THE JOINT-DETERMINANTS OF LEVERAGE AND DIVIDEND POLICY: A BALANCED PANEL STUDY OF NON FINANCIAL FIRMS OF INDIA AND PAKISTAN.

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Abstract

This study aims to identify the joint determinants of leverage and dividend policy of non-financial firms in Pakistan and India. For analysis purpose, the data is gathered from the annual reports of companies from India and Pakistan during years 2010-2014. Multiple regression analysis is used on reduced form equations to see the impact of variables on dividend policy and leverage of the firms. Literature from finance indicates that liquidity, profitability, tangible assets, institutional ownership of firm and firm size, all affect the decisions regarding leverage and dividend payment. Regression results are used to see the effect of these variables and compare them with theories from finance. The results indicate that only size of the firm positively impacts the decision to take additional debt, while all other variables have negative effect on debt policy. From second regression, both profitability and liquidity negatively impact dividend policy while remaining variables impact it positively. Additionally, only liquidity of a firm jointly determines both leverage and dividend policy.

Keywords: Capital structure, dividend policy, nonfinancial firms, Pakistan, India

Introduction

Capital Structure of a firm refers to different ways it finances its assets. A firm may invite general public and institutions to invest in its assets by purchasing its shares which is called equity. On other hand, a firm may issue bonds or ask banks for debt to meet its financial requirements which is called leverage; the proportion of leverage in the capital structure is called leverage policy. Dividend policy of a firm is the decision of firm managers about the payment of dividends to shareholders out of cash surplus. Joint-determinants of leverage and dividend policy are firm specific factors

impacting jointly on both leverage and dividend policy. There are many factors which jointly affect capital structure and dividend policy of the firms for example profitability, liquidity,firm's size, asset tangibility etc. This research explores the joint factors for nonfinancial firms of India and Pakistan. Non-financial firms are firms producing non-financial goods thus excluding financial services and banking sector.

Objective and significance of research

The motivation to do research comes from current theoretical debate in corporate finance about optimal capital structure of the firm and its determinants as well as factors influencing dividend payout policy of the firm. It will be interesting to note which factors separately determine capital structure and dividend payout of the firm and this research addresses that question. The other objective of this research is to attempt to explain the joint determinants of capital structure and dividend payout of the firm. That is which factors jointly determine both capital structure and dividend payout of the firm. The research is expected to generate a lot of interest amongst financial researchers as it opens up new research vista in the field of applied finance. It will provide insight to financial manager about inter-relationship between leverage and dividend policy so that he could come up with optimal policies. This inquiry will help academics and practitioners to observe different approaches of firms towards leverage and dividend policies. It is important to decipher the complex relationship between capital structure and dividend payout policy for the firms and investors to understand different decisions they will be taking in ever changing financial environment. I am hopeful that the empirical research will give us a lead to build on the already existing literature on the subject or it will add a new dimension to it.

Problem statement and research question.

I have conducted this empirical study in order to gauge which variables affect dividend payment and leverage of the firm. In the light of finance theories, I will measure the individual impact of each variable separately on both the capital structure and dividend payment and see if the variables are indeed significant or not. Then in the next step I will figure out those variables which jointly affect dividend payment and leverage of the firm. Therefore, my research questions are; 1) which variables affect dividend payment and leverage of firm? 2) What are the joint determinants of leverage and dividend payment of the firm?

Literature review

Modigliani and Miller are the two pioneer investigators of Capital Structure and dividend irrelevance theories. It is proposed in Modigliani and

Miller (1958) that in a perfect market the capital structure is not relevant to the value of the firm. In the paper of Modigliani and Miller (1963), tax has been added to the model and it is argued that the higher leverage in capital structure would increase firm's value as interest is non-taxable. Miller and Modigliani (1961) proposed that in a perfect market the dividend policy exerts no impact on firm's value. After the investigation of above three papers lot of work has been done on both capital structure and dividend policy with consideration of imperfect market.

