Performance Implications of Diversification Strategies of Business Group and M-form Firms

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Abstract

The study examined the effects of the business group (BG) and the M-form divisional structures in enabling profitable diversification strategy performance outcomes. The sample comprised 3173 Indian companies examined during the ten-year span starting in 2003-2012. The BG structure most closely resembles a holding company with varying degrees of control and influence over a portfolio of (often unrelated) independent businesses, while the M-form structure features integrated and centralized control by a corporate HQ over multiple related (or unrelated) divisions. While in both forms of structure, total (i.e., extent of) diversification positively impacted firm performance, their influences diverged when related and unrelated (i.e. the scope of) diversification was separately assessed. The business group form positively impacted firm performance only with unrelated diversification. In contrast, the M-form structure positively impacted firm performance primarily with related diversification. The results provide evidence of the BG form's ability to exploit financial synergies while the M-form is more suitable for exploiting operating synergies.

Keywords: Business Group Structure, M-form Structure, Diversification, Performance

Introduction

The performance impacts of diversification strategy pursued by different organizational forms such as the business group structure (Chakrabarti, Singh & Mahmood, 2007; Carney, et. al., 2011; Carney, et. al., 2018; Khanna & Palepu, 2000a;b) and the M-form structures (Berger & Ofek, 1995; Hoskisson, Johnson, Tihanyi & White, 2005; Lang & Stultz, 1994) has received considerable attention The BG structure controls and coordinates two or more legally independent firms, some of which are publicly listed, through commonly held ownership stakes and often complemented by social ties (Khanna & Palepu, 2000a,b; Guillen, 2000). In contrast, the M-form structure is typically a diversified conglomerate that consists of multiple businesses housed as divisions or wholly owned subsidiaries (Baker, Gibbons, & Murphy, 1999; Chandler, 1962; Chung, 2004; Hill & Hoskisson, 1987). By comparing the diversification strategies of these two multi-business organizational forms without considering the organizational level at which diversification is being undertaken, we may indeed be comparing the proverbial apples to oranges.

The accumulated evidence of the impacts of diversification strategy on performance in emerging and developed countries is far from being unequivocal. While studies conducted in developed economies have shown greater unrelated diversification to be value-destroying (Hoskisson & Hitt, 1994; Montgomery & Wernerfelt, 1988; Palich, Cardinal & Miller, 2000; Ramanujam & Varadarajan, 1989), especially if such diversification strategy was undertaken with M-form structures (Berger & Ofek, 1995; Feichter, Grabner, & Moers, 2018, Hoskisson, et al., 2005; Lang & Stultz, 1994), it has been argued that in emerging economies there is some value-creating potential with pursuing an unrelated diversification strategy with a BG structure

(Khanna & Palepu, 2000a,b; Khanna & Rivkin, 2001; Kock & Guillen, 2001). The seemingly different findings in emerging markets have been attributed to the ability of business group (BG) structures to more effectively navigate institutional voids[1] that are rampant in such markets (Chari & David, 2012; Khanna & Palepu, 1997). Consequently, the question of whether the BG form structure is more effective than the M-form structure to pursue different types of diversification strategies (related or unrelated) in emerging economies is an interesting research question.

Very little work has theoretically distinguished the BG and M-form multi-business organizational forms in adequate depth in emerging markets as "[T]he extant literature has typically tended to treat business groups as equivalent to diversified conglomerates" (Ramaswamy, Li & Petitt, 2012 p: 646). This is actually not surprising because BG-type diversification is rare in advanced economies[2] while diversification tends to be accomplished predominantly through the BG form of organization in developing economies. It is difficult to find settings where both organizational forms have a meaningful presence.

In order to unravel the nuances in the above relationships, our study investigated the comparative performance impacts of diversification strategies (i.e. related and unrelated), pursued by a sample of firms comprising a mix of the BG form and the M-forms of structure, in an important emerging market context. We find India to be an appropriate context to test the efficacy of these diversification strategies, as both BG form firms and M-form firms co-exist. For

[1] Institutional voids can arise from labor market failures (i.e., absence of skilled and/or duly trained managerial talent in sufficient numbers), capital market failures (i.e., absence of institutional mechanisms that allow firms to access risk capital such as banks and capital financing), and product market failure (i.e., lack of a supply chain infrastructure to procure inputs and distribute outputs, such as third-party credit appraisals, or the absence of unbiased product quality ratings (see Chang & Hong, 2002; Khanna & Palepu, 1997; Lee, Peng & Lee, 2008; Li & Wong, 2003).

