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DIVIDEND POLICY AND AGENCY THEORY: EVIDENCE ON INDIAN FIRMS

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Dividend Policy and Agency Theory: Evidence on Indian Firms [?]

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[?] This paper is carved out of my PhD thesis, which was successfully completed in August 2001. Useful comments on previous versions of the paper were received from Victor Murinde, Christopher Green, Michael Theobald, as well as participants at seminars held at the University of Birmingham, Loughborough University, and the University of Manchester during 1999-2001. Errors are mine.

Dividend Policy and Agency Theory: Evidence on Indian Firms

Abstract

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

Keywords: dividend policy; cost minimisation model; agency theory; business groups; Indian companies

JEL Classification Numbers: G35, G32

1. Introduction

This paper applies agency theory to dividend policy and is concerned with the agency theory of dividends, which claims that the payment of dividends is one of the measures available to managers for controlling agency behaviour.[1] Specifically, it is proposed that by inducing external monitoring, dividends reduce agency costs[2], although at the same time increasing the transaction costs associated with raising external funds. The aim of the paper is to contribute to the relevant literature in two ways. First, the paper applies an agency-based model of dividends, namely the cost minimisation model, to a developing economy, India. Considering that most similar studies are based on the US and other OECD economies, this study could shed a fresh light on the agency rationale for dividend outside the initial testing ground. Second the paper considers the implication of business group affiliation to the dividend decision by incorporating group affiliation interaction terms into the model. This treatment is innovative and particularly relevant considering the importance of business groups in countries such as India as well as the evolutionary process this structure is currently facing (see, for example, Ghemawat and Khanna, 1998; Khanna and Palepu, 1999, 2000a).

The remainder of this paper is structured as follows. Section 2 reviews some previous studies of the cost minimisation model. Section 3 states the empirical model and explains the

[1] Agency theory underpins the relationship between the principal and the agent. Within the context of the firm, agency theory is primarily concerned with owner-manager relationship and with the need for shareholders to monitor management behaviour. This need arises due to the separation of ownership and control and the associated conflicts of interests that arise between shareholders (principals) and managers (agents). See Manos (2001) for a detailed critique of the agency theory literature.

[2] In light of the costs to managers from possible agency conflicts it becomes important to them that the firm is seen to be free of such conflicts. Managers will thus take measures, in addition to those taken by shareholders, to reduce the potential for agency conflicts. Consequently, agency costs are defined as the loss to shareholders of controlling agency behaviour, through measures taken by themselves and by managers as well as the costs from any agency behaviour that have not been controlled. These are the three components of agency costs, which Jensen and Meckling (1976), in their seminal paper, term monitoring expenditures, bonding expenditures and residual loss, respectively.

predictions. The empirical procedures and the results are presented in Section 4 while Section 5 concludes.

2. A selective review of the literature

There has been considerable research that seeks to identify the determinants of corporate dividend policy. One branch of this literature has focused on an agency-related rationale for paying dividends. It is based on the idea that monitoring of the firm and its management is helpful in reducing agency conflicts and in convincing the market that the managers are not in a position to abuse their position. Some shareholders may be monitoring managers, but the problem of collective action results in too little monitoring taking place. Thus Easterbrook (1984) suggests that one way of solving this problem is by increasing the payout ratio. When the firm increases its dividend payment, assuming it wishes to proceed with planned investment, it is forced to go to the capital market to raise additional finance. This induces monitoring by potential investors of the firm and its management, thus reducing agency problems. Rozeff (1982) develops a model that underpins this theory, called the cost minimisation model. The model combines the transaction costs that may be controlled by limiting the payout ratio, with the agency costs that may be controlled by raising the payout ratio. The central idea on which the model rests is that the optimal payout ratio is at the level where the sum of these two types of costs is minimised.