Jensen and Meckling (1976) gave agency theory and made another valuable contribution to financial literature. The agency theory advocates conflict of interest between investors and managers. Managers pursue their own benefits by taking financial decisions and disregard the interests of investors. This conflict leads to the agency costs like monitoring cost and bankruptcy cost. Rozeff (1982), Easterbrook (1984) and Bhaduri (2002) gave arguments that both dividend payments and debt are used to reduce more cash flows under the supervision of management so both can be used to reduce agency costs. The agency theory explains institutional ownership, asset tangibility and liquidity could affect decisions related to capital structure and dividend policy. Donaldson (1961) draws attention towards a particular order followed by firms while making their financial decisions. Myers (1984) and Myers and Majluf (1984) further developed the pecking order theory. This theory advocates that a particular order is followed by firms while making financing or investment decisions on the basis of costs of financing sources. Retained earnings are the least costly source of financing and then come the debt, while equity is the most costly source of financing after debt. This order is followed by firms as they don't want to pass up growth opportunities. The companies may pay dividends after meeting their investment requirements. This theory suggests profitability is an important factor to consider while devising capital structure and dividend policy. The work of Modigliani and Miller (1961) drew attention for the first time that the dividend payments work as a signaling device for the firm. Bhattachariya (1980) explained that firms use dividend payments to reduce information gap between investors and managers. Ross (1977) contributed to the concept that debt also plays a role of signaling device about good financial health of a firm. Institutional ownership and profitability are the two factors that could influence capital structure and dividend policy. Bankruptcy theory advocates that a firm may face bankruptcy costs due to non-payment of debt: direct costs like legal and accounting costs related to transfer of ownership and restructuring of capital structure; indirect costs like unavailability of growth opportunities due to interruption of relations with suppliers and customers. From this perspective firm's size is an important factor to consider while making decisions related to capital structure and dividend policy.

Large number of empirical studies has examined capital structure and dividend policy in various countries, for example Ozkan (2001); his results are consistent with the pecking order theory. In order to approach profitable opportunities, the firm will prefer retained earnings. In case of unavailability of retained earnings the firm will use debt and then equity. Thus he suggests that profitability is negatively related to leverage. Booth et al. (2001) took earnings before tax divided by assets as a variable for profitability, he came to the same conclusion that profitability is negatively related to debt, moreover his study elaborates about the existence of asymmetric information in observed countries. The more profitable the firm is, the fewer requirements for external debt. Bhaduri (2002) in his study took cash flow over total assets ratio (CF/TA) and cash flow over sales (CF/S) as a factor that indicates credit worthiness and quality of the firm. Firm at the lower level of profitability would prefer short term debt. Firm's utilization of long term debt increases as the profitability of firm increases. His study examined how profitability of a firm influences its decision to take short term or long term debt. He saw a positive relation between long term debt and profitability of the firm. Most of the researchers found a positive relation of profitability with dividend payment. Abdelsalam *et al.* (2008) and Patra *et al.* (2012) used return on asset as a variable for profitability and found that more profitable firms have good financial health and pay more dividends to send a positive message in the market to attract more external capital. Many researchers undertook studies to find relation amongst institutional ownership, dividend policy and debt. Ahmed and Javid (2009) found a positive relation between institutional ownership and dividend policy; according to the authors firms with more institutional investors tend to pay more dividends as it reduces the agency costs of firms related to the agency problem. Al-Najjar (2009) found strong negative relation between institutional ownership and dividend policy; he justified his result in accordance with signaling theory. Institutional investors and dividend payments work as alternative signaling devices to send positive message to market about good financial health of firms. Chung (2012) found out a strong negative relation of institutional ownership with leverage, he explained that both leverage and institutional ownership act as a monitoring tools over management performance. MA. Moh'd, et al. (1998) also found a strong negative relation between leverage and institutional ownership. They justify their results on the basis of agency theory and argue that both leverage and institutional ownership are substitutes of each other and act as a means to control management of the firm.

Size of a firm and its impact on leverage is also studied by various authors; Rajan and Zingales (1995) took logarithm of net sales as a proxy of firm size and found out a positive relation between size and leverage in all