[2] Some recent work, however, has highlighted the prevalence of BG structures in Europe (Belenzon & Berkovitz, 2010)

example in our sample of 3173 firms, 1047 firms were affiliated to BGs and the rest were unaffiliated firms. Within these BG affiliated firms, 502 firms (48 percent) were diversified M-form firms, indicating that there were some M-form firms even within a BG structure.

Our study makes the following important contributions to the literature on the performance impacts of firm structure on diversification. Firstly, at broader conceptual level, our study revisits the classic Chandlerian (1962) 'strategy and structure' relationship stream of literature which focused on the adoption of the M-form structure owing to the diversification strategies pursued by US conglomerates in the late 19th and 20th centuries. Examples of past work which has examined this important relationship include Bart, 1986; Chandler, 1962; Egelhoff, 1982; Grinyer & Yasai-Ardekani, 1981; Hall & Saias, 1980; Kim, Hoskisson & Lee, 2015. Our context enables us to extend and widen this stream of research into the broader context prevalent among emerging markets (of which India is a prominent member), wherein an additional organizational structural attribute, namely the BG structure that has substantive differences compared to the M-form structure is examined. The most notable difference is that individual BG affiliated firms are separate legal entities, with some of whom being listed entities on a stock exchange, as opposed to merely being wholly owned divisions of a conglomerate. This unique context therefore enabled us to tease out a novel and nuanced finding that the business group firm does positively impact firm performance, but only with unrelated diversification whereas the M-form structure positively impacts firm performance primarily with related diversification. This reinforces the important role that the organizational structure plays in influencing the underlying relationship between diversification and firm performance and the structural contextuality of this relationship. Our work, theoretically draws upon institutional theory and the resource based view (e.g., Carney et al., 2011; Chakrabarti, et al., 2007; Guillen,

2000; Khanna & Palepu, 2000b; Kim, Kim, & Hoskisson, 2010; Kock & Guillen 2001) to provide a rationale explaining diversification choices (i.e., related or unrelated) that firms either affiliated to BGs or M-form firms make in an emerging economy context. Previous studies have implicitly considered diversification at the BG level to be unrelated in scope. They also assumed that such BG firms diversified primarily at the group level. In contrast, our study investigates whether different modes of diversification undertaken either at the business group level (i.e. BG form) or at the firm level (i.e., M-form) leads to superior performance outcomes for individual firms. Second, most previous studies have not explicitly established a direct concordance between constructs and measurement (i.e., group-level phenomena measured against group-level performance--see for example Khanna & Rivkin, 2001; Ramaswamy, Li, & Petit, 2004; Singh, Nejadmalayeri, & Mathur, 2007). Many of these studies postulated group level effects, even though they relied on firm-level (i.e., affiliate) data to extrapolate phenomena to the group level (Ghemawat & Khanna, 2003; Kumar, Gaur, & Pattnaik, 2012 being notable exceptions). Finally, these earlier studies have not explicitly accounted for the type of diversification strategy (i.e., related or unrelated) undertaken by business groups or by M-form firms. Instead, they adopted proxy variables to measure diversification. Our study bridges the above gaps and proposes that diversification strategies of firms in emerging markets can occur simultaneously at two distinct levels— either at the corporate group (i.e., BG) level or at the M-form individual firm level. We found that in these two different forms of organizational structure (BG firms & M-form firm), diversification can have different performance implications. We found that better performance results when *unrelated* diversification is undertaken at the BG level. By contrast, related diversification undertaken at the firm level (i.e., among M-form firms) leads to better performance compared to those M-forms firms undertaking unrelated diversification.

The following sections describe the theoretical underpinnings of the study, the hypotheses, and a discussion of the empirical approach, results and conclusions.

Theoretical background

The diversification-performance relationship has seen contributions from scholars in economics, finance and strategy disciplines (see Datta, Rajagopalan & Rasheed, 1991; Martin & Sayrak, 2003, Palich, et al., 2000 for excellent reviews of the literature). One sub-stream in this research has examined the role of country context in influencing performance outcomes associated with diversification. Some attention has also focused on the optimal organizational structure for diversified firms, both in emerging and developed economies.

