



“Does ownership structure affect the ex-ante cost of capital?”

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DOES OWNERSHIP STRUCTURE AFFECT THE EX-ANTE COST OF CAPITAL?

Abstract

The literature on ownership structure in Indian firms does not clearly show how various large shareholdings connected to controlling agency conflicts affect a firm's outcome. Evidence suggests that large shareholders are in a stronger position to keep a firm's management more responsible than its dispersed shareholders, thereby positively affecting the firm's outcome. This research gap has sparked interest in examining the relationship between three large holdings – corporate, institutional, and foreign holdings – and expected returns measured using an ex-ante cost of capital approach in Indian listed firms between 2016 and 2021. The study used a pooled OLS technique to estimate the baseline results and a two-step system GMM technique to validate the baseline results. The results indicate that corporate holdings and expected returns have an inverted U-shaped relationship, institutional holdings and expected returns have a U-shaped relationship, and foreign holdings and expected returns have a U-shaped relationship. The results also reveal that while the threshold for each firm and industry can be different, on average, corporate holdings above 34.3%, institutional holdings below 14.15%, and foreign holdings below 49.80% negatively affect expected returns. The findings suggest that an optimal mix of large shareholders can reduce the risk of any group exerting excessive control over a company and provide benefits in terms of efficient monitoring. Expropriation of minority shareholders can occur in developing countries with weak legal protections. However, this study suggests that large shareholders can mitigate this issue by acting as a check on managerial agency problems, thereby increasing a firm's efficiency.

Keywords

corporate governance, agency costs, expected returns,
implied cost of capital, emerging markets

JEL Classification

G30, G32

INTRODUCTION

Corporate governance (CG) activities are concerned with generating a higher ROI for the suppliers of funds to a firm. Monitoring manager behavior is emphasized as a fundamental tenet of corporate governance because effective monitoring minimizes the negative impacts of managerial entrenchment. In an emerging market like India, the agency problem is particularly acute due to firms' ownership concentration, resulting in a lack of accountability and transparency. It is well-established in the literature that minority shareholders' wealth expropriation is more probable in countries where investor protection laws are not well-established (La Porta et al., 1998; Leuz et al., 2009). This is because weak investor protection laws provide less legal recourse for minority shareholders to defend their interests and hold the majority shareholders accountable for their actions. Studies in Indian firms find evidence for ownership concentration (Hegde et al., 2020; Jameson et al., 2014), expropriation of minority shareholders (Bertrand et al., 2002; Khanna et al., 2006), and weak investor protection in the setting (Chauhan et al., 2016). This highlights the significance of having large shareholders in a firm. According to the evidence in the literature, large shareholders are in a stronger position to

keep firm management responsible than dispersed owners. There is also strong evidence that the ownership structure of a corporation can greatly impact its financial performance through its influence on incentive mechanisms, decision-making processes, and performance monitoring systems. As a result, understanding how various large shareholders, such as corporate, institutional, and foreign shareholders, influence a firm's outcome in Indian firms is critical.

Evidence on the relationship between various large shareholdings and a firm's outcome in the context of Indian firms is restricted to a few studies (Chhibber & Majumdar, 1999; Patibandla, 2006; J. Sarkar & S. Sarkar, 2000). This indicates a lack of recent evidence in light of the changing corporate landscape during the last two decades, including increased corporate, institutional and foreign investments in firms. Prior research that studied the association between a firm's outcome and its ownership structure in this context does not provide a clear picture of how different large shareholdings connected to controlling agency conflicts affect a firm's outcome. The mixed findings in the existing studies may be caused by adopting firm value measures such as Tobin's Q and return on assets (ROA) that are subject to the treatment of accounting variables with all the possible inconsistencies, as Pham et al. (2012) stated. This backdrop motivated the authors to use expected returns under ex-ante models, commonly known as implied cost of equity capital (ICC) models, to measure a firm's outcome in this study. The ex-ante models estimate the expected return that is implied in the current market price and expected earnings estimates. Evidence suggests that expected returns are not influenced by the exogenous factors that affect the growth and profitability of a firm (Pham et al., 2012), and the measure of expected returns, ICC, is not influenced by the noisy realized returns as compared to factor-based models like CAPM (Pástor et al., 2008).

This study aims to examine the relationship between large holdings and expected returns in the context of Indian firms from 2016 to 2021. Understanding this relationship is crucial for every firm to reduce the adverse effect of any group of shareholders exerting control over the management and enhance the benefits of efficient monitoring. This study can also shed light on the role of corporate, foreign, and institutional investors in shaping the behavior of firms, which can have implications for the functioning of financial markets. It is reasonable to expect that the expropriation of minority shareholders can occur in a weak investor protection environment, but large shareholders can mitigate this issue by acting as a check on management and ensuring accountability.

