Corporate Diversification and Firm Performance:
How does Business Group Affiliation Matter?

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ABSTRACT

This paper investigates how a firm's key organizational and corporate governance characteristics influence diversification – performance relationship. We draw on a combination of the agency, resource-based and institutional theories to develop and test a few hypotheses. Analyzing a large sample of Indian firms, we find that firms affiliated to business groups are more diversified than independent firms and that while diversifying activities by independent firms reduces firm profitability, those undertaken by group-affiliated firms have no such impact. We also find that the impact of diversification is not homogeneous across all business groups: for firms affiliated to larger and more diverse business groups, diversification enhances firm performance. Finally, we document that foreign corporate holding among group-affiliated firms significantly moderates the diversification–performance relationship.

Keywords: Corporate diversification, Business groups, Corporate governance, Firm performance

JEL-codes: G30, G34, L22, L25

INTRODUCTION

One of the most extensively investigated areas in the fields of strategy, industrial organization and corporate finance is the relationship between corporate diversification and firm performance. Two surveys by Palich *et al.* (2000) and Martin and Sayrak (2003) examining the subject from strategy and finance perspectives attest to the wide ranging and continuing interest in the subject. While there is no dearth of studies examining the influence of diversification on performance, relatively few studies focus on the moderating role of organizational and governance factors such as business group affiliation and ownership structure. Our study is an attempt to contribute towards filling this gap in the literature. In particular, the wide-spread presence of business groups in many countries provides a fertile ground for examining a host of pertinent research questions. For example: is there a noticeable difference in the diversification levels for firms affiliated to business groups? If it is so, can we identify distinctive characteristics of affiliated firms that necessitate corporate diversification? Given that a business group is already diversified into several industries, why then the firms affiliated to business groups also diversify? Do affiliated firms eventually succeed in enhancing the primary benefits of corporate diversification? Does the nature of diversification differ at the firm and group levels? Are there differences in the characteristics of business groups associated with their diversification?

We seek to provide answers to some of these questions by examining a large sample of firms from India - one of the leading emerging markets with a long history of business groups. India is also ideal from another perspective, in that the country has embarked on an ambitious liberalization program in 1991 and some of these liberalization measures have had a huge impact on the dynamics of the competitive corporate environment. By taking into account these institutional developments, we attempt to address a concern expressed by Wright *et al.* (2005) on

the need for more focus on strategies pursued by emerging economy firms and to explore how institutional environments may influence corporate diversification.

Our study has a focus akin to a few recent papers analyzing business groups. Kim *et al.* (2004) examine the diversification strategy of group affiliated firms from Japan by explicitly taking into account differences among Keiretsu member firms. They utilize a power dependence perspective to shed light on the relationship between diversification and profitability/growth. Chakrabarti *et al.* (2007) study how corporate diversification is influenced by business group affiliation in six Asian countries. An analysis of diversification among firms and business groups in India is made by Khanna and Palepu (2000) and Singh *et al.* (2007). However, our study is different in that we focus on the inter-play between firm level diversification strategies and group level characteristics. We argue that controlling owners of group-affiliated firms may engage in strategic decisions concerning group scope by determining the size and the diversity of the business group. These decisions could impinge on corporate diversification strategies engaged by individual group-affiliated firms. To our knowledge, we are among the first to examine this interface between heterogeneity in group characteristics (such as size and diversity) and firm level diversification.

In addition, we enrich the literature by investigating the influence of corporate governance mechanism on the diversification - performance relationship. Prior studies document that foreign ownership could potentially influence both performance and diversification levels of firms. Consequently, our examination of the specific influence of foreign corporate shareholdings among group-affiliated firms is an attempt to broach this important issue and fill another gap in the literature.

The remainder of this paper is organized as follows. The next section introduces and discusses the various hypotheses. This is followed by a brief description of the research method and the data. The final two sections present and discuss the empirical results and propose some concluding remarks.

HYPOTHESES

Several studies examine the diversification and performance relationship using a unitary theoretical lens (agency, resource-based or institutional perspective). However, particularly for firms in emerging economies, a unitary perspective provides a partial view of this linkage and does not capture either the contrasting contentions proposed by the various theories or their reinforcing effects that are inherent in the dynamics of diversification - performance linkage. This can only be borne out by examining them in tandem and by integrating several perspectives (Wright *et al.*, 2005). In developing our hypotheses, we adopt a multi-theoretic lens by drawing on the various strands of agency, resource-based and institutional theory. Thus, a richer and more composite understanding of the influence of various organizational and governance characteristics on the diversification - firm performance relationship is provided.

The effects of corporate diversification

There are both benefits and costs associated with corporate diversification. The efficient internal capital market argument typically suggests that diversified firms have more access to internally generated resources and can exploit superior information to allocate resources among divisions (Williamson, 1967). Diversified firms can also employ a number of mechanisms to create and exploit market power advantages, tools that are largely unavailable to their more focused counterparts. These include predatory pricing (generally defined as sustained price cutting with the design of driving existing rivals from future entry), cross-subsidization (whereby

the firm taps excess revenues from one product line to support another), entry deterrence (achieved by constructing a reputation for predatory behavior or by signaling that such a response is likely in the event of a new entry), and reciprocal buying and selling (whereby the focal company gives preference in purchasing decisions or contracting requirements to suppliers). From a resource-based perspective, further benefits of diversification include the ability to exploit excess firm specific assets and share resources such as brand names, managerial skills, consumer loyalty and technological innovations.

Benefits also stem from tax and other financial advantages associated with diversification (Berger and Ofek, 1995), and increased debt capacity due to reduced bankruptcy probabilities (Lewellen, 1971). Majd and Meyers (1987) for instance, note that undiversified firms are at a significant tax disadvantage because tax is paid to the government when income is positive, but the government does not pay the firm when income is negative. This disadvantage is reduced, but not eliminated, by the tax code's 'carry back' and 'carry forward' provisions. Their analysis predicts that as long as one or more segments of conglomerate experience losses in some years, a conglomerate pays less in taxes than its segments would pay separately.

Diversifying activities of a firm can also be associated with several disadvantages. The predominant view is that diversified firms are engulfed with severe agency problems that lead to inefficient resource allocation. Jensen (1986) asserts that managers of firms with unused borrowing power and large free cash flows are more likely to undertake unnecessary expansion activities for their private benefits. Many studies document empirical support for the agency explanation (e.g. Jiraporn *et al.*, 2006). Williamson (1967) stresses the information processing problems that arise between corporate headquarters and divisional managers. Information and

incentive problems also lead to misallocation of resources among divisions of a diversified firm (Meyer *et al.*, 1992; Rajan *et al.*, 2000).

Apart from the resource-based and agency-based perspectives on the influence of diversification on performance, the institutional context has its own role to play in setting what North (1990) states to be the 'rules of the game'. As the 'rules of game' change, the impact of diversification on performance is also expected to evolve differently. A substantive change in the institutional setting took place during the post-1991 period when India embarked on a liberalization exercise. The economic landscape which facilitated diversification strategies owing to severe imperfections in capital, labor and product markets has radically altered. The series of measures undertaken to free up capital markets and dismantle the infamous 'license raj' (characterized by heavy industrial licensing and very high import tariffs among others) ignited much needed competition in the product market and exposed firms formerly used to a cocooned existence. This mitigated many of the erstwhile benefits associated with diversification strategies. Therefore, while rent-seeking diversification activities served as a source of profits reported by many firms in the pre-liberalization era, in the post-liberalization era firms which thrived on such capabilities have suffered.