Thus Rozeff's cost minimisation model is a regression of the firm target payout ratio on five variables that proxy for agency and transaction costs. Transaction costs in the model are represented by three variables that proxy for the firm's historic and predicted growth rates and risk. High growth and high risk imply greater dependency on external finance due to investment needs, and in order to honour financial obligations, respectively. This, in turn,

means, that the firm raises external finance more frequently, hence bears higher transaction costs that are associated with raising external finance. The model captures agency costs with two proxies. First, the fraction of the firm owned by insiders, ?, is a proxy for insider ownership and is expected to be negatively related to the target payout ratio. As insiders hold more of a firm's equity, the need to monitor their actions is reduced because the incentive for managers to misuse corporate resources falls. Second, the natural logarithm of the number of outside shareholders is a proxy for ownership dispersion. It is expected to be positively related to the target payout ratio because the greater the dispersion, the more severe is the collective action problem of monitoring. Indeed results from an Ordinary Least Squares (OLSQ) cross sectional regression using 1981 data on 1000 US firms, support the theory put forward. Thus the model provides good fit and consequently has attracted the attention of subsequent studies.

Llyod, Jahera and Page (1985) is one of the first studies to modify Rozeff's cost minimisation model by adding a size variable. An OLSQ cross sectional regression is applied to 1984 data on 957 US firms, and the results provide support for the cost minimisation model and show that firm size is an important explanatory variable. Likewise Schooley and Barney (1994) add a squared measure for insider ownership, arguing that the relationship between dividend and insider ownership may be non-monotonic. Indeed the results from an OLSQ cross sectional regression, using 1980 data on 235 industrial US firms, provide further support for Rozeff's model in general and for the hypothesis put forward in particular.

More support and further contribution to the agency theory of dividend debate, is provided by Moh'd, Perry and Rimbey (1995). These authors introduce a number of modifications to the cost minimisation model including industry dummies, institutional holdings and a lagged dependent variable to the RHS of the equation to address possible

dynamics. The results of a Weighted Least Squares regression, employing panel data on 341 US firms over 18 years from 1972 to 1989 support the view that the dividend process is of a dynamic nature. The estimated coefficient on the institutional ownership variable is positive and significant, which is in line with tax explanations but contradicts the idea about the monitoring function of institutions.

Holder, Langrehr and Hexter (1998) extend the cost minimisation model further by considering conflicts between the firm and its non-equity stakeholders and by introducing free cash flow as an additional agency variable. The study utilises panel data on 477 US firms each with 8 years of observations, from 1983 to 1990. The results show a positive relation between the dependent variable and the free cash flow variable, which is consistent with Jensen (1986). Likewise the estimated coefficient on the stakeholder theory variable is shown to be significant and negative as predicted. The estimated coefficients on all the other explanatory variables are also shown to be statistically significant and to bear the hypothesised signs.

Hansen, Kumar and Shome (1994) also take a broader view of what constitutes agency costs, and apply a variant of the cost minimisation model to the regulated electric utility industry. The prediction is that the agency rationale for dividend should be particularly applicable in the case of regulated firms because agency costs in these firms extend to conflicts of interests between shareholders and regulators. Results of cross sectional OLSQ regression for a sample of 81 US utilities and for the period ending 1985 support the cost minimisation model and the contribution of regulation to agency conflicts in the firm.

Another innovative approach to Rozeff's cost minimisation model is offered in Rao and White (1994) who apply it to 66 private US firms. Using a limited dependent variable, Maximum Likelihood (ML) technique, the study shows that an agency rationale for dividends

applies even to private firms that do not participate in the capital market. The authors note that perhaps by paying dividends, private firms can still induce monitoring by bankers, accountants and tax authorities.

To summarise, the agency theory of dividend in general, and the cost minimisation model in particular, appear to offer a good description of how dividend policies are determined. The variables in the original cost minimisation model remain significant with consistently signed estimated coefficients, across the other six models reviewed above. Specifically, the constant is, without exception, positively related to the dividend policy decision, while the agency costs variable, the fraction of insider ownership, is consistently negatively related to the firms' dividend policy. The latter is with exception of the study by Schooley and Barney (1994) where the relationship is found to be of a parabolic nature. Similarly, the agency cost variable, ownership dispersion, is consistently positively related to the firm's dividend policy, while the transaction cost variable, risk, is consistently negatively related to the firm's dividend policy regardless of the precise proxy used. The other transaction cost proxies, the growth variables, are also mainly significant and negatively related to the firm's dividend policy, although past growth appears to be a less stable measure than future growth.