Group of 7 (G7) countries. The results of the paper indicate that there is positive relation between size and leverage but the authors are not sure that if this relation is due to lower probability of default on loans for large firms as compared with higher probability of default on loans for smaller ones. He argues that there is low cost of financial distress in Japan, and leverage of Japanese firms increase with increase in size. On the other hand, in Germany there is low liquidation cost yet the small firms are using more debt as compared to the large firms. Bhaduri (2002) uses natural log of total assets as a proxy for firm size and concludes that firm size is positively related to long term debt and negatively related to short term debt, while it has no effect on total debt. He explains that large firms use more long term debt while small firms use more short term debt because of high transaction costs related to long term debt. The creditor will consider favorable to invest in small firms for short period as it involves less risk. Patra *et al.* (2012) uses natural log of total assets as a proxy for firm size and shows a positive relation between firm size and dividend policy, he argues that large firms with more institutional investors have easy access to capital market. As a result large firms can afford to pay more dividends. Many authors have tried to identify the relation between tangible assets and leverage. Rajan and Zingales (1995) argued that tangible assets of a firm can be used as collateral against debt. This finding is supported by the agency theory. Similarly, Moh'd, LG. Perry and JN. Rimbey (1998) also found a strong positive relation between asset tangibility and debt. Many researchers found a negative relation between liquidity and leverage. Ozkan (2001) found that liquidity is negatively related to leverage and explained that a firm with more liquidity will meet its investment requirements easily as compared to a firm with less liquid assets. Hence liquidity can be used as a substitute for leverage. Similarly, Naceur et al.(2006) found out a significant negative relation between liquidity and dividend policy. He explained that in a more liquid market, capital gain is more preferable to dividends because market supports more selling of stock.

Underlying Economic Theories

The underlying theory behind this research is based on the models and theories given by researchers elaborating on important variables and factors which affect dividend payout and capital structure of the company. These theories are agency theory, pecking order theory, signaling theory and bankruptcy theory. All these theories play an important role in explaining the reasoning behind the factors affecting capital structure and dividend payout policy of the firms. A brief explanation of the theories and variables will help us further comprehend the basis of the economic model.

Agency Theory

Agency theory tells us about agency problem that exists due to the separation of ownership and management in organizations. The Agency theory given by Jensen and Meckling (1976) describes the relation between the owners and the managers as the relation between the principals and the agents. The managers are the agents of owners of the firm and can pursue such decisions that increase their own welfare rather than increasing the value of the firm. This situation leads to the conflict of interest between the owners and the managers of the firm. The agency models of leverage and dividend policy foretell that use of debt financing and dividend payments can work as tools to tackle with agency problem. According to Rozeff (1982), Easterbrook (1984) and Bhaduri (2002), both dividend payments and ability to issue debt can decrease the cash flows that are under the control of management. Jensen (1986) explains that dividend payments can reduce the agency problem through reducing excess cash flows in the organization. Reduction in excess cash flow makes cash less available to the managers to use for unproductive purposes. From the agency theory perspective, it is generally accepted by authors that leverage and dividend policy decisions are mainly influenced by institutional ownership, asset tangibility and liquidity.

Pecking Order Theory

The pecking order theory that was first suggested by Donaldson and then developed by Myers (1984) and Myers and Majluf (1984), explains that because of existence of asymmetric information, the companies follow an order while taking decisions about financing. The companies will prefer to finance their projects by retained earnings (the least costly source of finance); if the investment opportunities are not fully financed by the retained earnings then debt (the less costly source of finance) will be preferred to equity issues (the most costly source of finance). This order is favorable for companies as it reduces the chances of passing up profitable opportunities. Further the pecking order theory says that the companies pay dividends after meeting the investment requirements. Profitability and liquidity of the firm will be used as a significant factor in leverage and dividend policy models.

Signaling Theory

The signaling theory is based on the concept that there is an information asymmetry between managers and the investors of the firm. The work of Miller and Modigliani (1961) draws attention that dividend payments are signals to the market. If a firm is paying more dividends then it is taken as positive signal by the investors and it would appreciate the market value of the stock. If a firm is giving fewer dividends then it is taken as

negative signal by the investors and it would reduce the market value of the firm. The work of Bhattachariya (1980) also explains that the firms use dividend payment as a signal to investors about its financial health. Ross (1977) contributed to the concept that the issue of debt is also used by the investors as a source of information regarding the performance of the firm. The investors take the issue of debt by the managers as a positive signal that the firm's profits are high and the mangers do not want to share these high profits with outside investors. The firms having good financial performance can issue more debt because of the capabilities to repay loan. While the firms with poor financial performance issue low level of debt because of low capabilities to repay loan. From the signaling theory perspective, institutional ownership and profitability of the firm can be used to examine the effect on leverage and dividend policy decisions.