1. LITERATURE REVIEW

One of the critical questions in the theoretical corporate governance literature concerns the nature of the linkage between the ownership structure and a firm's outcome. According to studies (Jensen & Meckling, 1976; Shleifer & Vishny, 1986), the ownership structure is one of the techniques used to control agency conflicts in firms. Various large shareholders can have a significant impact on a firm's outcome depending on the kind and extent of their monitoring and control activities. At different shareholding levels, shareholders' incentives to control and monitor management may differ. For instance, group firms holding significant stakes get advantages

in inputs at a cost lower than the market, eliminating the middleman costs incurred on acquisition. The benefits and costs of large shareholding observed in the context of developed markets could be relevant in emerging markets like India. However, the institutional characteristics common to emerging markets determine the costs and benefits of large shareholdings on a firm's outcome.

The dominance of promoter/founder holding and family holding in the capital structure of an Indian firm sets it apart from other emerging nations¹. Studies (Bertrand et al., 2002; Claessens et al., 2002; Gibson, 2003; Khanna et al., 2006) suggest that when there is a high concentration of

1 Studies (Hegde et al., 2020; Jameson et al., 2014) confirm that there is ownership concentration in Indian firms due to increased promoter and family holding.

ownership, the agency problem is the existence of a conflict of interest between the majority and the minority shareholders, resulting from the expropriation of minority shareholders through the implementation of operational and financial decisions (Leuz et al., 2009). According to the findings of several studies, investor protection also plays a part in reducing the negative impact of the expropriation of the wealth held by minority shareholders. Evidence suggests that firms in countries that provide a lower level of protection for investors may have a higher incidence of wealth expropriation (La Porta et al., 1998; Leuz et al., 2009). India is classified as having weak investor protection (Chauhan et al., 2016), which is expected to induce the expropriation of dispersed minority shareholders' wealth by the controlling majority shareholders. This makes it more important to look at the relationship between different types of large holdings and a firm's outcome in the context of Indian firms to figure out how the monitoring and control roles of different owners affect the outcome.

When there is corporate holding, there is a high chance that business groups will exercise more control over the firm, which will undoubtedly affect the firm's outcome. La Porta et al. (1998) state that "corporate bodies are often publicly traded companies and group companies"; therefore, most corporate bodies collectively own shares with firms in the same group. Claessens et al. (2000) argue that founders of business groups retain control over the firm using pyramidal and cross-holding structures². This adds further incentives for such owners to expropriate the resources from enterprises with dispersed ownership structures, where minority shareholders have low incentives to oversee the managers, eventually leading to poor performance and inefficient corporate governance. Bertrand et al. (2002) also find evidence supporting the controlling shareholders' exploiting minority shareholders through pyramidal and cross-holding. They also find that business group enterprises, as opposed to standalone firms, are expected to experience earnings losses during industry shocks.

Khanna and Palepu (2000), on the other hand, discover that affiliated firms in diverse business groups outperform firms with a dispersed ownership structure in the same sector. Similar findings have been made by Homroy and Banerjee (2015), demonstrating that corporations affiliated with business groups and having more concentrated ownership are often larger and more profitable than independent companies. Agency conflicts arise between the minority and majority shareholders due to the decision-making power inherent in the founder owners (Claessens & Fan, 2002; Claessens & Yurtoglu, 2013). J. Sarkar and S. Sarkar (2000) investigated the relationship between corporate holding and firm's outcome in Indian firms and discovered that higher corporate holding increases the firm's value while lower levels have no effect. They contend that this results from the excessive control that the cross-holding management of group enterprises exerts over firms.

Pound (1988) examined the relationship between institutional holding and firm value using three hypotheses, the effective monitoring hypothesis, the strategic alignment hypothesis, and the conflict-of-interest hypothesis³. The efficient monitoring hypothesis says that institutional investors can monitor management more efficiently at a lower cost than minority shareholders, resulting in lower agency costs. The strategic alignment hypothesis talks about the advantageous cooperation between institutional investors and managers, leading to the loss of the benefits of constant monitoring. The interaction between institutional investors and management, which results in the investors voting their shares with management, is examined under the conflict-of-interest theory. Conflict of interest and strategic alignment hypotheses exacerbate the conflict of interest between controlling and minority shareholders. Although there is a clear distinction between each hypothesis regarding agency conflicts, institutional investors are regarded as more knowledgeable and experienced investors due to their expertise in obtaining and analyzing business information, according to Jung and Kwon (2002).

2 The pyramidal ownership structure allows controlling shareholders to exert more control over the member companies in the same business group, despite the fact that they only retain a small fraction of the cash-flow rights.

3 For arguments: under efficient monitoring hypothesis see Black (1998), under conflict-of-interest hypothesis see Burkart et al. (1997), and under strategic alignment hypothesis see Pound (1988).

McConnell and Servaes (1990) observed a positive relationship between institutional investors and the value of NYSE and AMEX corporations. They argue that the convergence of interests brings about the relationship, as Pound (1988) suggests. Along similar lines, Wang and Xu (1999) discover a positive relationship in Chinese firms as an outcome of improved monitoring by institutional investors. Lower levels of institutional ownership in Indian enterprises, according to J. Sarkar and S. Sarkar (2000), decrease value, whereas higher levels have no impact. This result goes against the notion that institutional investors continuously monitor the managers. Kumar (2004), on the other hand, discovers a positive relationship between institutional ownership and value after a threshold.