The Business Group Structure

The majority of the studies on the effects of diversification in emerging economies have been performed in the context of business groups. A widely-shared view in this stream of literature is that the dominance of business groups and their diversification strategies are in resource deficient environments wherein institutional mechanisms such as distribution systems, legal systems, capital markets, consumer protection mechanisms, or frictionless supply chain networks are absent or weak (Carney, et. al., 2018; Chang & Hong, 2000; Chung & Mahmood, 2010; Fisman, 2001; Granovetter, 2005; Khanna & Palepu, 2000a, b; Lien & Li, 2013; Sarkar, 2010). The individual firms within such business groups were typically not administered through well-defined, integrated organizational structures (Guillen, 2000). They were mostly (but not always) founded by local entrepreneurs who parlayed their socio-political connections in newly independent/liberalizing countries to obtain approvals and access necessary resources (Kock & Guillen, 2001). Their idiosyncratic contacts and networks enabled them to access local markets and resources (that were initially not available to foreign competitors). These resources

were then combined with technological and organizational capabilities obtained sometimes from outside of the home country, to opportunistically create new ventures that catered to emergent local demand (Purkayastha, Manolova & Edelman, 2012.). The newly minted local entrepreneurs engaged in the creation of new business groups characterized by a diverse scope of constituent businesses and by the ability to operate efficiently across a wide range of unrelated businesses (Ghemawat & Khanna 2003; Guillen 2000).

The characteristic patterns of growth through diversification by these BG firms exhibited no relatedness in terms of common products, processes or technologies (Ramaswamy, et al., 2012). However, in these diversified business groups, all the individual businesses were (typically) separate companies (i.e., distinct legal entities) with their own sets of shareholders and distinct governance mechanisms (Manikandan & Ramachandran, 2015). One or more holding companies (often majority owned by a family or group of families) retained controlling equity stakes in all of these individual member companies through a complex web of ownership mechanisms that enabled capital transfers amongst firms within the business group, such as multiple and reciprocated equity, debt, and/or commercial ties (Gerlach, 1992), as well as through kinship affiliations between top managers (Granovetter, 2005). This unique organization structure, commonly known as the BG structure, enabled the positive effects of diversification to become manifest (Manikandan & Ramachandran, 2015; Chittoor, Kale & Puranam, 2015). Group membership enabled BG firms not only to access group-level resources, but also enabled them to identify unique strategic opportunities hidden by incomplete markets (Lamin, 2013). The organizational structure of business groups enabled their group-affiliated firms to both sense as well as exploit strategic opportunities better than if these businesses were organized as divisions of a multi-business (M-form) firm. Business groups were also able to add value to their affiliated

firms through creating internal capital markets, internal managerial talent pools, building the group's brand and name recognition, and through the accumulation of expertise (Khanna & Palepu, 1997; Ramachandran, Manikandan & Pant, 2015).

The Multidivisional (M-Form) Structure

The M-form structure would have a set of diverse businesses housed as divisions or wholly-owned subsidiaries in a unitary legal entity with a dedicated body of shareholders and corporate governance structures (Chandler, 1962). The coordination in such firms was accomplished through the formal unified internal mechanisms that exercised control and disseminated information across a portfolio of divisions (Davis, Diekmann, & Tinsley, 1994). Because of these well-developed control and information systems, information asymmetries were reduced, and the corporate HQ was able to allocate capital more efficiently among individual divisions (Bettis & Hall, 1982; Rumelt, 1982; Palepu, 1985). By virtue of the integrated organizational structure, diversification among these M-form firms could only be pursued at the corporate level.