Bankruptcy Theory

Modigliani and Miller (1958) and Modigliani and Miller (1963) are the two papers which advocate that the value of the firm, that is the value of its common stock and the weighted average cost of capital is irrelevant to its capital structure in the absence of market imperfections. While in the real world of business, market imperfections exist and bankruptcy costs should be taken into account. According to Haugen and Senbet (1978) the size of a firm influences how a firm handles bankruptcy costs. Large firms are less likely to experience financial distress and have more capacity to repay loans as compared to smaller ones. Therefore size of a firm becomes a crucial factor while taking decisions regarding leverage and dividend policy

Variables Affecting Dividend Payout Policy and Capital Structure
Profitability

According to pecking order theory, there exists a negative relation between profitability and debt. Firms will use accumulated profits to fulfill their finance requirements before taking debt or issuing equity.Firms follow this order because the accumulated profit is less expensive mode as compared to debt and equity. According to signaling theory profitability of the firm is a measure of capacity to pay dividends. The more profitable the firm the more capacity to pay dividends while the less profitable the firm the less capacity to pay dividends. Firms use dividends to send a positive signal in the market about the good financial performance.

Institutional Ownership

According to Huddart (1993) and Maug (1998) institutional investors play a monitoring role that lessens the intensity of agency problem. The institutional owners can oppose the wrong decisions of management and

restrict them not to misuse the resources of the firm. According to Jensen (1986), debt can serve as a monitoring tool as it engages the managers to repay the loan. Hence it can be concluded that institutional ownership is a substitute of debt, Grier and Zychowics (1994). This discussion foretells negative relation of institutional ownership with leverage. Signaling theory foretells negative relation between institutional ownership and dividend payments as both are signaling devices. Both are substitute for each other, Al-Malkawi (2007), Al-Najjar (2009), Amidu and Abor (2006), Holder *et al.* (1998), Kania and Bacon (2005).

Firm Size

According to Bhaduri (2002); Titman and Wessels (1998), Size of a firm is one of the main factors while devising capital structure of the firm, especially when financing decisions are taken after the consideration of transaction costs. There exists a positive relation between size of a firm and leverage. The results of Rajan and Zingales (1995) are indicating that there is positive relation between size and dividend payout. The large firms can easily raise their funds and hence can support large dividend payouts when compared to small firms. This argument is supported by Holder *et al.* (1998), Al-Najjar (2009), Eriotis (2005), Al-Malkawi (2007), Ramli (2010), Patra *et al.* (2012) on the basis of agency theory explanations.

Asset Tangibility

According to agency theory, managers can invest in inappropriate projects, and the firm can raise debt against fixed assets to increase monitoring effect over the mangers by the bondholders. Hence a firm with more tangible assets can raise more debt. The same arguments are given by Rajan and Zingales (1995); Booth et al. (2001) in favour of positive relation. According to Aivazian, Booth, and Clearly (2003) markets where main source of financing is short term debt the firms with more tangible assets pay less dividends as compared to the firms with less tangible assets. Because the more tangible assets mean the less current assets, and the less current assets means the less possibility that the creditors will lend short term loans. Hence it can be concluded that the more tangible assets the less chances of dividend payouts.

Liquidity

The agency theory addresses negative relationship between liquidity and leverage. Firms with more liquid assets can use their liquidity to finance investment opportunities instead of taking debt. There is also a negative relation between liquidity and dividend payment. In a more liquid market, capital gain is more preferable to dividends because market supports more

selling of stock. In modern business, stock exchange system is electronic and it facilitates more stock trading. This proposition is widely supported amongst researchers including Naceur *et al.* (2006) who took annual value of stock traded over its market capitalization as a proxy for liquidity. They found out a strong negative relation between liquidity and dividend policy.

Interrelation of Leverage & Dividend payments

The signaling theory explains that a firm paying more dividends sends a message about its strong financial performance which increases the credit standings of the firm. Moreover dividends paying companies decrease the information gap between managers and investors. Such firms can raise more debt hence dividend payment is determinant of leverage. Therefore on the basis of this argument it can be said that dividend payout positively impacts leverage. This relationship is supported by Bhaduri (2002). On the other hand leverage is a negative determinant of dividend payments. That means there is negative relation between leverage and dividend payments because firms with more debt prefer to retain more in order to repay loan instead of paying more dividends. Highly levered firms have more risk of financial distress and this risk may lead to less dividend payments. This argument is parallel to the arguments of Al-Malkawi (2007), Patra et al. (2012) and Al-Najjar (2009).