Forbes (2002) claims that the openness of the Indian economy to international investment caused Indian businesses to gradually adopt more robust corporate governance practices. According to Douma et al. (2006), firms with foreign ownership had superior performance, contradicting Barbosa and Louri (2002). Firms with a more significant percentage of foreign ownership will often outperform their local counterparts in a given nation and industry setting (Caves, 1996). Foreign financial institutions, particularly private ones, are more compelled to keep an eye on the managers of their portfolios in order to maximize investment returns. These companies have more effective management monitoring systems than local private financial institutions in developing regions (Rapaczynski, 1996). This may result from increased transparency and reduced information asymmetry, as documented by Aggarwal et al. (2011). The study also finds that domestic firms play a critical role in improving corporate governance in high-investor-investor-protection countries, while foreign institutions ensure better governance in low-investor-protection countries.

In the context of Indian firms, studies that investigated the relationship between foreign holdings and firm value came to a variety of conclusions, which were not unanimous. According to Chhibber and Majumdar (1999), lower levels of

foreign holdings do not affect the value, while higher levels of holdings positively affect the value. They argue that after the change in the property rights regime in 1991, firms in which foreign owners had significant control outperformed those with no foreign control. Patibandla (2006) finds a positive and non-monotonic relationship between foreign holdings and profitability. They explain the non-monotonic relationship based on the increased agency conflicts when the equity holdings of a few large investors increase beyond a specific limit. Also, foreign equity escalates the cost of risk associated with macroeconomic variables such as exchange and interest rates. The positive relationship observed by J. Sarkar and S. Sarkar (2000) claims that the association results from an increased likelihood of technology transfer to Indian enterprises and less insider benefit diversion as a result of increased monitoring. Their findings are similar to those identified in other studies (Chhibber & Majumdar, 1999; Patibandla, 2006). Contradicting these results, Kumar (2004) finds a negative and insignificant relationship in Indian firms.

The existing evidence suggests that the monitoring and control roles performed by corporate, institutional, and foreign shareholders affect a firm's outcome. Prior studies that examined the relationship between ownership structure characteristics and firm outcomes in Indian enterprises produced mixed findings. This is because such studies employed firm value and performance measures like Tobin's Q, which suffers from the effects of factors such as industry and economic conditions that affect the firm's profitability and growth (Pham et al., 2012). This backdrop motivated the adoption of expected returns to measure the firm's outcome that accurately captures the year-over-year changes in the corporate governance environment without being influenced by external factors affecting a firm's profitability and growth⁴. This study empirically examines the variation in expected returns measured using ICC models and explained by the variation in the large shareholding of Indian firms by addressing the potential endogeneity.

4 On the basis of Himmelberg et al. (1999) and its subsequent comments in Zhou (2001) on the weakness of Tobin's Q, Pham et al. (2012) assert that cost of capital is the return that the investors demand from their equity investment that is based on the current risk; thus, it reflects changes in the corporate governance environment without being influenced by exogenous factors such as economic and industry conditions.

2. DATA AND METHODOLOGY

2.1. Data and variables

The study used data from the CMIE Prowess IQ during the period from 2006–2021 for the computation of earnings under the model-based technique and from 2016 to 2021 to examine the relationship between large holding variables and expected returns. The time period selection is based on the availability of earnings data required in estimating the forecasted earnings values under the earnings persistence (EP) model as expressed in Equation A1 under Appendix A. The study does not consider financial firms because high leverage indicates financial distress. To eliminate outliers that potentially bias the regression results, the variables are winsorized at 1 and 99 percentiles.

The study uses expected returns computed using ICC as the measure of a firm's outcome. ICC is the cost of equity (COE) estimated by equating the market price of equity and the forecasted values of future earnings. The three ICC models used in the study are: the price earnings growth (PEG) model and the modified price earnings growth model (MPEG) of Easton (2004) and Ohlson and Juettner-Nauroth's (2005, OJ) model. These models are called ex-ante models as they are estimated using earnings forecasts in residual income or dividend discount models. The primary variable in the ICC models' computations is the sell-side analysts' earnings forecasts. Due to the fact that the earnings forecast for Indian companies is limited to a select group of companies, this analysis uses the Earnings Persistence (EP) model, which is based on the work of Li and Mohanram (2014). EP model predicts future earnings strictly based on the sample that can be used in the computation of the ICC models. See Appendix A section for the explanations and computations of the models.

Three holding variables were included in the multivariate analysis: corporate holding (CORP), institutional holding (INST), and foreign holding (FOR). CORP is the shareholding ratio of corporate bodies to total shares outstanding. Corporate bodies include Indian promoter corporate bodies and non-promoter corporate bodies. INST is the ratio of non-promoter institutions to the total outstanding shares. FOR is the ratio of shares held by

foreign shareholders to the total shares outstanding. Foreign shareholders include shares held by foreign promoters, non-promoter qualified foreign investors, non-promoter qualified foreign institutions, non-promoter foreign venture capital, and non-promoter FIIs.