However, in spite of the apparent goodness of fit of the cost minimisation model to US data, its applicability to the Indian case may be challenged. Indeed, Samuel (1996) hypothesises that agency problems are less severe in India compared with the US. In contrast, it may be argued that some aspects of the Indian economy imply a particular suitability of the agency theory, and of the cost minimisation model, to this economy. Notably, as explained in Haque (1999), many developing countries, including India, established state-centred regimes following their independence. These regimes drew their

ideology from socialist and Soviet ideas and were accompanied by highly centralised economic policies, which may increase agency costs in at least three ways as follows.

First, such policies may increase managers' agency behaviour per se. Indeed Joshi and Little (1997) note that when domestic firms enjoy subsidies or a policy of protectionism, the pressure on managers to become more efficient is relaxed. Second, high state intervention means an extension of agency problems to shareholder-administrator conflicts. Indeed, Hansen, Kumar and Shome (1994) show that the degree of industry regulation enters the dividend policy decision. Third, to the extent that management of the economy is based on social philosophies of protecting the weaker sectors such as employees or poorer customers, this may influence managers to consider the interests of non-equity stakeholders. This implies that stakeholder theory should be particularly relevant to the Indian case, and, as shown by Holder, Langrehr and Hexter (1998) this may lead to a downward pressure on dividend levels. However, the relevance of stakeholder theory to the Indian case also implies extension of agency problems to conflicts of interests between equity holders and other stakeholders, increasing the need for shareholders to monitor management behaviour.

It is thus the case that on the one hand stands the prediction by Samuel (1996) that agency costs should be lower in the Indian business environment. This implies that the agency rationale for dividends should be less applicable in the case of India. To contrast this, the agency rationale for dividends is predicted to become particularly applicable to India, due to the extension of agency conflicts on at least three accounts as explained above. An empirical procedure is the natural way to settle these differences and it is to this task that we now turn.

3. The model and predictions

3.1 The model

The model used in this study is a variant of the cost minimisation model where an attempt is made to capture the factors that are likely to be important in influencing the dividend policy of firms operating in the Indian environment. The general model, which captures the main variables identified in the selective literature review, is of the following form:

$$PAYOUT_i = ?_0 + S_{J=1-3} ß_j TC_{i,j} + S_{J=1-4} ?_j AC_{i,j} + S_{J=1-7} d_j BGIT_{i,j}$$

$$+ S_{J=1-4} ?_j DUMMY_{i,j} + ?_i \qquad (1)$$

where, the subscript, *i*, denotes the sample observation, $i = 1,2,\ldots n$, and the dependent variable, *PAYOUT*, is a proxy for the firm's target payout ratio measured as the ratio of equity dividends to net profit as relating to the year ending March 2001; *TC* is the transaction cost variable; *AC* = agency cost variable; *BGIT* = business group interaction term; and *DUMMY* is a dummy variable.

The transaction cost variable is measured by three proxies including GROWTH, RISK and LIQUID. GROWTH is the yearly rate of growth in sales measured over the period 1997 to 2001. RISK is the standard deviation of the daily stock return over the 365 days ending 31 March 2001. LIQUID is the number of days the company's stock traded on the Bombay Stock Exchange relative to the number of days that trading took place on the Exchange during year ending 31 March 2001.

The agency cost variable is represented by four proxies measuring the percentage of equity shares held by various groups of investors as correct for the year 2001. FOREIGN represents the percentage of shares held by foreign collaborators, foreign financial institutions, foreign nationals and non-residential Indians. INST measures institutional ownership including the percentage of equity shares held by insurance companies, mutual

funds and Indian financial institutions. DIRS is a proxy for insider ownership and represents the percentage of shares held by the directors of the company. The fourth agency cost proxy, PUBLIC, is a measure of ownership dispersion, and represents the percentage of shares held by the public at large.