Formation of Hypothesis

Many hypotheses can be formed to test the relationship between independent and dependent variables. From literature review, one of the most important and significant variable found to be affecting both dividend payment and leverage of the firm is profitability. I have formed this hypothesis on the basis of pecking order theory which states that there is a negative relation between profitability and debt. The second hypothesis is formed to test the relation between profitability and dividend payment. I have formed this hypothesis based on signaling theory which states that firm will give more dividends to share holders if its profitability increases.

HO: There is no relation between leverage and profitability.

H1: There is negative relationship between leverage and profitability.

HO: There is no relation between profitability and dividend payments

H1: There is a positive relation between profitability and dividend payments

Table1. Variables and their description

Variables	Definitions
Dependent variables	
Leverage (TDR_{it})	Total debt to total assets ratio.
Dividend Payout Ratio (DPO_{it})	Dividend per share to book value per share ratio.
Independent variables	
Profitability (ROA_{it})	Profit before taxes to total assets ratio.
Institutional Ownership ($INST_{it}$)	Shares owned by the institutional investors to outstanding common stocks ratio.
Size ($SIZE_{it}$)	Natural logarithm of sales.
Asset Tangibility ($TANG_{it}$)	Fixed assets to total assets ratio.
Liquidity (LIQ_{it})	Current assets to current liabilities ratio.

I specify the equation and put all the variables that affect total debt ratio and dividend payout on the right side of the equation. From finance theories it is known that total debt and dividend payment policy of the firm influence each other therefore the dependent variable in equation 1 (total debt ratio) is also being influenced by the dependent variable of equation 2 (dividend payment) and vice versa. These are called simultaneous equations. The structural form equation of simultaneous model are given

$$TDR_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 INST_{it} + \beta_3 LNSIZE_{it} + \beta_4 TANG_{it} + \beta_5 LIQ_{it} + \beta_6 DPO_{it} + \varepsilon_{it}$$

$$DPO_{it} = \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 INST_{it} + \alpha_3 LNSIZE_{it} + \alpha_4 TANG_{it} + \alpha_5 LIQ_{it} + \alpha_6 TDR_{it} + \varepsilon_{it}$$

If I run regression on these equations, the beta coefficients will suffer from severe simultaneous bias and will no longer be consistent. That is no matter how large my population sample is, the estimated coefficients will never converge to their true value. Econometricians employ two kinds of solutions to counter this problem. One solution is to use instrumental variable approach, the other one is to use reduced form equations and estimate it through OLS procedure. I have applied reduced form approach because of its wide use in econometric literature as well as its simplicity.

Now the reduced form equations are

$$TDR_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 INST_{it} + \beta_3 LNSIZE_{it} + \beta_4 TANG_{it} + \beta_5 LIQ_{it} + \varepsilon_{it}$$

$$DPO_{it} = \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 INST_{it} + \alpha_3 LNSIZE_{it} + \alpha_4 TANG_{it} + \alpha_5 LIQ_{it} + \varepsilon_{it}$$

Thus the functional form of these equations is semi log reduced form equations. I will run regression on these equations to determine impact of

variables on total debt ratio and dividend payout ratio. Amongst many independent variables some variables in both equations will be strong and significant and others not so. I can thus, based on empirical results confidently conclude about the variables jointly determining both DPO and TDR in the countries.

The data

I have collected data from Indian and Pakistani non financial firms. The companies were chosen using random sampling from various sectors of the economy excluding only financial and banking sectors. The ratios of variables have been calculated by using financial statements of the companies. The data comprises of 130 firms from year 2010 till 2014. To ensure fair representation from both countries a total of 65 non financial firms were selected from India and the same number of firms was selected from Pakistan.