The effect of leverage (LEV), beta (BETA), size (SIZE) and book-to-market ratio (BTM) are controlled in the multivariate models following El Ghouli et al. (2011) and Tseng and Demirkan (2021). LEV is the ratio of long-term debt to total assets, BETA represents the market beta, SIZE is the natural logarithm of total assets, and BTM is the ratio of the book value of equity to the market price of equity. See Appendix B for the summary statistics of the variables.

2.2. Empirical methodology

The following models examine the relationship between holding variables and ICC. The first model, Equation 1, examines the relationship between holding variables and ICC to unveil the impact of different types of equity holding on expected returns. As expressed in Equation 2, the second model examines whether any nonlinear relationship exists between holding variables and ICC motivated by the partial correlation results reported in Table B3 under Appendix B. This analysis is performed to see whether there is a threshold limit at which the relationship's direction changes. The study uses a micro panel for the estimation and therefore considers using panel data modeling techniques that capture individual effects as a robustness check of the baseline results estimated using pooled OLS.

$$ICC_{i,t} = \beta_0 + \beta_1 CORP_{i,t} + \beta_2 INST_{i,t} + \beta_3 FOR_{i,t} + \beta_4 LEV_{i,t} + \beta_5 BETA_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t} + \delta_t + \gamma_j + \varepsilon_{i,t}, \quad (1)$$

$$ICC_{i,t} = \beta_0 + \beta_1 CORP_{i,t} + \beta_2 INST_{i,t} + \beta_3 FOR_{i,t} + \beta_4 CORP^2_{i,t} + \beta_5 INST^2_{i,t} + \beta_6 FOR^2_{i,t} + \beta_7 LEV_{i,t} + \beta_8 BETA_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} BTM_{i,t} + \delta_t + \gamma_j + \varepsilon_{i,t}. \quad (2)$$

The dependent variable of the above models is ICC computed under the three models, and the

explanatory variables include CORP, INST, FOR, and its squared transformations. The control variables LEV, BETA, SIZE and BTM are taken following El Ghouli et al. (2011) and Tseng and Demirkan (2021). An explanation of the variables is given in section 3.2. The expected signs of the control variables are LEV (+), BETA (+), SIZE (-), and BTM (+). δ_t and γ_j represent time and industry dummies, respectively.

3. EMPIRICAL RESULTS

3.1. Main model

In this section, the results of the empirical analysis that was carried out using the models that were expressed in Equations 1 and 2 are presented and discussed. The results of the regression analysis that investigates the impact of large holding variables, namely corporate, institutional, and foreign holdings, on the ICC models are presented in Tables 1 and 2. The results of the multivariate regression analysis using Equation 2, which investigates the nonlinear relationship between the holding variables and the ICC, are presented in Table 2. To account for the possibility of measure-

ment errors occurring in individual models, this investigation made use of the ICC models and an equal-weighted average (i.e., AVG)

The findings of the regression analysis examining the linear relationship between holding variables and expected returns, as determined by ICC models, are presented in Table 1. The results indicate that only foreign holdings have a substantial effect on expected returns, and the sign of the coefficient is negative. This shows that the expected return drops as foreign holdings increase. The control variables exhibit the relationship predicted by the prior research. Greater LEV, BETA, and BTM are associated with greater expected returns, whereas SIZE is adversely correlated with expected returns. LEV is positively related to expected returns because higher leverage increases financial distress. BETA is the measure of market risk and is positively associated with the measure of expected returns. Higher BTM indicates that value stocks that have higher expected returns.

Additionally, the study performs an analysis to examine the presence of any curvilinear relationship as expressed in Equation 2. Table 2 displays the findings of this investigation.

Table 1. Holding variables on ICC models using pooled OLS

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	OJ	AVG
CORP	-0.000 (0.024)	-0.005 (0.024)	-0.017 (0.032)	-0.026 (0.029)
INST	0.099 (0.134)	0.094 (0.133)	0.223 (0.172)	0.219 (0.159)
FOR	-0.139*** (0.029)	-0.142*** (0.029)	-0.196*** (0.038)	-0.196*** (0.036)
LEV	0.080** (0.040)	0.077** (0.039)	0.068 (0.043)	0.060 (0.037)
BETA	0.056*** (0.012)	0.054*** (0.012)	0.059*** (0.016)	0.053*** (0.015)
SIZE	-0.021*** (0.005)	-0.020*** (0.005)	-0.013** (0.006)	-0.015** (0.006)
BTM	0.010** (0.005)	0.010** (0.005)	0.006 (0.005)	0.007 (0.005)
Constant	0.403*** (0.047)	0.396*** (0.047)	0.406*** (0.060)	0.420*** (0.057)
Observations	3,575	3,539	2,604	2,600
Adjusted R-squared	0.183	0.186	0.160	0.173
Time dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes

Note: Columns 1 through 4 of Table 1 present the regression analysis results that examine the relationship between holding variables and the ICC models as expressed in Equation 1. The clustered firm-level standard errors are in parentheses. The model is estimated with pooled OLS with industry and time dummies. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2. Holding variables on ICC models, including the second-order polynomials using pooled OLS