The business group interaction terms are interaction terms between a business group affiliation dummy and each of the seven transaction and agency costs variables defined above. The set of DUMMY variables include four dummies to measure the impact on the intercept due to business group affiliation and the listing flag under which the firm is classified by the Bombay Stock Exchange. GP is the business group affiliation dummy which equals one when the firm is associated with a business group and zero otherwise. The other dummy variables include listing flags B1, B2 and Z, which broadly indicate the liquidity of the stock. The control group is the most liquid, A stocks, which typically include companies with widespread shareholding, a steady dividend, good growth record and a large volume of business in the secondary market. Relatively liquid securities are placed in the B1 category while less liquid securities are classified as B2. The Z category indicates the least liquid companies who are in breach of provisions of the Listing Agreement. Thus a Z flag forewarns investors that the share belongs to a company, which has violated provisions of the Listing Agreement or has large investors complaints pending against it. Hence Equation (1) can be more specifically expressed in the form:

$$PAYOUT1_i = ?_0 + ?_1 GROWTH_i + ?_2 RISK_i + ?_3 LIQUID_i + ?_1 FOREIGN_i + ?_2 INST_i + ?_3 DIRS_i + ?_4 PUBLIC_i + d_1 (GROWTH_i * GP_i) + d_2 (RISK_i * GP_i) + d_3 (LIQUID_i * GP_i) + d_4 (FOREIGN_i * GP_i) + d_5 (INST_i * GP_i) + d_6 (DIRS_i * GP_i) + d_7 (PUBLIC_i * GP_i) + ?_1 GP_i + ?_2 B1_i + ?_3 B2_i + ?_4 Z_i + ?_i \quad (2)$$

3.2 The predictions

As noted in Section 2, the cost minimisation model predicts that transaction costs should be inversely related to the target payout ratio. The three transaction cost variables in Equation (2) are GROWTH, RISK and LIQUID. When the firm is expected to need to raise external finance more often, its transaction costs are expected to be higher. Dependency on external finance rises with growth opportunities and with the volatility of earnings. Furthermore, volatile prices as reflected by the variable RISK imply possible mispricing and higher underwriting fees when raising external finance. Likewise problems with valuation of growth prospects, as reflected in the variable GROWTH, imply possible mispricing. Hence both GROWTH and RISK are expected to have negatively signed coefficients.

The third transaction cost variable is LIQUID, which measures the liquidity of the company's share. It is an inverse proxy for transaction costs and is thus expected to have a positive impact on the target payout ratio. The quicker and easier it is to buy or sell the share on the market, the more accurately the price reflects all available information. Thus as liquidity enhances price efficiency it also reduces the cost of raising capital in the market, both in terms of explicit costs such as underwriter fees and implicit costs such as mispricing. For the same reason the dummy variables B1, B2 and Z that measure on a rising scale respectively the illiquidity of the stock are expected to be negatively related to the target payout ratio.

The four agency-costs variables include FOREIGN, INST, DIRS and PUBLIC. FOREIGN is a measure of the percentage of foreign ownership. Glen, Karmokolias, Miller and Shah (1995) note that investors in developed countries often hold stock of developing countries for its long-run growth potential. If developing countries' stock is held for growth rather than for income, this suggests a negative relation between FOREIGN and the payout ratio. Furthermore, foreign shareholding increases foreign analysts' interest in the firm,

resulting in more monitoring and hence with less need for the dividend induced monitoring device. This also implies a negative relation between the percentage of foreign holdings and the payout ratio. However, it could be argued that the task of monitoring management is more difficult and costly for overseas investors. This suggests that the benefits of the dividend-induced capital market monitoring increase with increases in the percentage of foreign holdings, leading to a positive impact of FOREIGN on PAYOUT[3].

The second agency variable included in Equation (2) is INST, the fraction of institutional ownership. Relative to other investors, institutions have more incentive to spend resources on monitoring the firm and its management. This is due to their expertise and better ability to monitor management actions at relatively low cost. They also stand to benefit more from monitoring, because their percentage holding is normally relatively large. Furthermore, institutions are in a better position, compared with individuals, to take over inefficient firms and this threat is another aspect forcing managers to become more efficient. Consequently, institutional ownership has traditionally been viewed as an answer to the free rider problem. This implies that the larger the percentage held by institutions, the less is the need for dividend induced monitoring. This, in turn, suggests an inverse relationship between INST and the dependent variable. However, Joshi and Little (1996) note that although Development Financial Institutions (DFI) and investment institutions have acquired dominant equity holdings in Indian firms, they have been unable to freely trade in shares and to challenge insiders. This particular aspect of the Indian system may prevent institutions from carrying out their traditional monitoring role. Furthermore, in an interventionist environment such as India, conflicts with regulators mean that a higher level of monitoring is required to

[3] A possible limitation to the use of FOREIGN as an agency variable, is foreign ownership restrictions in India. These restrictions imply that foreign investors are not totally free in their investment decisions and this could have implications on the interpretation of the observed relationship between FOREIGN and the dependent variable.

control agency problems. In this case the level of monitoring carried out by the large shareholders may still be below the optimal level and shareholders will push for higher payouts to induce capital market monitoring. The higher is INST, the greater their ability to influence management actions, implying a positive rather than a negative relationship between INST and the dependent variable.