Compared to a BG structure, the M-form has a more capital-intensive structural configuration requiring investments of capital upfront, in order to secure majority or controlling ownership of all the individual businesses (i.e., divisions) in the portfolio. In an M-form firm, divisional managers' report to a top management team (at the corporate HQ). The firm is governed at the HQ by an elected board of directors. Financial statements disclose the aggregated information on the performance of the firm as a whole and not the performance of individual divisions (Manikandan & Ramachandran, 2015).The corporate HQ retains the authority (and the responsibility) to interfere in the affairs of the divisions, when needed. Additionally, the corporate HQ in M-form firms faces a bigger challenge in marshalling resources to ensure that the expectations of shareholder returns on invested capital (ROIC) are

met across the multiple divisions in different industries. Market valuations were computed for the whole organization (which is the entity under whom the shares were listed), and not for individual businesses. In comparison, the group headquarters in the BG (or Holding Company) configuration is not directly accountable to a specific set of shareholders, since every individual company in the group has its own shareholding structure. Instead, shareholder value creation is primarily the responsibility of operating management teams of individual companies in the BG (Conger & Kanungo, 1988). The governance structure among BG firms mitigates the incentive alignment and resource allocation problems that arise in M-form firms (Manikandan & Ramachandran, 2015).

Additionally, the operating management teams of individual BG companies are able to invest their expertise and skills in focused, specialized, business contexts that they have prior experience in, and are familiar with. By contrast, the top management teams of M-form company groupings might find their expertise and skills spread thin across a disparate range of (sometimes unfamiliar) businesses that they are required to supervise and oversee (Day & Wendler, 1998). This situation exacerbates information asymmetries between these M-form HQ managers and individual divisional operating managers, thereby aggravating agency conflicts. In addition, because of bounded rationality, the volume and scope of information processing requirements could exceed cognitive limitations of individuals in the HQ top management teams of these M-form firms. Because of these differences, there is a greater potential for opportunism (and consequent value-destruction) among M-form business firms (Prahalad & Bettis, 1986; Rajan, Servares & Zingales, 2000; Scharstein & Stein, 2000). Figure 1 presents the contrasting organizational structures of the BG and M-form organization.

Insert Figure 1 here

The BG form and the M form structures, diversification strategy and their effects on firm performance

Given the ample opportunities for exploiting economics of scope and scale through employing internal, hierarchical market mechanisms, diversification strategies could potentially be better implemented through the adoption of either the BG form or the M-form structure. Additionally, such diversification strategies can be pursued in BG firms either at the business group level (i.e., corporate strategy) or at the individual business (i.e., business strategy) level. Both these types of structural configurations also provide access to internal pools of capital for member companies that enable them to lower their capital costs. Another additional benefit from pursuing diversification accrues through the coinsurance effects of combining businesses whose cash flows are imperfectly correlated (Lewellen, 1971). This balancing of cash flow across multiple businesses benefits both the BG and the M-form type organizations, and is particularly useful when the external capital markets are less than perfect (Kuppuswamy & Villalonga, 2015). The same is also true for labor markets. Labor markets for managerial talent are also underdeveloped in developing countries (Khanna & Palepu, 2000b) and large diversified organizations (such as BG firms and M-form firms) are able to develop and support internal recruiting and training programs that can be shared across all the businesses in the firm's portfolio, thereby reducing the costs for each individual business (as compared to stand-alone firms). Likewise, similar pooling benefits also exist in the case of external product and input markets (Khanna & Rivkin, 2001; Mahmood & Mitchell, 2004). In fact, institutional theory conceptualizes diversification in emerging economies (either at BG or at M-form levels) as being responses to the lack of intermediary institutions, which create market imperfections (Backman,

1999; Khanna & Palepu, 1997; Lins & Servaes, 20002; North, 1990). Since these market imperfections are present across all industries in these emerging economies, and since the resources required to deal with these imperfections are generic in nature, BG firms as well as M-form firms are able to exploit these common resources across multiple industries (Encarnation, 1989; Kock & Guillen 2001, Granovetter, 1995). Therefore, in an emerging economy context both the BG and the M- form type structures benefit from pursuing higher levels of diversification. Accordingly, we hypothesize:

> ***H1****: In emerging economies, diversification is positively related to firm performance among both BG and M- form structures.*

Kock and Guillen (2001) opined that in less developed institutional environments, along with firms' competencies and technological abilities, resources such as political and bureaucratic contacts and connections of the founding entrepreneurs became important for sustaining firm performance. We argue that these capabilities, while being rare, are applicable across industry contexts; therefore, this incentivized firms to employ these contacts to diversify across several unrelated industries, resulting in the creation of unrelated diversified BGs (Guillen, 2000). For instance, Korean BGs were able to acquire and deploy sets of non-industry specific entry skills like obtaining licenses, arranging financial packages, and acquiring technology and managerial know-how through active support from the Korean government (Amsden & Hikino 1994).