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	OJ	AVG
Panel A. Holding variables on ICC models				
CORP	0.233*** (0.082)	0.229*** (0.082)	0.231** (0.107)	0.225** (0.101)
INST	-0.719*** (0.195)	-0.709*** (0.196)	-0.777*** (0.247)	-0.701*** (0.228)
FOR	-0.426*** (0.086)	-0.431*** (0.086)	-0.511*** (0.118)	-0.492*** (0.108)
CORP ²	-0.312*** (0.105)	-0.312*** (0.105)	-0.323** (0.134)	-0.328*** (0.126)
INST ²	2.311*** (0.559)	2.263*** (0.562)	2.700*** (0.648)	2.477*** (0.583)
FOR ²	0.467*** (0.115)	0.468*** (0.115)	0.525*** (0.164)	0.494*** (0.152)
LEV	0.076** (0.037)	0.073** (0.036)	0.065 (0.040)	0.057* (0.034)
BETA	0.040*** (0.012)	0.039*** (0.012)	0.042*** (0.016)	0.038** (0.015)
SIZE	-0.010* (0.005)	-0.008* (0.005)	-0.001 (0.007)	-0.004 (0.006)
BTM	0.008* (0.005)	0.009* (0.005)	0.005 (0.005)	0.006 (0.005)
Constant	0.339*** (0.047)	0.333*** (0.047)	0.338*** (0.062)	0.355*** (0.058)
Observations	3,575	3,539	2,604	2,600
Adjusted R-squared	0.211	0.213	0.187	0.199
Time dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Panel B. Threshold calculation				
CORP	0.3734	0.3670	0.3576	0.3430
INST	0.1556	0.1567	0.1439	0.1415
FOR	0.4561	0.4605	0.4867	0.4980

Note: Panel A of Table 2 presents the regression analysis results that examine the nonlinear relationship between holding variables and the ICC models as expressed in Equation 2. The model is estimated with pooled OLS with industry and time dummies. Panel B of Table 2 presents the threshold limits at which the direction of the relationship between holding variables and expected returns changes. The clustered firm-level standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A of Table 2 shows the results of the regression analysis that examines the effect of holding variables on the ICC models using Equation 2. The model is estimated using pooled OLS with time and industry dummies. The findings of the analysis indicate a substantial positive relationship between CORP and ICC, showing that increasing corporate ownership raises expected returns. The coefficient of INST is negative and statistically significant, demonstrating a negative relationship be-

tween institutional holdings and expected returns. The highly substantial negative coefficient of FOR validates the negative relationship between foreign holdings and expected returns.

The curved nature of the relationship between the three holding variables and ICC is indicated by the negative and significant coefficient of the squared value of CORP and the positive and significant coefficients of the squared values of INST and FOR. Corporate holdings and expected returns appear to have an inverted U-shaped relationship, but institutional holdings and expected returns and foreign holdings and expected returns have U-shaped relationships. The convergence of interests generates a negative relationship between corporate holdings and expected returns over the level at which group firms exert influence over firms. Therefore, the study discovered the presence of a threshold limit beyond which the relationship between holding variables and expected returns changes direction.

The association between institutional holdings and expected returns below the threshold is inversely proportional to institutional investors' monitoring efficiency. According to the conflict of interest and strategic alignment hypothesis, cooperation between institutional investors and management results in a negative relationship after a certain threshold. The negative association between foreign holdings and expected returns below the threshold results from reduced information asymmetries, whereas the positive relationship over the threshold results from the foreign holders' disproportionate control over enterprises. This implies that the managers have a role in managing the equity holding structure that mitigates its adverse effect of excessive control on the expected returns, ultimately increasing the market price. The findings of this study are robust across all regression analyses employing the three ICC models and the average of all three models. The control variables included in the analysis exhibit characteristics consistent with the predictions of the literature.

Panel B of Table 2 displays the threshold limit computed following Wooldridge (2016), beyond which the direction of the relationship between holding variables and expected returns changes. The figures under the average ICC indicate that

the direction of the relationship between corporate holding, institutional holding and foreign holding and expected returns changes at 34.3%, 14.15% and 49.80%, respectively. The takeaway from this analysis is that the level of corporate holding above 34.3%, institutional holding below 14.15%, and foreign holding below 49.80% have a beneficial effect on the expected returns of firms and, ultimately, on the market price of equity.

3.2. Robustness check

Literature indicates that OLS results may be biased due to simultaneity and unobserved firm-specific heterogeneity. Table 3 displays the results of the robustness analysis performed on the baseline results using a two-step GMM system.