The third agency cost variable is DIRS, the insider holdings variable. The higher is DIRS, the more aligned are directors' interests with those of outside shareholders. Consequently as the percentage of insider holdings rises, the potential for agency conflicts and the need for a dividend control mechanism both decrease. This implies an inverse relationship between DIRS and the dependent variable.

The forth agency-cost variable is the percentage held by the public at large, PUBLIC. It is a proxy for ownership dispersion, assuming that the average holding per individual is relatively small. A better measure of dispersion (and the one that have been used by all the studies reviewed in Section 2) is based on the number of shareholders. However, this data is not available on the database used in this study. The more widely spread is the ownership structure, the more acute the free rider problem and the greater the need for outside monitoring. Thus the impact of PUBLIC on the dependent variable is expected to be positive.

As mentioned in Section 2, Moh'd, Perry and Rimbey (1995) recognise the importance of industrial classification to the dividend policy decision and therefore incorporate industry dummies into their variant of the cost minimisation model. In a study of business groups in 14 emerging markets, Khanna and Rivkin (2001) show that group affiliation is at least as important to the performance of the firm as its industry. Thus considering the role played by business groups in emerging economies in general and in India in particular, it is hypothesised that a group affiliation dummy should be an important

determinant of the payout ratio of Indian companies. Furthermore, agency conflicts as well as dependency on the formal capital market for external finance can be fundamentally different for group-affiliated firms. (See for example Leff 1976, Dewenter and Warther 1998, Dewenter, Novaes and Pettway, 2001, and Chang and Hong, 2000.) This justifies the inclusion of group-affiliation interaction terms as specified in Equation 2.

4. Empirical procedure and results

4.1 The data

The data were retrieved from the PROWESS database updated to 25 December 2001[4]. The sample was drawn from the 3764 non-financial Indian Private Sector companies quoted on the Bombay Stock Exchange. The constraints imposed on the sample included the provision that companies selected have a March 2001 year ending date for financial reporting and that the financial reports from which the data is obtained relate to a period of 12 months. The reason for focusing on a single year is data limitation, relating to the unavailability of a time series for shareholding patterns. After the construction of the variables and the removal of companies with negative payout ratios, a sample of 751 firms was obtained. The last stage was the removal of outliers, which resulted in a final sample size of 661 firms. Table 1 presents the descriptive statistics for the sample while Table 2 gives the correlation matrix and the Variance Inflation Factors.

[Insert Table 1 & 2 about here]

[4] PROWESS is a database developed and maintained by the Centre for Monitoring Indian Economy (CMIE).

As can be seen from Table 2 there does not appear to be high correlation between any two of the explanatory variables. The only exception is RISK and LIQUID with correlation value of –0.53. However, to assess more directly whether multicollinearity is present, the Variance Inflation Factor (VIF) procedure is undertaken. VIF($?_k$) can be interpreted as the ratio of the actual variance of the estimated coefficient, VAR($?_k$), to what it would have been in the absence of multicollinearity. (In the latter case, the coefficient of multiple determination, R^2_k, in a regression of the explanatory variable, X_k, on all other explanatory variables is zero). As can be observed from Table 2, none of the VIF values exceeds two, confirming that the sample data do not suffer from multicollinearity. Still, to address the relatively high correlation between RISK and LIQUID an approach similar to that in Lloyd, Jahera and Page (1985) is undertaken. Specifically, the variable RISK is regressed on a constant and LIQUID and the series of residuals obtained, RESIDUAL RISK, replaces the original RISK variable.

4.2 Estimation and testing results

The model to be estimated is that specified in Equation (2) with the variable RISK replaced by the variable RESIDUAL RISK as discussed in the previous section. The empirical approach is the general to specific and the results of the specific model from five estimation techniques are presented in Table 3.