Alternatively, sociological streams of work considered business groups as a 'medley of formal and informal relationships' that linked affiliated firms together (Granovetter 2005; Keister 1988). This network of relationships created social capital (Adler & Kwon 2002; Bhappu 2000), which was built on norms of mutual trust and reciprocity. Since the violation of trust and reciprocity could permanently damage these relationships resulting in both the social and economic exclusion of errant participants, individuals (and businesses) were keen to comply with

the norms of the group network (Khanna & Palepu, 1997). The benefits realized from these networks were higher quality information processing capabilities among the participants, mutual influence, power and resource sharing (Adler & Kwon 2002). The networks and social capital also resulted in increased trust, decreased opportunism, and reduced transactions costs among business group firm managers, thereby enabling the unfettered exploration and exploitation of new ideas (Granovetter, 1995; Luo & Chung, 2005). The exploitation of shared information and the power and influence of networks were not necessarily restricted to a few industries and could be profitably used across multiple unrelated industries. Consequently, this led to BG firms being diversified across several unrelated industries.

Membership of business groups also provided BG firms with privileged access to idiosyncratic information regarding the resources and capabilities of sister firms within the network (Lamin, 2013; Elango & Pattnaik, 2007). Consequently, they were able to visualize new uses for the resources of other group members or discover entirely new resources within the group through combining members' resources in novel ways (Purkayastha et al., 2012). This enhanced their ability to scan, access and exploit fresh opportunities (based on these new resources) that had previously not been considered or exploited. Additionally, individual firms within unrelated diversified business groups also had access to a greater number and variety of resources, than did individual firms belonging to non-diversified or relatedly diversified BGs. The headquarter management teams of these unrelatedly diversified BGs also had greater latitude in the range of strategic actions that the group was able to consider and pursue. They were also able to explore creative ways by which coordination among individual companies in the business group could be ensured, in order to pursue novel strategic initiatives that might result in enhanced performance (Elango & Pattnaik, 2007; Rangan, 2000). Based on all the above

arguments, we submit that in emerging economies, a BG structure is better suited to create value and enhance firm performance in a portfolio of unrelated businesses.,

> ***H2a**: In emerging economies, unrelated diversification is likely to positively impact performance more than related diversification, among firms with BG structures.*

In comparison, an M-form structure has a greater ability to pursue and realize operational synergies through the sharing of facilities and tangible assets through centralized control and coordination mechanisms. Though there is a greater capital investment involved in putting together an M-form structure, a related diversification strategy offers more opportunities for value creation through exploiting synergies that include the sharing of operating activities and tangible assets (Christensen & Montgomery, 1981; Hitt & Ireland, 1986; Palich, et al., 2000). The greater value creation opportunities offered by related diversification also has the potential to offset the higher sunk costs of the M-form structures (Rumelt, 1974, 1982)

By contrast, unrelated diversification offers fewer value creation opportunities through the sharing of tangible assets. In these cases, potential synergies among these firms are limited to non-operating areas like the balancing of financial cash flows (Chang & Thomas, 1989, Chatterjee & Wernerfelt, 1991). Therefore, the higher costs inherent in an M-form structure cannot be offset through the limited synergies available through undertaking unrelated diversification. Additionally, the overriding authority of the corporate HQ in M-form firms reduces the motivations and entrepreneurial tendencies of individual divisional managers to explore ventures in other unrelated industries (Campbell, Goold & Alexander, 1995). The manipulation of the centralized resource allocation process by individual divisions in these M-form firms could also result in deserving opportunities (including those in other industries) being overlooked (Rajan, et al., 2000). Further, the reliance on accounting measures (and the unavailability of market-based measures) for assessing divisional performance could result in

risk-averse behaviors by divisional managers (Hoskisson & Hitt, 1988; Hoskisson, Hitt & Hill, 1993). This further dampens their desire to undertake unrelated diversification. Multidivisional managers also find it more challenging to manage opportunities that arise across different time horizons (Ramachandran, et al., 2013), since that would require a different set of resources, skills, mind-sets, planning systems and performance assessment systems than the ones currently in place. Therefore, they may overlook such opportunities. Current evidence obtained primarily through researching the M-form structure (in developed country contexts), indicates that much of unrelated diversification is also value-destroying in nature (Berger & Ofek, 1995; Lang & Stultz, 1994). Therefore, unrelated diversification is likely to diminish the performance of M-form firms. We therefore propose,