Table 3. Robustness check of holding variables on ICC models using a two-step system GMM

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	OJ	AVG
Time dummies	Yes	Yes	Yes	Yes
Number of instruments	17	17	14	14
p-value of AR(3) statistics	0.511	0.462	0.874	0.773
p-value of Hansen statistics	0.291	0.376	0.151	0.147
PEG = L,	-0.553 (0.338)	-	-	-
EA = L,	-	-0.561* (0.328)	-	-
OJ = L,	-	-	-1.223*** (0.236)	-
AVG = L,	-	-	-	-1.225*** (0.218)
CORP	0.344** (0.143)	0.340** (0.145)	0.642** (0.255)	0.598** (0.245)
INST	-1.049*** (0.361)	-1.057*** (0.364)	-1.471** (0.631)	-1.314** (0.572)
FOR	-0.685*** (0.211)	-0.696*** (0.210)	-1.150*** (0.312)	-1.122*** (0.284)
CORP^2	-0.465** (0.193)	-0.464** (0.196)	-0.901*** (0.335)	-0.870*** (0.319)
INST^2	3.248*** (1.005)	3.232*** (1.010)	5.101*** (1.720)	4.662*** (1.522)
FOR^2	0.704*** (0.237)	0.711*** (0.236)	1.124*** (0.394)	1.073*** (0.357)
LEV	0.148** (0.064)	0.143** (0.062)	0.177** (0.090)	0.155** (0.076)
BETA	0.046** (0.020)	0.045** (0.020)	0.052* (0.031)	0.050* (0.029)
SIZE	-0.008 (0.008)	-0.006 (0.008)	0.008 (0.014)	0.001 (0.013)
BTM	0.009 (0.006)	0.010 (0.006)	0.005 (0.009)	0.008 (0.009)
Constant	0.407*** (0.090)	0.281*** (0.086)	-147.931*** (24.485)	-140.764*** (22.263)
Observations	2,445	2,418	1,599	1,597
Number of co_id	794	785	580	579

Variables	(1)	(2)	(3)	(4)
	PEG	MPEG	OJ	AVG
Time dummies	Yes	Yes	Yes	Yes
Number of instruments	17	17	14	14
p-value of AR(3) statistics	0.511	0.462	0.874	0.773
p-value of Hansen statistics	0.291	0.376	0.151	0.147

Note: Columns 1-4 of Table 3 present the regression results that examine the relationship between holding variables and the three ICC models incorporating the second polynomials of the variables of interest, CORP, INST, and FOR. The models are estimated using a two-step system GMM with time dummies. The firm-level clustered standard errors are in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

The robustness analysis using the two-step system GMM confirms the validity of the results obtained in the baseline analysis reported in Table 2. The analysis uses time dummies and clusters the standard errors at the firm level. The p-values of the AR(3) and Hansen statistics are used to confirm that there is no third-order serial correlation and that the instruments used are valid. Roodman (2009) states that higher p-values of Hansen statistics indicate trouble. In the results of the study, the Hansen statistic is around 15 % in two cases, confirming that the instruments' validity is not a severe concern in the analysis. The control variables show signs according to the predictions in the literature.

3.3. Endogeneity

The major sources of endogeneity suspected in this analysis are simultaneity (Margaritis & Psillaki, 2010; Pindado & Torre, 2006) and unobserved heterogeneity (Himmelberg et al., 1999). The primary source of endogeneity is simultaneity when talking about ownership and firm value rather than firm-specific unobserved heterogeneity, according to Pindado and Torre (2006). This case is expected to be similar when the outcome variable is expected returns, as expected return is also the required rate of return that the investors demand for their investment (El Ghouli et al., 2011). Some of the unobserved factors that determine the ownership may also determine the expected returns, spuriously appearing to be the determinants of expected returns that lead to endogeneity. Himmelberg et al. (1999) made a similar observation regarding the relationship between ownership and firm performance. Also, in the sample of this study, there

was a lack of stability of ownership during the period considered, which is an additional reason to suspect endogeneity. To address these concerns, Equation 2 is estimated using a two-step system GMM, a dynamic panel technique. The model produces consistent results in the presence of the feedback effect and firm-specific unobserved heterogeneity. The findings of the analysis using a two-step system GMM, presented in Table 3, are consistent with the baseline results shown in Table 2.

4. DISCUSSION

This study explores the impact of holding variables on expected returns computed using an ex-ante cost of capital model for listed Indian companies from 2016 to 2021. The study mostly used measurements such as Tobin's q as the firm's outcome, which is susceptible to the exogenous factors that affect profitability and growth, resulting in contradictory findings. To address this concern, the paper's analysis employed an ex-ante cost of capital approach to analyze the association between holding variables as well as the expected returns of a firm. The empirical analysis finds that corporate holding positively affects expected returns, and after a threshold, it negatively affects the expected returns. The excessive control corporate holders exercise on firms through cross-holding could lead to a positive relationship between the two, as studies (Bertrand et al., 2002; Claessens et al., 2000; Claessens & Yurtoglu, 2013) suggest. Reduced agency costs may cause a negative relationship

after a threshold, as the convergence of interest hypothesis documented by studies (Jensen & Meckling, 1976; Shleifer & Vishny, 1986).

Whereas institutional holding and foreign holding negatively affect expected returns, and after a threshold, it positively affects the expected returns. Higher institutional and foreign holding is perceived to be associated with reduced information asymmetry, but the results of this study suggest that institutional and foreign holding after a threshold positively affects the expected returns. The positive relationship after a threshold may be caused by the cooperation between managers and institutional investors, which reduces the benefits of constant monitoring, as the conflict of interest and strategic alignment hypotheses suggest (Burkart et al., 1997; Pound, 1988). The negative relationship between the two below the threshold is the outcome of efficient monitoring, as studies (Black, 1998; Jensen & Meckling, 1976; Shleifer & Vishny, 1986) suggest.