[Insert Table 3 about here]

The first regression, as presented in Column 1 of Table 3, is estimated by OLSQ and the reported t-statistics are based on White Heteroskedastic-Consistent standard errors. Six variables were dropped in the process of moving from the general to the specific model,

including the constant term. The F test for the importance of these six variables do not reject the null hypothesis that they are unimportant, and most of the remaining variables bear the expected signs. Moreover, the adjusted R^2 has a value of 0.20, which is reasonable for cross sectional data. However some of the variables in the specific model, namely GROWTH, INST and PUBLIC, only enter with the group interaction terms. Likewise, DIRS, the proxy for insider ownership enters the model with a positive estimated coefficient, which is contrary to expectation. Furthermore, the results from the OLSQ regression are invalid to the extent that high percentage of observations on the dependent variable, PAYOUT, are zero. In fact 222 observations out of 661 have a payout ratio value of zero. Indeed this could be the reason that the constant term drops out of the specific model.

Theoretically the reason why about a third of the observations on the target payout ratio is zero is due to the data being censored. When the dependent variable is censored, values in a certain range are all transformed to a single value. In this case, it is assumed that whenever the target payout ratio is non-positive the firm would pay no dividends and hence the actual payout ratio, which proxy here for the target payout, is zero. The appropriate empirical approach to censored data is the Tobit model, and Column 2 of Table 3 reports both the homoscedastic Tobit and the heteroscedastic Tobit. In the case of the latter, the disturbance variance is assumed to be a function of SIZE and its squared value, SIZE SQUARED. SIZE measures the size of the firm in terms of the natural logarithm of total assets as reported in the company's financial accounts for the year ending March 2001. Although both the homoscedastic and heteroscedastic models are reported, the heteroscedastic Tobit is possibly more valid being as the LR tests reject the null hypothesis of homoscedasticity when applied both to the general and to the specific models.

There are a number of points to note when looking at the Tobit regressions of Column 2, Table 3. First, in contrast to the results of the OLSQ regression, the constant term does not

drop out of the specific Tobit model, although it enters with a negative sign, which is inconsistent with all of the studies reported in Section 2. Second, similar to the results for the OLSQ regression, RESIDUAL RISK and LIQUID enter with significant estimated coefficients that bear the expected negative and positive signs respectively. Likewise as in the OLSQ results, GROWTH appears unimportant and DIRS is important but bears a positive sign contrary to expectation. Third, unlike the results for the OLSQ regression the heteroscedastic Tobit shows the two agency costs variables, INST and PUBLIC, to be important in determining companies' target payout ratios in a way that is not inconsistent with expectations.

The Tobit models of Column 2, Table 3 assume that the sample is censored according to the value of the dependent variable, namely the target payout ratio. It is possible, however, that whether the target payout ratio is observable is based not on its own value by rather on the value of another variable that is correlated with it. For example, it is possible that companies set a target payout ratio only after making the decision to pay dividends. In this case the sample observations with positive dependent variable excludes those companies that have selected not to pay dividends. To address this self selectivity bias Column 3 of Table 3 reports the results from a sample selection procedures using, in turn, the Heckman's two step procedure and the ML technique. For the Heckman's two step procedure the Probit equation is the specified model based on Equation (2). The two variations on Equation (2) are that the RISK variable is replaced by RESIDUAL RISK and the dependent variable is a dummy that equals one if PAYOUT is positive and zero otherwise. With the ML technique the selection (Probit) equation is initially specified to include as explanatory variables the four dummy variables of Equation (2), namely GP, B1, B2 and Z, as well as SIZE and SIZE SQUARED as defined above. In the specified model, however, both GP and the constant drop out. Indeed it is worth noting that the constant term drops out of the specified Probit model in the

Hackman's two step procedure as well as in the ML procedure. This result is consistent with the results reported for the specified OLSQ model.