Table2. Descriptive statistics

Variable	observation	mean	Std.dev.	min	max
Total debt ratio	650	0.4414505	0.27113	0	1.14
Dividend payout	650	0.3506108	1.17285	0	9.4271
ROA	650	0.2902714	0.538529	-1.3965	2.849
Institutional ownership	650	0.3533975	0.299942	0	0.9924
LN sales	650	11.11207	5.05553	-2.813	19.205
AssetTangibility	650	0.6092452	0.27374	0	0.9833
Liquidity	650	1.473439	0.762165	0.1694	4.4431

The descriptive statistics show number of observations, mean, standard deviation, minimum and maximum values. The important point to note is that since the data is taken from across different sectors, therefore dispersion in data is high as shown by large standard deviation of some variables. For example standard deviation of dividend payout ratio is 1.172, while the minimum value for this variable is 0 and maximum is 9.42. This could be because some firms do not pay dividend at all, while other firms pay large dividend in some specific years. Similarly natural log of sales has high standard deviation of 5.055, which is due to the fact that there is high dispersion in sales of firms due to specific nature of sectors that firms operate in. Taking natural log of small value yields negative result so the minimum value of variable LN SALES is -2.813; while the maximum value is 19.205 and mean of the variable is 11.11. The values of variable return on asset are also interesting to read. The minimum value is -1.39 while maximum is 2.849. This means that some firms suffer losses in given period while others have huge profits with little asset base. The dependent variable Total debt ratio has maximum value of 1.14 and minimum value of 0,

meaning that some firms are highly leveraged while others don't use debt at all. While on average firms finance their capital with 44.14 percent debt.

Empirical rasults

Dependent variable (Total Debt Ratio) Newey-West standard errors reported

Variable	**Coefficient**	**Std. Error**	***t*-Statistic**	**Prob.**
C	0.3845276	0.0478571	8.03	0.0000
ROA_{it}	-0.0610334	0.0339513	-1.80	0.073
$INST_{it}$	-0.0326044	0.0372719	-0.87	0.382
$SIZE_{it}$	0.0253182	0.0034351	7.37	0.0000
$TANG_{it}$	-0.0632006	0.0643569	-0.98	0.326
LIQ_{it}	-0.1063303	0.0140394	-7.57	0.000

Dependent variable (Dividend payout ratio) Newey west standard errors

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
C	0.2619209	0.069584	3.76	0.000
ROA_{it}	-0.0437685	0.0269887	-1.62	0.105
$INST_{it}$	0.047499	0.1981581	0.24	0.811
$SIZE_{it}$	0.0175234	0.0092102	1.90	0.058
$TANG_{it}$	0.2473599	0.1432009	1.73	0.085
LIQ_{it}	-0.1770116	0.0530044	-3.34	0.001

The information from the tables can be used to interpret the hypotheses regarding relation of profitability with leverage and dividend payout.

1) HO: there is no relation between leverage and profitability
   H1: there is a negative relationship between leverage and profitability

The p-value from the first regression (total debt ratio as dependent variable) for the variable ROA (profitability) is 0.001 which is less than 5 percent significance level; therefore I reject the null hypotheses of no relation between leverage and profitability. Thus regression results match with the theoretical proposition about negative relation between leverage and profitability.

2) HO: there is no relation between profitability and dividend payments
   H1: there is a positive relationship between profitability and dividend payments

The p-value from the second regression (dividend payout ratio as dependent variable) for the variable ROA is 0.626 which is greater than 0.05

(5% significance level); therefore I fail to reject the null hypothesis of no relation between dividend payout ratio and profitability. This result is contrary to my expectations from literature review and economic theory.

As the regression is run on panel data it is very likely that it might be suffering from autocorrelation. Therefore in order to check for its presence I have conducted Wooldridge (2002) test. The test results show that first regression (with dependent variable TDR) suffers from autocorrelation while the other regression does not. Another problem associated with panel data is heteroscedasticiy. In order to test for heteroscedasticity I have run Breusch-Pagan/ Cook-Weisberg test. The test result shows that both regressions (with total debt ratio as dependent variable and dividend payout as dependent variable) suffer from heteroscedasticity, since the probability of chi^2 (P-value) is 0 which is less than 0.05; I reject HO of no heteroscedasticity. To counter the problem of both heteroscedasticity and autocorrelation, I have calculated Newey-West heteroscedasticity consistent standard error. The powerful logic behind using Newey-West standard errors is based on the fact that it corrects the biased standard errors caused by heteroscedasticy and autocorrelation without changing the values of estimated coefficients.