Furthermore, Santaló and Becerra (2006) state that the diversification - performance relationship depends on the relative efficiency of diversifying firms and industry characteristics. It is likely that these have been altered on account of the change in the business landscape in the Indian context. Finally, recent evidence by Singh *et al.* (2007) in India and Lee *et al.* (2008) in South Korea document the negative effect of diversification on firm performance in the post-liberalization era. Consequently, on balance, it seems reasonable to expect that for firms in India, the diversification - performance relation would be negative.

H1: Firm performance is negatively related to corporate diversification.

The role of business group affiliation

Business group structure is an interesting organizational characteristic with wide ranging implications as far firm strategy in general and diversification strategy in particular is concerned. Business groups are collections of firms linked together by commonality in ownership and controlling family members of similar personal, ethnic or communal background. These are widely prevalent in most emerging and many developed economies (Ghemawat and Khanna, 1998). References to business groups go by different names: Japanese pre-war *Zaibatsu* and the present *Keiretsu*, Korean *Chaebol*, Latin and Central American *Grupos Economicos*, Pakistani and Turkish family holdings, German *Konzerne*, Taiwanese *Jituanqiye*, Chinese *Quanxiqiye* and Italian small-firm industrial districts, among others.

These groups are often engaged in a broad range of activities. Some of the largest groups are active in a variety of sectors, ranging from automobile production to educational publishing. They play a prominent role in the economies of various nations and contribute to a significant chunk of the gross national output. The top ten business groups contribute between 30 and 40 percent of the GDP in countries as diverse as South Korea, India, Mexico, Spain and Indonesia. A detailed description of business groups in India and some of their characteristics is presented in *Appendix A*.

From a resource-based perspective, apart from their own diversification strategies, firms affiliated to business groups share some of the benefits and costs associated with group scope by being affiliated to a business group. For instance, group-affiliated firms can tap the group's capital and managerial resources and utilize the same for its advantage. Japanese *Keiretsus* engender various benefits from inter-firm cooperation in the form of access to complementary

resources, distribution outlets, economies of scale and scope, and shared costs and risks. Chang and Hong (2002) argue that Korean *Chaebols* benefit through the use of various internal business transactions among member firms such as debt guarantees, equity investment and internal trade. On the other hand, an agency centric perspective would contend that inefficient resource allocation can lead a group-affiliated firm to forego promising investment opportunities when it is forced to subsidize financially weaker members in the group. Lins and Servaes (2002) show a negative influence for diversified firms that are affiliated with business groups. They suggest that this could be due to the fact that controlling owners in the group could use diversified firms to expropriate minority shareholders. Such an investigation into the management of potential interdependencies at the firm and business group levels has been advocated by Yiu *et al.* (2005) as well. The above-mentioned notions point to either enhancement or mitigation (depending on the theoretical lens one applies: either the resource-based or agency perspective) of the primary impact of diversification on firm performance owing to business group affiliation. Consequently, we propose the following hypotheses concerning business group effects[1]:

H2a: For firms affiliated with business groups, firm performance is positively related to corporate diversification.

H2b: For firms affiliated with business groups, firm performance is negatively related to corporate diversification.

The role of group size and group diversity

Khanna and Yafeh (2005) and Kim *et al.* (2004) observe that business groups have heterogeneous features that can influence firm performance. Lins and Servaes (2002) document that Keiretsu firms with different strengths in their relationships (based on equity holdings) within the keiretsu influence the diversification-performance relationship differently. Relatively weaker relationships with Keiretsu members do not affect firm valuation but stronger

relationships with Keiretsu members adversely affect firm valuation. Drawing from a power dependence perspective, Kim *et al.* (2004), focus on the division of value created by Keiretsu member firms in pursuit of diversification strategies. They find evidence that member firms with strong power in a Keiretsu accumulate internal market benefits to enhance their own growth through pursuit of diversification strategies. In a similar vein, an important dimension along which this heterogeneity can be captured is the size/diversity of the group.

The size/diversity of a business group can serve as an alternative means to firm level diversification. It raises a pertinent question: why do group affiliated firms diversify at all when the required diversification can presumably be achieved at a group level? One implication of this is that there is a choice regarding the extent of diversification being undertaken at two levels, i.e., group and firm. There could consequently be a 'substitution' relationship between group size/diversity and firm diversification in that a smaller and less diversified business group could use its affiliated firms to advance its activities into different industrial segments and markets. On the other hand, group affiliation could serve as a 'complement' to firm level diversification by moving/sharing resources within the member firms of the group. In this view, larger and more diversified groups might be able to successfully exploit spillovers, procure resources more easily and cheaply, and provide reputation benefits and privileged access to resources to member firms in facilitating their diversification pursuits. Firm level diversification and group size/diversity could therefore operate synergistically. This choice between group size/diversity and firm level diversification therefore has important implications on the performance of group-affiliated firms.[2]

Examining how group size influences the diversification – firm performance relationship could provide important insights. For instance, on the one hand, larger groups could internalize

the costs associated with group structures more efficiently and are, consequently, able to generate more value for the individual group-affiliated firms (Khanna and Palepu, 2000). It is also plausible that large group size could be used in tandem with firm level diversification to expropriate resources from firms lower down the pyramid if larger group size results in more pyramidal/cross-shareholding structures. On the other hand, smaller groups might not have the requisite management skills, internal processes or political clout to generate benefits to offset costs associated with group membership (Khanna and Palepu, 2000). This could hamper their ability to facilitate firm diversification in a manner that enhances firm performance. Thus we postulate that on balance, large group size facilitates firm diversification positively by enhancing firm performance.

In addition to group size, the diversity at the group level can also impinge upon firm level diversification. Greater group level diversification can develop dynamic capabilities associated with obtaining requisite licenses, technology, training of personnel and setting up distribution networks. This translates into the ability to acquire and maintain the capability of combining various resource inputs, processes, and market access to repeatedly enter new industries (Guillén, 2000). These dynamic capabilities could lead to firms affiliated to large diversified groups (which are endowed with more of these dynamic capabilities) that diversify to mitigate the costs associated with diversification and enhance firm profitability. Following the resource-based view one can conjecture that firms affiliated to the more diversified business groups are able to avail of certain valuable, rare and imitable resources. It enables them to generate more value out of their individual diversification strategies which consequently is associated with better performance by these firms. In contrast, less diverse business groups are unable to create these dynamic capabilities and capitalize on them, and consequently tend to do a poorer job of

facilitating individual firm's diversification efforts. Therefore, we put forward the following hypotheses.

H3a: The relationship between corporate diversification and firm performance is conditioned by the size of a business group. For larger business groups, firm performance is positively related to corporate diversification.

H3b: The relationship between corporate diversification and firm performance is conditioned by the diversity of the business group. For more diverse business groups, firm performance is positively related to corporate diversification.

The role of foreign corporate ownership

An important corporate governance characteristic that can influence the diversification - performance relationship is the extent of foreign corporate shareholdings. Foreign corporations tend to invest in domestic firms related to their core business. They have the relevant experience and know-how. The nature of this relationship goes beyond mere financial contributions and typically extends to provision of managerial expertise and technical collaborations. This has been validated in prior studies such as Djankov and Hoekman (2000) who find foreign investment to be associated with the provision of generic knowledge (management skills and quality systems) and specific knowledge (which cannot be transferred at arm's length).