Foreign holding and expected returns depicted a negative relation due to improved transparency and reduced information asymmetry, as Aggarwal et al. (2011) documented. The market perception may cause a positive relationship after a threshold that foreign holders exercise control over the firm. These findings are qualitatively similar to the robustness checks performed using the two-step system GMM, which accounts for feedback effect and unobserved heterogeneity. This being said, no clear evidence supports the arguments observed in developed countries that happen to be the same in the Indian context; therefore, this needs further exploration.

CONCLUSION

This paper's empirical analysis adds to the research on ownership structure in Indian companies by looking at the relationship between ownership structure and expected returns for Indian-listed companies from 2016 to 2021. Any company needs to have a solid understanding of this relationship to minimize the negative impact of any shareholder group's ability to exert control over management and maximize the positive effect of effective monitoring. Further, the ownership structure can influence a firm's performance by impacting managerial incentives and performance. Therefore, understanding this relationship can also help in improving firm efficiency. The inferences are made from the baseline models estimated using pooled OLS techniques, and the robustness results estimated using a two-step system GMM technique.

The results of the multivariate analysis give a clearer picture of how the equity holdings of large shareholders influence the expected returns of Indian enterprises. The study discovered evidence of a nonlinear relationship between large holding variables and expected return in the analysis. According to the

results, there is an inverted U-shaped relationship between corporate holdings and expected returns, a U-shaped relationship between institutional holdings and expected returns, and a U-shaped relationship between foreign holdings and expected returns. The results suggest that while the threshold can be different for each company and industry, on average, corporate ownership above 34.30%, institutional ownership below 14.15%, and foreign holdings above 49.80% have a beneficial effect on the expected returns. Expropriation of minority shareholders can occur in developing countries with weak legal protections; however, the findings suggest that this problem can be mitigated by having large shareholders, which increases the firm's efficiency. A further extension of this work would be that while studying corporate governance in Indian enterprises, examining the differential impact of family and non-family firms is essential. This is because one of the reasons for ownership concentration in Indian firms is family owners holding significant stakes in firms.

AUTHOR CONTRIBUTIONS

Conceptualization: Jains P Chacko, Lakshmi Padmakumari.

Formal analysis: Jains P Chacko.

Methodology: Jains P Chacko.

Software: Jains P Chacko.

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APPENDIX A

ESTIMATION OF EP MODEL AND ICC MODELS

Earnings Persistence model

The model is written as future earnings in terms of current year earnings, past year negative earnings, and its interaction term, as illustrated in Equation A1. To forecast earnings under the EP model for $t + 1$ and $t + 2$, this study follows Hou et al. (2012) implementation.

$$EPS_{i,t+\tau} = \beta_0 + \beta_1 \cdot EPS_{i,t} + \beta_2 \cdot NEPS_{i,t} + \beta_3 \cdot EPS_{i,t} \cdot NEPS_{i,t} + \varepsilon_{i,t+\tau}, \quad (A1)$$

where $EPS_{i,t+\tau}$ stands for one year and two years ahead FEPS, $NEPS$ is the indicator variable which takes the value of 1 if the firm reported negative earnings in the previous financial year and 0 otherwise. $EPS \cdot NEPS$ is the interaction variable.

Hou et al. (2012)'s methodology estimates the coefficients to predict $t + 2$ for the year t , which in this case is 2016, using a pooled regression over the years 2006 to 2015. In a similar manner, the coefficients to predict the year $t + 1$ are estimated using a pooled regression over the years 2007 to 2015. This process ensures that the earnings forecasts under the EP model are strictly from the sample that is under consideration.

ICC models

PEG model: This model is a less specific variation of the EA model that does not consider dividend distributions. Based on the short-term earnings predictions shown below, this analysis considers the PEG ratio utilized by El Ghouli et al. (2011).

$$P_t = \frac{(FEPS_{t+2} - FEPS_{t+1})}{(ICOE_{PEG})^2}, \quad (A2)$$

where $ICOE_{PEG}$ is the ICC computed using PEG ratio, $FEPS_{t+\tau}$ is the cross-sectional forecast of EPS using the EP model and P_t is the firm's market price per share at time t .

MPEG model: The EA model is a generalized version of the PEG model that takes dividend growth into consideration. According to this approach, a rise in earnings prediction is necessary for ICC computation. The following formula was used by studies like El Ghouli et al. (2011) to estimate ICC.

$$P_t = \frac{(FEPS_{t+2} - FEPS_{t+1} + ICOE_{EA} \cdot DPS_{t+1})}{(ICOE_{EA})^2}, \quad (A3)$$

where $ICOE_{EA}$ is the ICC computed using EA model, $FEPS_{t+\tau}$ is the cross-sectional forecast of EPS using the EP model. DPS_{t+1} is the dividend per share at time $t+1$, which is assumed as DPS_0 , and P_t is the firm's market price per share at time t .