I now interpret the regression results while considering established finance theories. According to pecking order theory I expect a negative relation between profitability and total debt ratio. My regression results suggest that this is true. The negative sign of beta coefficient (-0.06103) of return on asset shows that as the firms experience an additional return of one rupee on their given assets, they tend to decrease their debt on their assets by 0.06103 rupees holding other variables constant. Signaling theory suggests that profitability is positively related to dividend payments. The more profitable firm will give a positive signal to outside investors by giving away more dividends. The results from second regression (dependent variable dividend payout ratio) do not match the theory. The estimated coefficient of ROA is -0.0437. The second variable, institutional ownership is seen as a monitoring tool over the management of the firm, it restricts the management in the same way as taking debt. According to Huddart (1993) and Maug (1998), there is a negative relation between institutional ownership and debt. This negative relation from theory is also proved from the regression results. The value of coefficient INST is -0.0326 from first regression (dependent variable TDR). It shows that if institutional investors buy one additional share of a firm, then the total debt ratio of the firm will fall by 0.0326 units holding all other variables constant. According to Bhaduri (2002); Titman and Wessels (1998), there exists a positive relation between firm size and debt. A large firm is less likely to suffer financial distress and so has the capacity to take more debt; therefore there is a positive relation between firm size and debt. I took natural log of sales as a proxy for firm size. The

regression results also prove a positive relationship. The estimated coefficient show that as sale of the firm additionally increases by one percent, the total debt ratio falls by 0.000253 units holding all other variables constant. To interpret the impact of asset tangibility on debt, I will compare my results with agency theory. According to agency theory, firms undertake debt in order to reduce agency costs, and tangible assets are used as collaterals for taking more debt. The firms with more tangible assets, fixed assets as a percentage of total assets can raise more debt by using fixed assets as collaterals. This argument is supported by many researchers in their studies including Titman and Wessels (1988). The variable in the regression does not match the assertions of researchers as the coefficient estimate is -0.0632. This shows that as fixed assets given the total assets increase by one unit, the total debt ratio falls by 0.0632 units holding all other variables constant. The response of debt by changes in liquidity can be compared again from findings of agency theory. The theory asserts that firms with more liquidity will finance their projects without taking additional debt. This negative relation has been proved by many researchers while carrying out similar studies. For example Amidu and Abor (2006), in their study figure out a negative relation between the variables. My regression results also support this theory, the coefficient of liquidity is -0.10633. This shows that as liquid assets of firm given its current liabilities increase by one rupee, total debt of firm given its total assets decrease by 0.10633 rupees holding all other variables constant. Similarly negative relation between liquidity and dividend payment is proposed by many researchers. Naceur *et al.* (2006), Kania and Bacon (2005) proposed negative relation of liquidity with dividends. In a more liquid market where stock selling is quick, capital gains are preferred to dividends. My regression results also substantiate this assertion, the liquidity coefficient of -0.177 show that as firm's liquid asset increase by one rupee, it pays 0.177 rupee less dividends to shareholders holding all other variables constant.

Now, I can finally answer my research question. What are the joint determinants of leverage (total debt ratio) and dividend payout ratio? From the first regression table we can see that return on assets, natural log of sales and liquidity all have p values less than 0.05. Therefore I reject null hypotheses of non significance of variables. However, very surprisingly all the variables in second regression with dividend payment as dependent variable turn out to be insignificant except the variable of liquidity which has a p value of 0.006 which is less than 0.05. Thus I can conclude that from empirical results only liquidity is the variable that jointly affects both leverage and dividend payment.

Conclusion

Two basic objectives are covered in this study. The first one is whether agency theory, pecking order theory, signaling theory and bankruptcy theory play a significant role in decision making process related to leverage and dividend policy in both the countries. The second one is which factors specifically affect both leverage and dividend policy in the countries. Regression results from first equation indicate that profitability, institutional ownership, tangibility and liquidity are negatively whereas firm size is positively related to the leverage. Notably only profitability, firm size and liquidity are found significant variables. The findings are consistent with agency theory and signaling theory, however one variable tangible asset has negative relation with debt which is not consistent with established finance theories. Regression results from second equation indicate that all the independent variables have positive relation with dividend payment policy except liquidity and profitability. All of these results are congruent with signaling and agency explanations except profitability. The more profitable firm will give more dividends to share holders in order to signal its financial strength to outside investors. However, my results do not match the signaling theory on this particular variable. Moreover, only one variable is significant in this regression and that is liquidity. Combining both regressions, I find out that liquidity is the only variable which is significant in both the regressions with the expected sign. Thus I can conclude that this variable is the joint determinant of both leverage and dividend payment.

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