Furthermore, in the Indian context, with regard to foreign controlled companies, Dhar (1988) finds that most of these enterprises have business links beyond equity participation. They have technical collaborations, nominations of foreign directors on their boards, consultancy and marketing arrangements, trademarks, patent obligations and managerial resource sharing. The provision of such valuable expertise is characteristic of the resource-based perspective, which suggests that heterogeneity in resource capabilities of different owners will lead to a differential

impact on firm performance (Douma *et al.*, 2006). Thus, in addition to heterogeneities associated with differences in group size and group diversity, companies with foreign corporate shareholdings are endowed with superior technical, organizational and financial resources. It results in those group-affiliated firms with foreign corporate ownership as a part of their shareholdings being better endowed with resources to monitor the diversification effort and consequently enhance firm performance. Since these shareholdings typically originate from fairly focused foreign entities, higher levels of ownerships should result in these firms undertaking more disciplined diversification and achieving greater alignment of interests between the affiliated firm and the foreign corporation. Hence, we put forward the following hypothesis:

H4: The relationship between corporate diversification and firm performance among group affiliated firms is conditioned by foreign corporate holdings. For group-affiliated firms with foreign corporate holdings, firm performance is positively related to corporate diversification.

The overall conceptual framework adopted in this study and the hypotheses are depicted in *Figure 2.*

Insert Figure 2 about here

METHODS

As recommended by Sambharya (2000), we employ a variety of diversification measures to examine robustness of our findings. First, we use the simplest metric – the count of number of business segments in which the firm operates.[3] Second, we construct the Herfindahl measure that

reflects the degree of a firm's diversification by taking into account the relative importance of different segments. Following Montgomery (1982), the Herfindahl measure is defined as

$$\Sigma_i P_i^2 / (\Sigma_i P_i)^2$$

wherein P_i is the proportion of segment sales over total sales of the firm. The above Herfindahl measure adjusts for cases wherein the total proportion of sales for all segments of the firm is less than 100 percent. This adjustment is similar to the one proposed by Montgomery (1982) to account for firm sales in foreign markets.[4] In order to correct for the inverse coding of the Herfindahl index (it is bounded between 1 and 0, with 1 being perfectly focused and 0 being completely diversified), the following correction is utilized in the regression analysis:

$$1 - \Sigma_i P_i^2 / (\Sigma_i P_i)^2.$$

Third, we calculate the Jacqemin-Berry Entropy measure of diversification. Following Palepu (1985), this measure is defined as:

$$\Sigma_i P_i \ln(1/P_i).$$

In line with many other studies analyzing diversification (e.g. Kim *et al.*, 2004; Chakrabarti *et al.,* 2007), firm performance is used as the dependent variable and diversification measure is used as the key explanatory variable. The hypotheses regarding the influence of corporate diversification on the performance of firms (*Hypothesis 1, 2a* and *2b*) are tested using the following multiple regression specification:

$$\text{Performance}_i = \alpha + \beta \text{DIVR}_i + \delta \mathbf{X}_i + \varepsilon_i \qquad (1)$$

In this specification, DIVR refers to the diversification measure for firm i, and X represents the vector of control variables. A negative value for β indicates that *more* diversification (or less focus) results in *lower* performance, and *vice-versa.*

We employ two proxies to measure firm performance: return on assets (ROA) and return on sales (ROS). Both measures are defined using the operating profit before depreciation, taxes, interest and other amortization charges. The control variables used in regressions include firm-specific factors such as share ownership, leverage, firm size, log age as well as industry and group dummy variables. Controlling ownerships as represented by domestic controlling ownership and director ownership are used. Domestic corporate ownership is a proxy for the inter-corporate holding among group-affiliated entities, whereas director ownership represents the direct stakes in the various group-affiliated firms by the controlling family. The full variable list with definitions is provided in the *Appendix B*.

In order to test *Hypothesis 3a* and *3b* that examine the interaction between firm diversification and business group size and diversity, the following regression model is used:

$$\text{Performance}_i = \alpha + \beta \text{DIVR}_i + \varphi \text{GS (GD)} + \gamma \text{DIVR}_i * \text{GS(GD)} + \delta \mathbf{X}_i + \varepsilon_i \quad (2)$$

The new explanatory variables, GS and GD, are indicator variables representing the size and the diversity of a business group. The details of these definitions are also presented in *Appendix B*. The coefficients β and γ in *Specification (2)* determine the effect of the moderating influence of various group size and group diversity on the relationship between diversification and performance.

Finally, *Hypothesis 4* that examines the influence of foreign corporate ownership is tested using the following specification:

$$\text{Performance}_i = \alpha + \beta \text{DIVR}_i + \varphi \text{FORC} + \Omega \text{GR} + \gamma \text{DIVR}_i * \text{FORC} * \text{GR} + \delta \mathbf{X}_i + \varepsilon_i \quad (3)$$

where $FORC_i$, GR are variables representing foreign corporate ownership and business group, respectively. The coefficients β and γ in *Specification (3)* determine the effect of the moderating influence of the foreign corporate ownership and group-affiliation.

DATA

We use data from Indian firms that enable us to analyze a large number of group-affiliated and independent firms. One can identify business group affiliation in India with a high level of accuracy. This information is publicly disclosed in annual reports and/or filings with regulatory authorities. Similar to business groups of many other countries, group affiliation in India is exogenous. Usually firms are not free to choose joining a particular business group. In a recent paper, Khanna and Yafeh (2005) note that they are unaware of any study that documents the endogenous formation of business groups. Indian firms are also a member of only one business group and do not usually change their group affiliation over time. A large number of firms are also publicly listed on the stock exchange thus fulfilling more stringent criteria on disclosure and audit.

The data are collected from 'Capitaline 2000' - a database containing detailed firm-specific information of a large number of listed Indian firms. We make use of detailed product classifications based on the Harmonized System developed by the World Customs Organization (Brussels). It follows a structure similar to the US Standard Industrialization Code.[5] Consistent with the past literature (Santaló and Becerra, 2006), the diversification measures are constructed using segment level data at the four-digit level. Annual data for the fiscal year 1999-2000 are analyzed for firms listed on the Bombay Stock Exchange. Financial, utility, real estate, trading and Government (defined as firms in which the Government has a stake of 50 percent and more) firms are excluded from the analysis. Complete information pertaining to sales and other relevant

variables is available for 607 firms consisting of 350 non-group and 257 group firms. The sample firms are distributed across a wide range of industries. There are 17 different industries with manufacturing, chemical and textile firms constituting the three largest categories. Together they account for just over half of the total sample.

As mentioned earlier, we employ two measures of firm performance in this study, i.e. ROA and ROS. To alleviate problems associated with extreme observations, the performance measures are capped at the 1 and 99 percent levels. The mean (median) ROA for the sample of firms is 13.23 (13.29) while the mean (median) ROS is 10.69 (12.41). When the performance variables are categorized into group and non-group firms (see *Table 1*), we observe that the mean ROS for group firms is significantly higher (12.35) than that of non-group firms (9.48). Group-affiliated firms display lower variances of both ROA and ROS compared to independent firms.

Insert Table 1 about here

Next, we construct the diversification measures of firms for group-affiliated and independent firms separately. We observe from *Table 1* that all three variables (NSEG, HERF and ENTR) are significantly different suggesting that group-affiliated firms are more diversified than independent firms.[6] This is interesting because it indicates a negation of the 'substitution hypothesis'. If group membership provides better access to resources and if firms diversify to enjoy economies of scope, to create an internal capital market etc., then one expects less diversification for group firms, and not more (because group affiliation already fulfills that objective). However, results similar to ours are obtained by Lins and Servaes (2002) who examine firms from seven Asian emerging markets. Singh *et al.* (2007) also document that affiliated firms in India are more diversified.

