}_{it}$
Model : 13 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Size}_{it} + \beta_2 \text{Profitability}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{VT}_{it} + \text{Ut}_{it}$
Model : 14 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Size}_{it} + \beta_2 \text{Leverage}_{it} + \beta_3 \text{Profitability}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{TV}_{it} + \text{Ut}_{it}$
Model : 15 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Ill}_{it} + \beta_6 \text{VT}_{it} + \text{Ut}_{it}$
Model : 16 $\mathbf{DVP_{it}} = \alpha_{it} + \beta_1 \text{Leverage}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Profitability}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Ill}_{it} + \beta_6 \text{TV}_{it} + \text{Ut}_{it}$

Appendix C
List of Industries

Serial No.	**Names**
1	Sugar
2	Chemicals, Chemical Products and Pharmaceuticals
3	Spinning, Weaving, Finishing of Textiles
4	Motor Vehicles, Trailers & Autoparts
5	Coke and Refined Petroleum Products
6	Miscellaneous Sector
7	Other textiles n.e.s.
8	Fuel and Energy Sector
9	Cement
10	Food products
11	Manufacturing
12	Made-up textile
13	Paper, Paperboard and Products
14	Electrical Machinery and Apparatus
15	Information and Communication Services
16	Other Services Activities
17	Mineral products

Appendix D
List of Companies

Sr. No.	Names	Sr. No.	Names
1	AL- Abbas Sugar Mills Limited.	26	Faran Sugar Mills Ltd.
2	Abbot Laboatories (Pakistan) Ltd.	27	Fazal Cloth Mills Ltd.
3	Adam Sugar Mill Limited	28	Gadoon Textile Mill Ltd.
4	Artistic Denim Mill Ltd.	29	Gul Ahmed Textile Mills Limited
5	Agriauto Industries Limited	30	Ghani Glass Mills Limited
6	AL-Ghazi Tractors Ltd.	31	Ghandhara Nissan Limited
7	Al-Noor Sugar Mills Ltd.	32	Gillette Pakistan Limited
8	Apollo Textile Mills Ltd.	33	The General Tyre & Rubber Company
9	Atlas Battery Limited	34	Gharibwal Cement Limited
10	Atlas Honda Limited	35	Habib Sugar Mills Ltd.
11	Attock Refinery Ltd.	36	Highnoon Laboratories Limited
12	Bata Pakistan Ltd.	37	Hub Power Company Limited
13	Biafo Industries Limited	38	I.C.I Pakistan Ltd.
14	Bannu Woollen Mills Limited	39	Indus Dyeing Manufacturing Co. Ltd.
15	Burshane LPG (Pakistan) Limited	40	International Industries Ltd.
16	Buxly Paints Ltd.	41	Ismail Industries Ltd.
17	Bestway Cement Limited	42	Janana-de-Malucho Textile Mills Ltd.
18	Chashma Sugar Mills Limited.	43	JDW Sugar Mills Limited
19	Cherat Cement Company Limited	44	Khyber Tobacco Co. Ltd.
20	Clover Pakistan Limited.	45	Kohat Cement Limited
21	Colgate Palmolive (Pakistan) Ltd.	46	Kohinoor Energy Limited
22	Crescent Steel & Allied	47	Kohinoor Spinning Mills Ltd.
23	Din Textile Mills Limited	48	Kohinoor Textile Mills Ltd.
24	Ellcot Spinning Mills Ltd.	49	Leather Up Industries Ltd.
25	Engro Corporation Ltd.	50	Lucky Cement Limited

Sr. No.	**Names**	**Sr. No.**	**Names**
51	Mari Petroleum Company Limited	76	Pakistan Oilfields Ltd.
52	Merit Packaging Limited	77	Pakistan Paper Prouducts Ltd.
53	Mitchell's Fruit Farms Limited	78	Premium Textile Mills Ltd.
54	Mirpurkhas Sugar Mill Limited.	79	Pakistan Refinery Ltd.
55	Maple Leaf Cement Ltd.	80	Prosperity Weaving Mill Limited
56	Mehran Sugar Mill Ltd	81	Pakistan Services Ltd
57	Masood Textile Mills Limited	82	Pak Suzuki Motor Co. Ltd.
58	Millat Tractors Limited	83	Pakistan State Oil Co. Ltd.
59	Murree Brewery Company Ltd	84	Pakistan Telecommunication
60	Nagina Cotton Mills Ltd.	85	Reliance Cotton Spinning Mills Ltd.
61	Nestle Pakistan Ltd.	86	Rafhan Maize Products Ltd.
62	Nimir Industrial Chemicals Limited	87	Sapphire Fibers Ltd.
63	Nishat Mills Limited	88	Shell Pakistan Limited
64	Noon Sugar Mills Ltd.	89	Shezan International Ltd.
65	National Refinery Limited	90	Shahmurad Sugar Mills Ltd.
66	Otsuka Pakistan Limited.	91	Siemens Pakistan Engineering Co. Ltd.
67	Pak Elektron Ltd.	92	Sitara Chemical Industries Ltd.
68	Pak Datacom Limited	93	Sana Industries Ltd.
69	Pakistan Tobacco Co. Ltd.	94	Sui Southern Gas Co. Ltd
70	Pakistan Gum and Chemicals Ltd.	95	Shabbir Tiles
71	Pakistan International Airline.	96	Tariq Glass Limited
72	Pioneer Cement Limited	97	Thal Limited.
73	Packages Limited	98	Treet Corporation Ltd.
74	Philip Morris (Pakistan) Ltd.	99	Tri-Pack Films Limited
75	Pakistan National Shipping Corporation	100	Tandlianwala Sugar Mills Limited

Appendix E

TABLE 5.2: Likelihood And houseman test.

Likelihood And houseman test.			
Test cross section fixed effects, Likelihood Ratio.			
Effects Test.	Statistic	d.f.	Prob
Cross section F.	2.679	(99,867)	0.00
Cross section Chi-square.	259.955424	99	0.00
Correlated Random Effects - Hausman Test			
Test Summary.	Chi Sq. Statistic.	Chi Sq. d.f.	Prob
Cross section random.	6.448199	7	0.4885