> ***H2b****: In emerging economies, related diversification is likely to positively impact performance more than unrelated diversification among firms with M-form structures.*

Methods

We tested our hypotheses employing a comprehensive panel data set of Indian firms. Firstly, India is home to a large number of firms affiliated to business group structures, as well as several unaffiliated M-form firms. For example, firms affiliated to Indian BGs, constituted about one-third of the proportion in terms of the total number of Indian firms (Chittoor, et al., 2015) and about 75% of the total industrial output in India's private sector (Purkayastha, et al., 2012). Second, information about business group affiliation was available and transparent, thereby making it easier to classify firms into group affiliated and standalone firms. Finally, and most importantly, the Indian context is unique in the sense that diversification is observable among both BG and M-form structures, thereby making it an ideal context to test our predictions.

Our data was from the Prowess database (Chacar & Vissa, 2005; Manikandan & Ramachandran, 2015), which is maintained by the Centre for Monitoring of the Indian

Economy (CMIE). We collected firm-level data for ten years from 2003-2012, 2003 being the year when disclosure of segment data first commenced in India. Taking the 3958 firms for whom segment data was available as a starting point, we dropped firms that were government controlled, subsidiaries of foreign multinationals or firms that had segment information based only on geographic diversification. We also dropped those firms whose segment sales were less than Rupees 60 million, roughly equivalent to USD 1 million (Berger & Ofek, 1995). This data cleansing procedure resulted in a sample of 3173 firms. In this sample, 33 percent (1047 firms) were affiliated to business groups and the rest were unaffiliated firms. Within these BG affiliated firms, 48 percent were diversified M-form firms present in two or more NIC (National Industrial Classification) industries. Among the 2126 unaffiliated firms, 46 percent were diversified M-form firms with presence in two or more NIC industries[3].

We used return on assets (ROA) as our dependent variable to measure firm performance, in line with prior literature[4]. Diversification, both at the firm as well as at the business group levels, was our primary independent variable. Diversification was measured in two ways (a) a count measure and (b) the entropy measure. The count measure of firm diversification calculates the number of four digit NIC industry segments in which the firm was present (Khanna & Palepu, 2000). Similarly, business group level diversification was measured by the number of firms that were present in two or more 4-digit industries (Chittoor et al., 2015)[5]. Finally, we computed the entropy measure of diversification along with its related and unrelated components, both at

[3] Our sample constituted firms for which segment data was available for at least one year in the period 2003-2012. So, firms may change between m-form and single business.
[4] We also used Tobin's q and MBE as alternate dependent variables. The results were similar though less statistically significant.
[5] We also checked our results with diversification calculated at the NIC 2-digit level. The results were similar though less statistically significant.

business group and firm level. The entropy index was originally developed by Jacquemin and Berry (1979) and allowed for the decomposition of total diversification into two additive components: (1) an unrelated component (DU) that measured the distribution of output in products across unrelated industry groups, and (2) a related component (DR) that measured the distribution of output among related products within the industry group (see Palepu, 1985 for a detailed description of the entropy measure).

We included a number of control variables that could affect the performance of firms. Firm age (AGE) was the number of years since the incorporation of the firm and was likely to have a negative impact on firm performance. This is on account of the fact that older firms are likely to have more inertia and are thus hesitant to change (Majumder, 1997; Ramaswamy, Purkayastha & Petitt, 2017). Firm size (SIZE) was measured as the logarithm of total sales of the firm and was expected to have a positive effect on firm performance. This is owing to the fact that larger firms would have more resources, which can be utilized to increase their competitive advantage (Mazumder, 1997). Debt-equity ratio measuring the financial leverage of the firm, could affect performance (Kakani, 2000). R&D intensity measured as R&D expenditures over sales, and marketing intensity, measured as marketing expenditures over sales, could have a positive impact on firm performance (Chittoor & Ray, 2007; Gubbi, Aulakh, Ray, Sarkar, & Chittoor, 2010). We also controlled for internationalization measured as foreign sales to total sales (Kumar, et al., 2012).