A sub-categorization of the diversification measures according to the size and diversity of business groups is also undertaken. We find that 151 firms (59%) out of the total of 257 affiliated firms belong to small-sized business groups whereas the rest pertain to the larger groups. We also observe that in our sample of 136 business groups, 109 (80%) are of small size while the remaining are large groups. As far as group diversity is concerned, 125 firms (49%) are focused entities while the rest are diversified. These figures compare favorably with Khanna and Palepu (2000). Their study reports 77%, 15% and 7% firms in the least, intermediate and largest size business groups, respectively.[7]

Table 1 also shows a wide dispersion in firm characteristics. In particular, two ownership variables are of major interest: domestic corporate ownership and director ownership. Domestic corporate ownership among group-affiliated firms substantially represents inter-corporate group ownership in the nature of cross-holdings or pyramidal ownership (or group control), while among independent firms it represents outside shareholdings. Domestic corporate ownership is significantly higher among group-affiliated firms than independent firms. In contrast, director ownership is significantly lower among group-affiliated firms than independent firms. Also, group-affiliated firms tend to be significantly older, larger and more leveraged than independent firms.

Table 2 depicts the correlation matrix for the principal explanatory variables among sample firms. The various measures of corporate diversification we use in the analysis understandably show high correlations among themselves. Variance inflation factor (VIF) tests suggest that the correlations among the principal explanatory variables present no serious problem of multicollinearity.

Insert Table 2 about here

RESULTS AND DISCUSSION

Table 3 presents the results of the specification examining the impact of corporate diversification on firm performance. *Models (1)* to *(3)* depict the impact of different constructs of diversification on ROA, while *Models (4)* to *(6)* depict the results for ROS. The results of all models consistently show an inverse relation between firm diversification and performance. In other words, higher levels of corporate diversification lead to a lowering of firm performance. The results of *Table 3* thus provide strong evidence that more diversification lowers firm performance and confirm *Hypothesis 1*.

Insert Table 3 about here

Table 4 presents the results of the impact of group affiliation on the relationship between corporate diversification and firm performance. Panel A has ROA as the dependent variable while Panel B uses ROS as the dependent variable. *Models (1)* to *(3)* in both panels are regressions performed on the sub-sample consisting of group-affiliated firms only. These models depict an insignificant impact of corporate diversification on performance. The results are not supportive of either *Hypothesis 2a* or *2b*. The lack of a significant impact could be due to the fact that the benefits and costs of diversification by group-affiliated firms cancel out each other, or alternatively it could indicate that there are aspects of group heterogeneity that are not captured by the estimated regression model.

We perform a similar analysis for independent firms. The results are depicted in *Models (4)* to *(6)* in both panels. In contrast to group-affiliated firms, the results show a significant inverse relation between diversification and performance. Underperformance by firms engaging

in higher levels of diversification therefore appears to be confined to or is at least more acute among independent firms. The results seem indicative of the poor performance of diversification strategies especially by independent firms.[8]

Insert Table 4 about here

These results have some interesting linkages with recent empirical studies examining value consequences of corporate diversification. For instance, a study providing cross-country evidence of the impact of firm diversification on performance is Fauver *et al.* (2003). They find evidence that the value of corporate diversification is negatively related to the level of international capital market integration and development. Among firms in high-income countries where capital markets are well developed and internationally integrated they find that diversified firms trade at a discount relative to focused firms. In contrast, they observe no diversification discount, and in some cases even a significant diversification premium, in countries whose capital markets are less developed and segmented from international capital markets. Our results reported in *Table 4* are not in line with those of Fauver *et al.* (2003), in the sense that India is a low-income country and capital markets are less well developed. However, they do not separately examine business groups effects in their study and their aggregate results could possibly be influenced by the presence of large group-affiliated firms.

The few studies that have explicitly examined the influence of group affiliation on the diversification - performance relationship show mixed results. Lins and Servaes (2002) find that diversified firms from seven emerging economies in Asia trade at a significant discount compared to focused firms. But, when firms divided into group and non-group categories, they find that the discount is concentrated only among group-affiliated firms. On the other hand, Chakrabarti *et al.* (2007) observe that group-affiliation differentiated the outcomes of corporate

diversification positively in Singapore and Thailand, negatively in Japan and Korea, but without any difference in Malaysia and Indonesia. More recent evidence (Singh *et al.*, 2007; Lee *et al.*, 2008) indicates that the diversification discount among business groups seems to prevail especially in the post-liberalization phase.

In order to investigate if business group heterogeneity is influencing the diversification - performance relationship, we examine group firms more minutely. *Hypothesis 3a* postulates that differences in business group size could affect the performance of firms. *Specification (2)* is employed for this purpose. *Model (1)* of *Table 5* examines the interaction effect of Herfindahl diversification measure and large business groups (GS, group size is defined in terms of number of firms in a group). While the coefficient of the diversification measure is negative (-7.11), that of the interaction term is positive and statistically significant. The overall effect of the interaction variable and the diversification measure is also positive (11.09 - 7.11 = 3.98). This implies that higher corporate diversification enhances performance when pursued by firms affiliated to larger business groups. *Hypothesis 3a* is thus supported.

Hypothesis 3b postulates that group diversity can also moderate the diversification performance relationship. *Model (2)* of *Table 5* tests this hypothesis. Once again, it can be seen that while the impact of the diversification measure is negative (-6.12), the interaction term is positive and statistically significant. Furthermore, the combined effect of the diversification measure and the interaction variable representing diversification and group diversity (GD, group diversity is measured in term of the industry spread) is positive (7.32 - 6.12 = 1.20). Consequently, higher corporate diversification enhances performance of firms which are affiliated to more diverse groups. *Hypothesis 3b* is thus supported.

Insert Table 5 about here

We also estimate these regressions using other measures of diversification such as Entropy and the natural logarithm of the number of business segments. The results (not reported here) consistently indicate that, for firms affiliated to larger business groups, the influence of diversification on firm performance is positive and significant. We also used alternative constructs of group size such total assets and total stock market capitalization and re-estimated *Specification (2)*. In another set of robustness checks, we subjected all of these models and specifications for analysis with ROS as the performance measure. The results remained always consistent and are not reported here for reasons of brevity.[9]

Finally, *Hypothesis 4* postulates the moderating influence of foreign corporate holdings on the diversification - performance relationship. The test results are presented in *Table 6*. The coefficient of the interaction variable representing the Herfindahl diversification measure, foreign corporate holdings and group-affiliation dummy is positive and statistically significant. The result shows that foreign corporate holdings in group firms serve to mitigate the negative influence of firm diversification among group firms and help in enhancing firm performance. The economic significance of the interaction effect can be gauged by plugging in the average value of foreign corporate holding and calculating the magnitude of the interaction effect.[10] The results with alternative diversification constructs are also consistent. *Hypothesis 4* is therefore supported.

Insert Table 6 about here

CONCLUSION

Most of the prior research on corporate diversification has failed to account for organizational and governance characteristics (Dess *et al.*, 1995). The few studies which have explored the phenomenon include Rumelt (1974), Keats and Hitt (1988) and Jiraporn *et al.* (2006). In particular, Keats and Hitt (1988) find support for the contention that divisionalized firms provide an environment conducive for corporate diversification. Jiraporn *et al.* (2006) observe that weaker shareholder rights allow corporate managers to diversify a firm unwisely. In the years since these studies, the situation has not changed radically, and particularly among emerging markets, there continues to be lacunae in our understanding of diversification on account of this omission.