The results for the sample selection procedures of Column 3, Table 3, are in principal consistent with the results for the other models. Furthermore, there is evidence for sample selectivity as the estimated coefficients of both the inverse Mills Ratio in the Heckman's two step method and rho in the ML technique are significantly different from zero. There are, however, a number of deviations, which are worth noting, in the results from the sample selection procedures compared to the OLSQ and Tobit models. First, the constant appears important and bears a positive sign, which is consistent with intuition and also with the results of other studies as reviewed in Section 2. Second, the transaction cost variable, GROWTH, enters the specified models with the expected negative coefficient while RESIDUAL RISK and LIQUID appear to be more important for group affiliated than for independent firms. Third, the group affiliation dummy appears to have a significant negative influence on the target payout ratio. Bearing in mind these and the other differences in the results across the various models of Table 3, as discussed above, general conclusions can be drawn, and these are examined in the next section.

5. Conclusions and promising research ideas

The agency rationale for dividends as articulated by Easterbrook (1984) and modelled in Rozeff (1982) appears to be borne by the results of this study. Indeed the results are consistent with the idea that Private Sector firms in India set their target payout ratios so as to minimise the sum of agency costs and the costs associated with raising external finance.

The transaction costs variables, measuring growth opportunities, the volatility of stock returns and stock liquidity, generally confirm to the prediction of a negative correlation

between transaction costs and target payout ratios. It is particularly interesting to note that group-affiliation tends to enhance the sensitivity of the dividend decision to the transaction cost structure which the firm faces. These findings are at odds with Leff (1976) and with the idea that the value of business groups in emerging markets comes from their ability to create internal markets and to share financial and other resources. However, these findings are consistent with Guillen (2000) who finds that theories that focus on market imperfections do not accurately explain the importance of business groups in emerging markets.

The four agency costs variables include FOREIGN, INST, DIRS and PUBLIC. The prediction regarding the effect of the percentage of foreign ownership, FOREIGN, on the payout ratio was undetermined. However, without exception the actual effect is found to be positive indicating that the greater the percentage held by foreign institutions, the greater the need to induce capital market monitoring. This is consistent with the view that, relative to other shareholders, it may be more difficult for overseas investors to monitor the firm and its management. There is also evidence to suggest that the dividend policy of group affiliated firms is less sensitive to the percentage of equity held by foreigners. This phenomenon may be driven by the fact that in India, international analysts tend to concentrate on group affiliated firms as opposed to independent firms (Khanna and Palepu, 2000b). This may reduce information problems for foreign investors in group-affiliated firms.

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

hence this influential group of shareholders pushes for higher payouts to induce capital market monitoring.

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

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

Other extensions could include adopting empirical methodologies that account for dividend trends over time, such as the panel procedure that allows for time effects. This procedure, however, calls for relatively long time periods, which is often problematic with data from emerging markets due to the recent origin of available databases.

Additional promising research idea is to investigate further the impact of group affiliation on agency costs. Dewenter, Novaes and Pettway (2001) discuss the trade off between business groups' visibility in controlling agency conflicts and the complexity of these organisational structures, which may limit their ability to control conflicts and to reduce

information asymmetries. This trade off may be the driving force behind the mixed results obtained here regarding the impact of group affiliation on the agency costs variables. This issue may be particularly relevant in the Indian corporate context due to the traditionally important but changing role of business groups in that environment.

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Table 1: Descriptive statistics

Variable	Mean	Std Dev	Skewness	Kurtosis
PAYOUT	0.223	0.225	0.916	0.291
GROW	0.183	0.215	0.661	2.140
RISK	0.069	0.041	1.208	0.285
LIQUID	0.607	0.333	-0.322	-1.293
FOREIGN	0.066	0.101	1.968	3.336
INST	0.073	0.095	1.691	2.767
DIRS	0.434	0.212	-0.124	-0.452
PUBLIC	0.288	0.146	0.695	0.981

PAYOUT = equity dividends / net profit, 2001; GROW = annual growth rate in sales from 1997 to 2001; RISK = standard deviation of daily stock returns over the 365 days ending 31 March 2001; LIQUID = percentage of days the company's stock traded on the Bombay Stock Exchange in the year ending March 2001; FOREIGN = percentage of equity shares held by foreigners, 2001; INST = percentage of equity shares held by insurance companies, mutual funds and financial institutions, 2001; DIRS = percentage of equity shares held by directors of the company, 2001; PUBLIC = percentage of shares held by the public at large, 2001