OJ model: The model expresses the current year's share price in terms of one-year ahead earnings forecast and short-term growth rate. The model describes the share price for the current year in terms of earnings forecasts for the following year and the pace of short-term growth.

$$ICOE_{OJ} = A + \sqrt{A^2 + \frac{FEPS_{t+1}}{P_t} (g - (\gamma - 1))}, \quad (A4)$$

where,

$$A = \frac{1}{2} \left((\gamma - 1) + \frac{DPS_{t+1}}{P_t} \right),$$

$$g = \frac{STG + LTG}{2}, \quad (A5)$$

$$STG = \frac{FEPS_{t+2} - FEPS_{t+1}}{FEPS_{t+1}}.$$

where $ICOE_{OJ}$ is the ICC computed using OJ model Model, $FEPS_{t+\tau}$ is the cross-sectional forecast of EPS using the RI model and EP model, and DPS_{t+1} is the DPS at time $t+1$, which is assumed as DPS_0 . STG and LTG stand for short-term and long-term growth rates.

This study uses the model according to Li and Mohanram (2014), which assumes the following: First, $(\gamma - 1)$ is calculated as $R_f - 3\%$, where R_f is the yield on a ten-year government bond and represents the risk-free interest rate. Second, because LTG is not accessible, the g is set to STG. When LTG is lower than STG, Li and Mohanram (2014) evaluated STG to be g , which is the rationale behind the consideration.

APPENDIX B

SUMMARY STATISTICS

Table B1. Summary statistics of ICC estimates

Panel A. Summary statistics of ICC estimates							
Variables	N	Mean	Std. Dev.	min	p25	Median	p75
PEG	6246	0.208	0.226	0.002	0.073	0.142	0.254
MPEG	6199	0.214	0.227	0.002	0.079	0.147	0.259
OJ	4757	0.243	0.257	0.002	0.091	0.162	0.298
AVG	4752	0.254	0.244	0.009	0.108	0.177	0.302
2016	687	0.241	0.207	0.009	0.112	0.177	0.281
2017	800	0.204	0.181	0.021	0.095	0.150	0.243
2018	758	0.200	0.188	0.019	0.091	0.144	0.233
2019	637	0.252	0.246	0.010	0.112	0.173	0.291
2020	929	0.358	0.342	0.024	0.161	0.250	0.430
2021	941	0.246	0.206	0.023	0.100	0.178	0.322

Panel B. Pairwise correlations between ICC estimates				
Variables	(1)	(2)	(3)	(4)
(1) PEG	1.000	–	–	–
(2) MPEG	0.999 (0.000)	1.000	–	–
(3) OJ	0.987 (0.000)	0.986 (0.000)	1.000	–
(4) AVG	0.998 (0.000)	0.998 (0.000)	0.994 (0.000)	1.000

Panel A of Table 1 presents the summary statistics of the ICC estimates, and Panel B of Table 1 presents the pairwise correlations between the ICC estimates. Table 1 indicates that the sample's mean (median) ICC is 25.4% (17.7%). Compared to the other years, there has been a significant jump in average ICC in the year 2020 due to the price fall caused by the COVID-19 pandemic.

Table B2. Summary statistics of other variables

Variables	N	Mean	Std. Dev.	p25	Median	p75
CORP	9214	0.309	0.250	0.068	0.266	0.517
INST	9403	0.044	0.075	0.000	0.004	0.064
FOR	7057	0.144	0.216	0.001	0.042	0.186
LEV	9367	0.132	0.223	0.019	0.075	0.181
BETA	10733	1.039	0.490	0.720	1.050	1.380
SIZE	13198	8.461	2.078	7.036	8.361	9.842
BTM	11002	1.044	2.571	0.269	0.624	1.338

Table 2 presents the summary statistics of the variables used in the multivariate analysis. The mean (median) of CORP is 0.309 (0.266), INST is 0.044 (0.004) and FOR is 0.144 (0.042). The lowest level of holding among the three holding in this sample is foreign holding.

Table B3. Partial and semipartial correlations of AVG with other variables

Variables	Partial Corr.	Semipartial Corr.	Partial Corr. ²	Semipartial Corr. ²	Significance Value
CORP	0.050	0.048	0.003	0.002	0.010
INST	-0.110	-0.105	0.012	0.011	0.000
FOR	-0.117	-0.112	0.014	0.013	0.000
CORP ²	-0.055	-0.053	0.003	0.003	0.005
INST ²	0.161	0.155	0.026	0.024	0.000
FOR ²	0.080	0.077	0.006	0.006	0.000
LEV	0.106	0.101	0.011	0.010	0.000
BETA	0.059	0.056	0.004	0.003	0.003
SIZE	0.009	0.008	0.000	0.000	0.653
BTM	0.138	0.133	0.019	0.018	0.000

Table 3 reports the partial and semipartial correlations of AVG with the holding variables and control variables used in the analysis. The results show that CORP is positively related, INST is negatively related, and FOR is negatively related to the AVG. However, the squared values of CORP are negatively related, INST is positively related, and FOR is negatively related to AVG, indicating the presence of a curvilinear relationship between all three holding variables and the measure of expected returns.