Our investigation into the relationship between corporate diversification and performance reveals that, at first sight, diversification strategies of firms in India appear to lower firm performance. This result is robust to alternative firm performance and corporate diversification measures. The result supports prior studies documenting a 'diversification discount'. However, when we turn our attention to distinguishing features like the organizational structure and corporate governance attributes of a firm (i.e., the firm's business group affiliation and ownership structure), we observe the following interesting results. Firstly, firms affiliated to business groups are significantly more diversified than independent firms. Secondly, diversification strategies of independent firms significantly lower firm profitability whereas diversification strategies of firms that are affiliated to business groups have an insignificant impact on firm performance. Within group-affiliated firms there is an evidence of a differential impact. In particular, firms affiliated to large and more diversified groups appear to enhance firm profitability out of corporate diversification. This leads to the conjecture as per the resource-

based view that firms affiliated to the larger and more diversified business groups are able to avail of certain valuable, rare and imitable resources. It enables them to generate more value out of their individual diversification strategies which consequently leads to better performance by these firms. Furthermore, focusing on an important governance characteristic which differs among business groups, namely foreign corporate shareholdings, reveals that higher levels of foreign corporate holding aids in the mitigation of the negative effect of diversification strategies of group-affiliated firms. However, a more in-depth examination to identify these resources and examine their role in value generation and enhancement of firm performance is required. The attempt undertaken in this study represents only an initial step in the process. In general though, the evidence does point to the importance of taking a firm's organizational structure and governance attributes into account while examining the influence of corporate diversification on firm performance.

This investigation of the influence of the firm's organizational structure on the diversification – performance relationship being exploratory, there are a number of extensions which can build upon the analysis carried out in this study. Firstly, the nature of corporate diversification i.e., whether it is related or unrelated is not examined. It would be particularly interesting to determine if there are differences in the levels of related and unrelated diversification among group-affiliated and independent firms and if this is related to the relative differences in the performance of the diversification strategies engaged by these two categories of firms. Secondly, with India along with other emerging economies in the midst of an ongoing liberalization exercise, it would be fascinating to determine if there have been significant changes in corporate diversification, group size/diversity and foreign corporate ownership and examine how these variables relate to each other over time. A longitudinal study could address

issues pertaining to differences in the diversification strategies pursued by group-affiliated and independent firms.

Finally, the research findings of the paper are of importance to policy makers and practitioners as well. In several countries there has been a talk of disbanding business groups and prediction of their demise once institutional reforms reach a point in their evolution. This study adds to this larger debate on the utility and persistence of business groups. The documented differences among business groups with regard to the performance consequences of their diversification strategies demonstrate at least at an exploratory level of the dangers of engaging in blanket "one size fits all" recommendations on restructuring business groups. For the practitioner, the results of the study show that particularly managers of non-group firms and small/less diversified business groups need to tread with caution in the post-liberalized economic environment while engaging in corporate diversification activities.

[1] This approach is in line with Chakrabarti et al. (2007) who examined diversification and performance relationships among East Asian firms and left the determination of the impact of group affiliation to be empirically determined owing to conflicting effects.

[2] Few papers which have examined elements of this issue include Collin and Bengtsson (2000) wherein they find that financial groups tend to reduce the tendency of firm diversification.

[3] As a robustness check, two alternative diversification dummy measures were considered. The first one involves classifying firms with activities in a single segment as focused and those in more than one segment as diversified and another in which firms with activities in two segments as focused and more than two as diversified. Since the obtained results are very similar, we do not report these in the paper for the sake of brevity.

[4] The unadjusted Herfindahl index $\Sigma_i P_i^2$ was also examined but as the two measures are highly correlated, the results of the unadjusted Herfindahl index are not reported.

[5] The Harmonized System (HS) is a universal coding system adopted by 179 countries for commodity classification. The classification system is organized into 97 chapters. Each chapter is akin to a two-digit industry group. Chapters are further broken down into headings similar to four-digit industry segments. In India, the HS classification is referred to as the Indian Trade Classification (ITC) code. Companies are required to file the ITC codes of three principal products with regulatory authorities. Further information about product categories is obtained from the Capitaline database.

[6] As mentioned earlier, the Herfindahl measure of diversification is by nature of construction reverse coded and therefore, higher values signify less diversification and vice-versa. As for the Entropy measure, higher values indicate more diversification and vice-versa.

[7] The details pertaining to the descriptive statistics discussed in this section are not presented here in its entirety for reasons of brevity, but are available with the authors.

[8] We also explored specifications in which instead of segregating the sample into group and non-group categories, the diversification measures are interacted with a group dummy. In all cases, the interaction terms remained insignificant.

[9] In addition to examining *Specification (2)* using alternative diversification measures, group size constructs and performance measures, certain additional robustness tests were conducted. These include specifications employing controls for escalating thresholds of controlling group ownership, alternative constructs of the diversification dummy, and inclusion or exclusion of various explanatory variables. Furthermore, alternative categorizations of business group size incorporating both listed and unlisted firms, and a specification employing all the interactions between the various diversification measures and group size together in a single regression equation were also examined. All these robustness checks do not alter the results obtained earlier, and are therefore, not reported here to conserve space.

[10] The average foreign corporate shareholding is 18.25%. By plugging in this value in the interaction term of Model (1) as an example, we get 0.62*18.25= 11.34. The total effect is then 11.34 - 6.35 = 4.99. It shows that for group firms with relatively large foreign corporate holdings (greater than 10.25%), the effect of diversification on performance reverses. Since the sample we analyzed included firms in which the foreign ownership was limited to 49% (thereby focusing on Indian firms only while subsidiaries of foreign companies are excluded), this estimate on the impact of the foreign corporate ownership probably has a downward bias.

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APPENDIX A
Business groups in India

Business groups in India depict caste and provincial origins. Most of these traditional groups come from the trading communities (e.g. *banias*) and their initial activities can be traced back to certain parts of the country, although, in more recent times some of the larger groups have assumed a pan-Indian operational character. Groups increased the number of companies under their fold when assets belonging to the erstwhile British companies were acquired. Traditionally, the management of most of these groups was *via* the *managing agency* system. Under this system, each of the participating firms signs a management contract with a managing agency owned by the group. The *managing agencies* in turn run these firms. Several of the largest business groups in India like the *Tatas* and the *Birlas* were initially run by managing agencies owned by them. However, this system of managing groups has only historical relevance as the *managing agency* system was abolished in 1969 as a consequence of amendments in the statute governing corporations in India. While firms in India are largely focused entities, the business groups tend to be diversified and have certain features similar to a typical western conglomerate or a Japanese *Keiretsu.* Similarities exist in the sense that akin to the headquarters of a conglomerate, the controlling family sets the overall strategic direction and regulates financial transfers. An important difference, though, is that unlike divisions of a typical conglomerate firm, each firm in India has its own unique set of shareholding comprising of various blockholders and the general public, and unlike the typical Japanese *Keiretsu*, Indian groups do not have an in-house financial institution. While the controlling owners of groups in India do not