Table 2: Correlation matrix and Variance Inflation Factors

	PAYOUT	GROW	RISK	LIQUID	FOREIGN	INST	DIRS	VIF
PAYOUT	1.000							
GROW	-0.084	1.000						1.08
RISK	-0.381	-0.077	1.000					1.50
LIQUID	0.146	0.186	-0.533	1.000				1.62
FOREIGN	0.072	0.000	-0.152	0.170	1.000			1.30
INST	0.115	-0.138	-0.211	0.253	0.027	1.000		1.40
DIRS	0.125	0.051	-0.108	-0.034	-0.291	-0.216	1.000	1.63
PUBLIC	-0.081	0.002	0.162	0.049	-0.137	-0.214	-0.382	1.54

Variable definitions are given in Table 1; VIF=$1/(1-R^2)$ where R^2 is from a regression of the explanatory variable listed on the left most column on a constant and the rest of the explanatory variables.

Table 3: Regression results

	Column 1	Column 2		Column 3	
Variable	**OLSQ**	**Homoscedastic Tobit**	**Heteroscedastic Tobit**	**Heckman's two-step**	**Sample selection**
Constant		-0.331 (-6.764)***	-0.372 (-4.824)***	0.282 (3.854)***	0.251 (4.360)***
GROW				-0.254 (-4.709)***	-0.233 (-5.061)***
RESIDUAL RISK	-1.795 (-5.148)***	-3.917 (-8.461)***	-5.599 (-11.487)***		
LIQUID	0.117 (3.577)***	0.337 (7.624)***	0.231 (5.721)***	-0.095 (-1.723)*	
FOREIGN	0.320 (2.847)***	0.313 (2.598)***	0.646 (3.335)***	0.350 (2.689)***	0.178 (1.945)*
INST			0.351 (2.842)***		
DIRS	0.262 (5.903)***	0.461 (5.979)***	0.388 (3.810)***	0.129 (2.176)**	0.084 (1.596)
PUBLIC			0.334 (3.184)***	0.288 (3.293)***	0.162 (2.246)**
GROW*GP	-0.168 (-2.901)***		-0.128 (-1.625)		
RESIDUAL RISK*GP	-1.333 (-2.688)***	-1.473 (-2.044)**		-1.862 (-1.812)*	-0.978 (-1.585)
LIQUID*GP	0.152 (3.091)***			0.274 (2.977)***	0.143 (2.159)**
FOREIGN*GP	-0.286 (-2.064)**		-0.493 (-2.230)**	-0.228 (-1.639)	
INST*GP	0.196 (1.939)*	0.492 (3.428)***		0.304 (2.400)**	0.298 (2.412)**
DIRS*GP	-0.253 (-4.103)***	-0.348 (-4.748)***	-0.333 (-2.900)***		
PUBLIC*GP	0.181 (2.760)***	0.470 (4.421)***			
GP			0.242 (3.673)***	-0.259 (-3.190)***	-0.156 (-2.762)***
B1	-0.036 (-1.965)**			-0.042 (-2.201)**	-0.054 (-1.535)
B2					-0.066 (-1.605)
Z	-0.104 (-4.212)***	-0.337 (-1.743)*	-0.296 (-1.735)*	-0.142 (-3.823)***	-0.282 (-1.615)
Sigma		0.272 (27.836)***			0.221 (21.035)***
Constant (sigma equation)			0.737 (2.224)**		
SIZE (sigma equation)			-0.669 (-5.265)***		
SIZE SQR (sigma equation)			0.045 (3.866)***		
Inverse Mills ratio				0.082 (1.769)*	
Rho					0.902 (22.643)***

Variable definitions are given in Table 1 for all variables excluding the following: RESIDUAL RISK = the residuals obtained from a regression of RISK on a constant and LIQUID; GP = a dummy that equals 1 if the firm is group affiliated; B1 = a dummy variable that equals 1 if the firm is classified by the Bombay Stock Exchange as a listing flag B1 (relatively liquid); B2 = a dummy variable that equals 1 if the firm is classified by the Bombay Stock Exchange as a listing flag B2 (less liquid); Z = a dummy variable that equals 1 if the firm is classified by the Bombay Stock Exchange as a listing flag Z (least liquid).