For all panel data regressions, we ran the Hausman test (Baltagi, 2005) to determine whether to use fixed effects or random effects models. As the Hausman statistic was significant in all the models, we used fixed effects.

Results

Table 1 provides the mean and the standard deviation for all the variables.

Insert Table 1 here

Table 2 presents the results of our panel data regression with ROA as the dependent variable. Models 1a and 1b shows the results for BG form firms. For Model 1a, we used count measures while in Model 1b we used the entropy measure of diversification. In both the models we found that for BG form firms, business group diversification had a positive effect on firm performance (Model 1a $\beta=0.002$, $p<0.05$; Model 1b $\beta=0.089$, $p<0.05$). Models 2a and 2b present the results for M form firms. For Model 2a, we used the count measure while in Model 2b we used the entropy measure. In both the models we found that for M form firms, firm diversification had a positive effect on firm performance (Model 2a $\beta=0.007$, $p<0.05$; Model 2b $\beta=0.022$, $p<0.01$). Taken together, Models 1 & 2 supported our Hypothesis 1. Model 3 presents the results with entropy measures of both related and unrelated diversification, captured among BG firms. We found that unrelated diversification had a positive effect on performance ($\beta=0.041$, $p<0.01$), while related diversification had a negative (but insignificant) effect. This result supported our Hypothesis 2a which proposed that with a BG structure, an unrelated diversification strategy would impact performance more favorably. In Model 4 where we tested the same pattern of relationships with the M-form type of organization, we found the reverse to be true. While related diversification ($\beta=0.066$, $p<0.01$) had a positive effect on firm performance, unrelated diversification had a negative (but insignificant) effect. These results provided complete support for Hypothesis 2b, which proposed that related diversification was more likely to impact firm performance among firms with an M-form structure.

Insert Table 2 here

Robustness Tests

We performed several additional tests to ensure the robustness of the findings reported in the primary analyses. First, we repeated our analysis while controlling for endogeneity of the decision to diversify. Previous research has indicated that because firms do not diversify randomly. Because it is an endogenous decision, failure to account for this endogeneity could lead to erroneous detection of performance outcomes (Campa & Kedia, 2002; Villalonga, 2004). We control for endogeneity through a two-stage least squares regression process, the most common approach that relies on instrumental variables (Campa & Kedia, 2002; Roberts & Whited, 2012). Based on Campa and Kedia (2002) and Lang and Stulz (1994), we argue that since industry attractiveness influences the decision to diversify but does not directly affect firm performance, it can proxy as an instrument for diversification. Industry attractiveness was captured by the fraction of all the firms in the industry that were conglomerates. The higher the fraction of diversified firms, the more attractive the industry conditions are for diversification. Using the alternate measures of diversification- both the count measure and entropy measure, we re-ran the analysis with a two-stage least square regression (2SLS).

We present the results of the 2SLS regression in Table 3. Models 1a and 1b show the results for BG form firms. In Model 1a, we used the count measure while in Model 1b we used the entropy measure of diversification. In both the models we found that among BG form firms, business group diversification had a positive effect on firm performance (Model 1a $\beta=0.049$, $p<0.01$; Model 1b $\beta=0.053$, $p<0.05$). Models 2a and 2b present the results for M form firms. In Model 2a, we used the count measure while in Model 2b we used the entropy measure. In both the models we found that among M form firms, firm diversification had a positive effect on firm

performance (Model 2a β=0.028, p<0.01; Model 2b β=0.024, p<0.01). Thus, taken together, Models 1 & 2 supported our Hypothesis 1 and our main results. Models 3a & 3b present the results with entropy measures of both related and unrelated diversification, captured among BG firms. We found that unrelated diversification had a positive effect on performance (Model 3a, β=0.041, p<0.05), while related diversification had a negative but insignificant effect (Model 3b). This result supported our Hypothesis 2a as well as our main results. In Models 4a & 4b, we tested the same pattern of relationships with the M-form type of organization. As expected, we found the reverse pattern of results. While related diversification (Model 4b, β=0.044, p<0.1) had a positive effect on firm performance, unrelated diversification had no significant effect (Model 4a). These results provided support for Hypothesis 2b and for our main analyses.