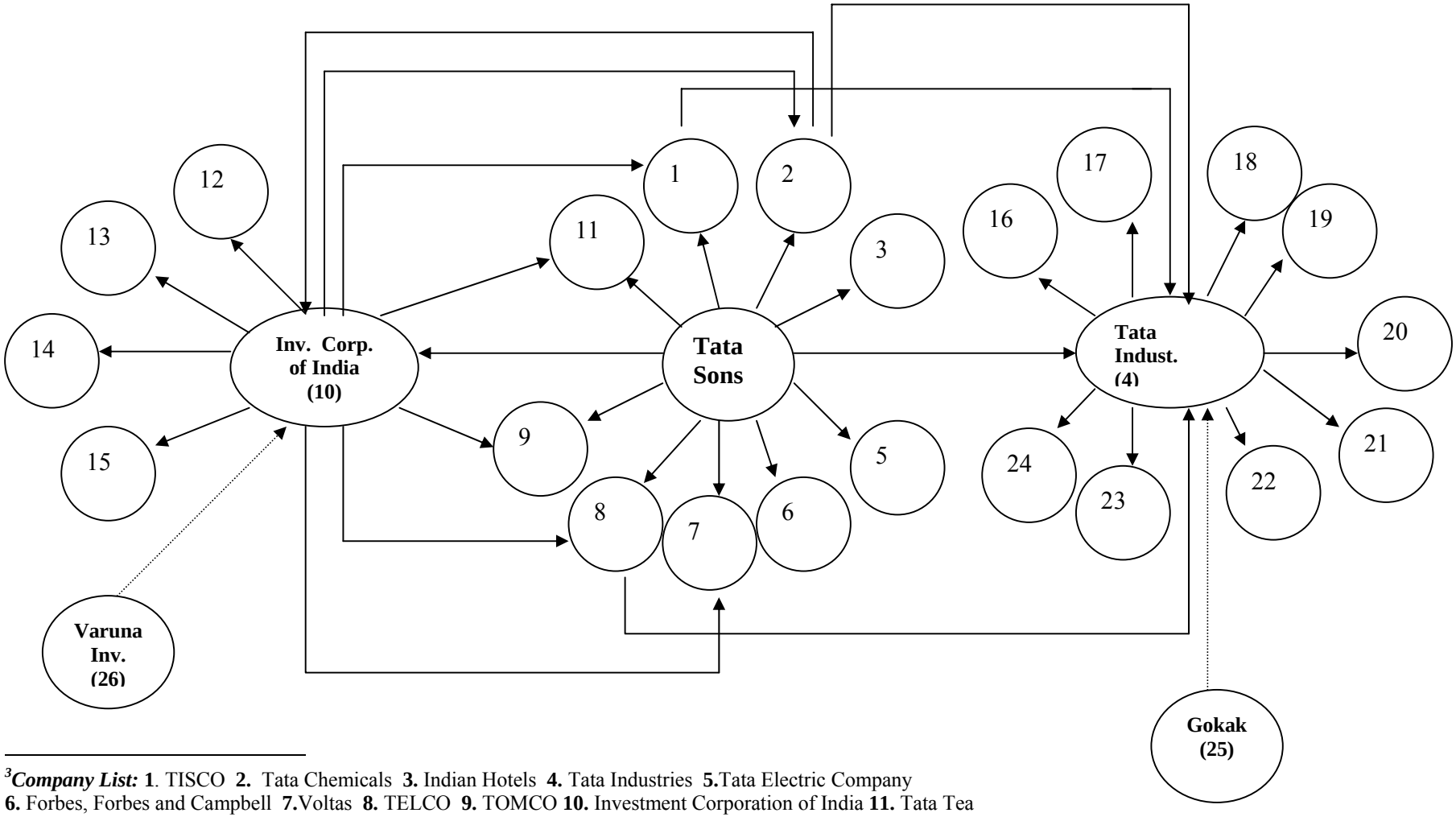
form so-called 'politico-economic empires'[1] (Robinson, 1986), some of the business groups have a tremendous ability to translate their power into political clout. The largest business houses maintain 'industrial embassies' in the capital New Delhi, which serve the purpose of extensive lobbying with the political elite seeking privileges and exploiting the political equivalent of scale economies (Encarnation, 1989). Group firms in India generally advertise their affiliation to a particular group and these affiliations remain substantially stable over time. Despite the institution of a takeover code in the 1990s, the practice of group firms interchanging group affiliations is relatively uncommon. Business groups also differ in the extent and diversity of their operations. The largest groups are active in wide variety of enterprises, ranging from automobile production to educational publishing. They cover vast tracts of the industrial sector and contribute to a significant chunk of the country's industrial output. On the other hand, the bulk of the business groups can be categorized as small and medium sized, with the scale and scope of their activities being considerably more modest. The firms constituting business groups involve listed as well as unlisted firms. Furthermore, information pertaining to group affiliation is publicly available and it is relatively easy to identify group affiliation with a degree of accuracy in the Indian context. Each firm within a group has a separate legal entity and can be listed separately on the stock exchange. Most groups have less than five firms which are listed on stock exchanges such as the BSE. Khanna and Palepu (2004) report 1113 group-affiliated firms listed in various stock exchanges in 1993 in India. The 567 group-affiliated firms which they examined in detail belong to 252 different groups. Khanna and Palepu (2004) find that 95 percent of these groups have five or fewer affiliates. In effect, the average business group in

[1] In some countries, it is common for the states to be so enmeshed in the world of business groups that key actors within the state themselves form their own firms and business groups (Granovetter, 1995). These eventually lead to what are referred to as 'politico-economic empires'.

India has around two listed firms. Control over these group firms is typically exercised through inter-corporate equity investments (cross equity shareholdings), holding companies (pyramidal structures) and interlocking directorates. The complex network of cross and pyramidal holdings is evident from the partial structure of the largest business group in India, the *Tata* group which is depicted in *Figure 1*. As is evident from the Figure, *Tata Sons* represents the group HQ or holding company. In addition to *Tata Sons*, two other group companies, *Tata Industries* and the *Investment Corporation of India* represent two centers around which control is exercised over a number of other *Tata* group firms. Unfortunately, precise details on the equity linkages among the various *Tata* group firms are unavailable to fully ascertain the nature of the cross- and pyramidal-holdings. *Tata Sons* represents the main 'promoter' company of the group and is the group headquarters. Two-thirds of the equity of *Tata Sons* is held by various philanthropic trusts endowed by members of the *Tata* Family. In 2004, the full group structure consisted of 80 listed and unlisted companies. Moreover, several changes have recently been undertaken in the group structure which is not incorporated in the figure. Information pertaining to equity linkages to incorporate these changes and depict the structure of the full group is not available.[2]

[2] The group structure is constructed using data on known equity linkages provided in page 17 of Tyabji (1998). Information pertaining to *Gokak* and *Varuna Investments'* linkages with other *Tata* group companies is unavailable in Tyabji (1998). Other group companies in addition to ones depicted are also believed to hold equity in *Tata Industries* but precise details are unknown. Some information was obtained from the *Tata* Group Website: http://www.tata.com/tata_sons/index.htm

FIGURE 1
The Tata Group (partial structure)[3]



[3]***Company List:*** **1**. TISCO **2.** Tata Chemicals **3.** Indian Hotels **4.** Tata Industries **5.**Tata Electric Company
6. Forbes, Forbes and Campbell **7.**Voltas **8.** TELCO **9.** TOMCO **10.** Investment Corporation of India **11.** Tata Tea
12. Tata Metals and Strips **13.** Tata Services **14.** Titan Watches **15.** ACC **16**. Tata Industrial Finance **17.** Tata Honeywell
18. Tata Finance **19.** Tata Consultancy **20.** Tata Housing Company **21.** Tata IBM **22.** Tata Telecom **23.** Tata Elxsi **24.** High Tech Drilling
25. Gokak **26.** Varuna Investments

APPENDIX B
Definition of variables

Firm performance measures:

ROA = Return on assets defined as operating profit before depreciation, taxes, interest and other amortization charges over total assets.
ROS = Return on sales defined as operating profit before depreciation, taxes, interest and other amortization charges over total sales.

Corporate diversification measures:

NSEG: the number of industrial segments in which a firm operates.
HERF: $\Sigma_i P_i^2/(\Sigma_i P_i)^2$, wherein P_i is the proportion of segment sales over total sales of a firm
ENTR: $\Sigma_i P_i \ln(1/P_i)$

Firm characteristics:

FORC: Shareholding by foreign non-financial corporations
FORI: Shareholding by foreign financial institutions
DOMC: Shareholding by domestic non-financial corporations
DOMI: Shareholding by domestic financial institutions
DIR: Shareholding by directors and their relatives
AGE: Years since the incorporation of the firm
SALES: Total sales of the firm
LEV: Leverage defined as the ratio of total debt to total assets

Group variables:

GR: A dummy variable that takes a value of one for a group affiliated firm, and zero otherwise
GS: A dummy variable representing large size business groups that takes a value of one for groups with three and more listed firms, and zero otherwise
GD: A dummy variable representing diversified business groups that takes a value of one for groups operating in two or more industries, and zero otherwise

FIGURE 2

Diversification and performance: conceptual framework and hypotheses

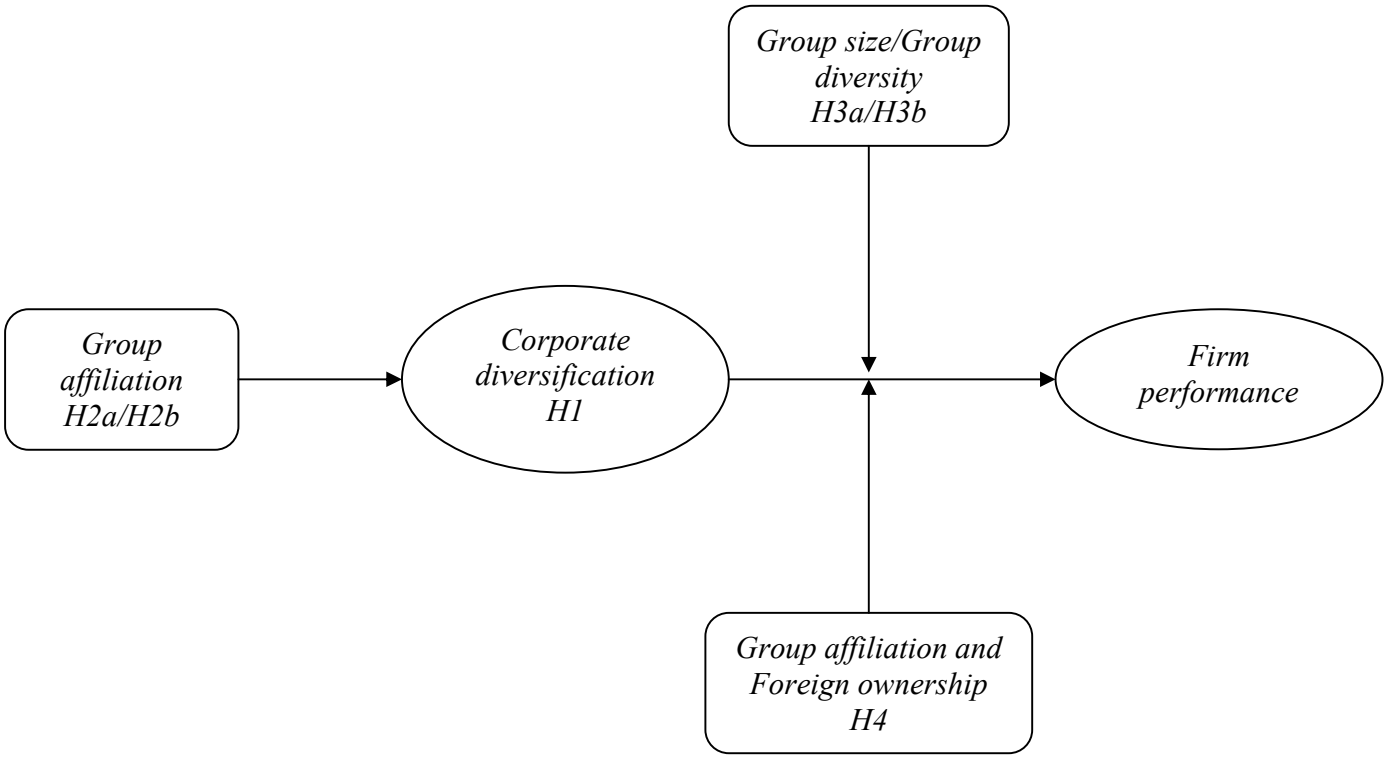


Table 1. Summary statistics

The table depicts summary statistics of performance and diversification measures as well as firm characteristics for 257 group and 350 non-group Indian firms listed on the Bombay Stock Exchange. All variables are defined in the *Appendix B*. Annual data for the fiscal year 1999-2000 are analyzed. The equality of means and medians is tested using t-test and Wilcoxon/Mann-Whitney test, respectively. The symbols †, **, *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively.

	Group			***Non-Group***		
	Mean	Median	St. Dev	Mean	Median	St. Dev.
Performance measures						
ROA	13.11	13.55	11.17	13.31	13.14	13.61
ROS	12.35†	12.94	15.54	9.48	11.68	21.83
Diversification measures						
NSEG	4.55***	3.00***	3.97	3.17	2.00	2.42
HERF	0.67***	0.66***	0.27	0.74	0.81	0.25
ENTR	0.66***	0.62***	0.56	0.47	0.37	0.47
Firm characteristics						
FORC	3.12	0.00	8.77	2.41	0.00	8.14
FORI	1.69***	0.00	4.46	0.71	0.00	3.08
DOMC	38.68***	39.28***	20.00	22.76	18.04	20.68
DOMI	10.21***	5.58***	11.30	4.897	1.01	7.60
DIR	7.70***	2.08***	12.66	23.35	20.24	19.92
AGE	27.15***	21.00***	17.84	18.85	14.50	14.46
SALES	46935.17***	15596.00***	129317.50	12484.19	4017.00	47423.12
LEV	0.61***	0.54***	0.40	0.51	0.44	0.42

Table 2. Correlation matrix

The sample consists of 607 Indian firms listed on the Bombay Stock Exchange. All variables are as defined in *Appendix B.* All correlations greater than or equal to 0.10 are significant at 5 % level.

	ROA	*ROS*	*HERF*	*ENTR*	*NSEG*	*FORC*	*FORI*	*DOMC*	*DOMI*	*DIR*	*AGE*	*SALES*	*LEV*
ROA	1												
ROS	0.56	1											
HERF	-0.01	0.03	1										
ENTR	0.02	-0.01	-0.89	1									
NSEG	0.06	0.04	-0.63	0.76	1								
FORC	0.11	0.04	-0.03	0.01	-0.02	1							
FORI	0.11	0.09	-0.04	0.05	0.04	0.06	1						
DOMC	0.04	0.04	-0.05	0.07	0.11	-0.08	-0.01	1					
DOMI	-0.04	0.04	-0.15	0.19	0.26	-0.01	0.11	0.04	1				
DIR	0.08	0.03	0.10	-0.12	-0.15	-0.15	-0.13	-0.51	-0.31	1			
AGE	0.13	0.07	-0.19	0.23	0.31	0.05	0.09	0.16	0.37	-0.17	1		
SALES	0.11	0.08	-0.15	0.22	0.36	-0.03	0.32	0.07	0.26	-0.15	0.28	1	
LEV	0.06	-0.37	0.06	-0.07	-0.06	-0.02	-0.06	0.01	0.07	-0.12	-0.07	-0.05	1

Table 3: Effect of corporate diversification on firm performance

The table represents the results of OLS regressions of ROA and ROS on various diversification measures and control variables using *specification (1)*. The sample consists of 607 Indian firms listed on the Bombay Stock Exchange. All variables are defined in the *Appendix B*. A negative value of the diversification measures indicates that *more* diversification (or less focus) results in *lower* performance, and *vice-versa.* The symbols †, **, *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively. All regression results are corrected for heteroskedasticity using White heteroskedasticity consistent standard errors and covariance. The intercept is included in all specifications but is not reported.

Variable	***ROA***			***ROS***		
	(1)	(2)	(3)	(4)	(5)	(6)
Log NSEG	-1.96***			-3.57***		
HERF		-6.00***			-9.11***	
ENTR			-3.15***			-4.70**
FORC	0.02	0.12*	0.11*	0.023	0.04	0.04
FORI	0.01	0.03	0.03	-0.16	-0.14	-0.14
DOMC	0.01	0.01	0.01	0.01	0.01	0.01
DOMI	-0.19***	-0.18***	-0.18***	-0.01	-0.01	-0.01
DIR	0.07**	0.07***	0.07***	0.05	0.05	0.06
Log AGE	0.30	0.18	0.20	-0.56	-0.86	-0.0.83
Log SALES	3.03***	2.93***	2.97***	3.14**	2.89**	2.94**
LEV	-11.57***	-11.58***	-11.60***	-16.11***	-16.08***	-16.09***
Industry dummies	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.33	0.33	0.33	0.23	0.23	0.23
F-statistic	11.21***	11.35***	11.37***	7.18***	7.13***	7.12***
No. of Observations	607	607	607	607	607	607

Table 4: Effect of corporate diversification on the performance of group and non-group firms

The table represents the results of OLS regressions on three diversification measures and various control variables using *specification (1)*. The sample consists of 257 group firms and 350 non-group listed on the Bombay Stock Exchange. All variables are defined in the *Appendix B*. A negative value of the diversification measures indicates that *more* diversification (or less focus) results in *lower* performance, and *vice-versa.* The symbols †, **, *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively. All regression results are corrected for heteroskedasticity using White heteroskedasticity consistent standard errors and covariance. The intercept is included in all specifications but is not reported.

Panel A: ROA regressions

Variable	***Group***			***Non-Group***		
	(1)	(2)	(3)	(4)	(5)	(6)
Log NSEG	-0.48			-3.00***		
HERF		-2.74			-6.75***	
ENTR			-0.80			-4.50***
FORC	0.23***	0.23***	0.23***	-0.07	-0.06	-0.06
FORI	0.06	0.07	0.07	0.04	0.08	0.08
DOMC	0.02	0.02	0.02	0.01	0.01	0.01
DOMI	-0.13	-0.14**	-0.13**	-0.23**	-0.22***	-0.22***
DIR	0.01	0.01	0.01	0.05	0.05	0.05
Log AGE	-0.72	-0.70	-0.76	1.07	0.82	0.97
Log SALES	1.26**	1.27**	1.25**	4.27***	4.04***	4.09***
LEV	-13.66***	-13.69***	-13.64***	-10.35***	-10.50***	-10.45***
Industry dummies	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.35	0.35	0.35	0.38	0.37	0.38
F-statistic	6.18***	6.25***	6.19***	8.86***	8.68***	8.90***
No. of observations	257	257	257	350	350	350

Panel B: ROS regressions

Variable	***Group***			***Non-Group***		
	(1)	(2)	(3)	(4)	(5)	(6)
Log NSEG	-0.42			-7.21***		
HERF		-3.96			-15.25***	
ENTR			-1.04			-9.64***
FORC	0.15	0.14	0.15	-0.07	-0.03	-0.04
FORI	0.12	0.12	0.12	-0.29	-0.22	-0.20
DOMC	0.05	0.04	0.05	-0.06	-0.07	-0.61
DOMI	0.11	0.11	0.11	-0.16	-0.15	-0.14***
DIR	0.02	0.02	0.02	0.01	0.01	0.01
Log AGE	-3.20**	-3.12**	-3.22**	2.15	1.50	1.79
Log SALES	1.54**	1.60	1.57	3.87***	3.29	3.38†
LEV	-9.94***	-10.04***	-9.96***	-18.93***	-19.26***	-19.24***
Industry dummies	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.35	0.36	0.35	0.25	0.23	0.24
F-statistic	6.39***	6.48***	6.41***	5.22***	4.88***	5.07***
No. of observations	257	257	257	350	350	350

Table 5. Group size, group diversity, corporate diversification and firm performance

The table represents OLS regressions of ROA on the Herfindahl diversification measure, measure of group size (GS), group diversity (GD), and control variables using *specification (2).* The sample consists of 257 group firms. All variables are defined in the *Appendix B.* A negative value of the diversification measure indicates that *more* diversification (or less focus) results in *lower* performance, and *vice-versa.* The symbols †, **, *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively. The regression results are corrected for heteroskedasticity using White heteroskedasticity consistent standard errors and covariance. The intercept is included in all specifications but is not reported.

Variable	(1)	(2)
HERF	-7.11**	
*HERF*GS*	11.09***	
GS	-4.40**	
HERF		-6.12†
*HERF*GD*		7.32†
GD		-3.24
FORC	0.24***	0.25***
FORI	-0.03	-0.01
DOMC	0.01	0.03
DOMI	-0.14**	-0.12**
DIR	-0.01	0.01
Log AGE	-0.57	-0.74
Log SALES	1.33**	1.28**
LEV	-13.30***	-13.20***
Industry dummies	Included	Included
Adjusted R^2	0.37	0.36
F-statistic	8.90***	8.58***
No .of Observations	257	257

Table 6. Foreign ownership, group-affiliation and firm performance

The table represents OLS regressions of ROA on the respective diversification measure, the interaction term consisting of the respective diversification measure, foreign corporate ownership, group dummy and various control variables using *specification (3).* The sample consists of 607 Indian firms listed on the Bombay Stock Exchange. All variables are defined in the *Appendix B.* A negative value of the diversification measures indicates that *more* diversification (or less focus) results in *lower* performance, and *vice-versa.*The symbols †, **, *** denote significance at 10 percent, 5 percent and 1 percent levels respectively. The regression results are corrected for heteroskedasticity using White heteroskedasticity consistent standard errors and covariance. The intercept is included in all specifications but is not reported.

Variable	(1)	(2)	(3)
HERF	-6.35***		
ENTR		-7.59***	
Log NSEG			-2.18***
FORC	0.05	0.05	0.03
GR	-2.99***	-2.87***	-3.20***
*HERF*FORC*GR*	0.62**		
*ENTR*FORC*GR*		0.70**	
*Log NSEG*FORC*GR*			0.21**
FORI	0.03	0.03	0.10
DOMC	0.01	0.02	0.02
DOMI	-0.18**	-0.18***	-0.18***
DIR	0.05†	0.06**	0.06**
Log AGE	0.16	0.15	0.31
Log SALES	3.20***	3.23***	3.32***
LEV	-11.24***	-11.28***	-11.12***
Industry dummies	Included	Included	Included
Adjusted R^2	0.34	0.38	0.33
F-Statistic	11.20***	11.17***	11.17***
No. of Observations	607	607	607