Insert Table 3 here

Additionally, we tested whether the performance effect of diversification was constant over time. After India opened up her economy in 1991, macro-economic reforms have progressed at a steady rate, including during the time period of our study (Majumder & Bhattacharjee, 2014). To capture the dynamic effects of these reforms and their impact on the diversification-performance relationships, we divided the 10-year time period of the study into two equal halves- 2003 to 2007 and 2008-2012. Table 4A present the results for the first time period (2003 to 2007) while the Table 4B presents the results for the second period (2008-2012).

In Table 4A, from Models 1a & 1b, we observe that among BG form firms, business group diversification had a positive effect on firm performance (Model 1a, β=0.032, p<0.05; Model 1b, β=0.106, p<0.05); while Models 2a & 2b show that among M form firms, firm diversification had a positive effect on firm performance (Model 2a, β=0.008, p<0.10; Model 2b,

β=0.022, p<0.05), thereby supporting the results obtained in our main analysis. Model 3 captures the performance effects of related and unrelated diversification among BG form firms. Although the coefficients of related and unrelated diversification were not significant in this model, their directions were according to our expectations. Finally, from Model 4 we found that among M form firms, although related diversification was not significant (as found in our main analysis reported earlier), unrelated diversification had a negative impact on performance (β=-0.025, p<0.05). This result provided partial support for our Hypothesis 2b.

Similarly, in Table 4B, in Models 1a & 1b, we found that among BG form firms, business group diversification had a positive effect on firm performance (Model 1a, β=0.040, p<0.05; Model 1b, β=0.025, p<0.01); while Models 2a & 2b showed that among M form firms, firm diversification had a positive effect on firm performance (Model 2a, β=0.008, p<0.01; Model 2b, β=0.018, p<0.05). These results provided support for our main analyses. Model 3 captured the effect of related and unrelated diversification among BG form firms. We found that unrelated diversification had a positive effect on performance (β=0.069, p<0.01), while the co-efficient of related diversification was insignificant. Finally, from Model 4 we observed that among M form firms, unrelated had a negative impact on performance (β= -0.019, p<0.01) while related diversification had a positive effect on performance (β=0.021, p<0.01). Once again, these results supported our Hypothesis 2b and the results from our main analysis[6]. In summary, our results using multiple methods and multiple measures provide confirmation of the study's main findings.

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[6] We also conducted other robustness tests with alternate dependent variables (Tobin's q & MBE) and alternate regression techniques a) polled, and b) two-way clustering analysis (Cameron, Gelbach & Miller, 2012). The results were similar, although less statically significant.

Insert Table 4A & 4B here

Discussion

The research on the links between strategy and structure has a long history (Chandler, 1962). However, previous work has fallen short on disentangling the performance impacts of varying degrees of diversification strategy undertaken by firms with either the BG form or the M-form type of organizational structures. The fact that such diversification moves could be undertaken at either the corporate level (i.e., in BGs as well as in M-form organizations) or at the business level (primarily in BG organizations) created a conundrum that confounded the examination of the phenomenon, as well as the interpretation of the findings. Therefore, the resulting evidence did not clearly separate out the performance effects of diversification occurring at the corporate level from that occurring at the business level (Kannan et al., 2012; Manikandan & Ramachandran, 2015). Much of previous research has been conducted in developed country institutional contexts, where BG form organizations are rare and transitory. It is only with recent research on emerging economies, that the BG form of organization and its impact on diversification strategy has received increasing attention. Undoubtedly, the extent of development of the country's institutional environment has a major impact on the efficacy and performance impacts of various structure-strategy combinations. For example, we have learnt that not all unrelated diversification undertaken in such country contexts is necessarily value-destroying (Chittoor, et al., 2015; Gaur & Kumar, 2009; Seigel & Choudhury, 2012). Through attempting to unravel some of these confounding effects among a sample of firms in an emerging market economy, this study contributed to the extant literature on the performance effects of

diversification undertaken by firms with business group and M-form structural configurations.

As anticipated, we found that in both the BG and the M-form organization, diversification positively impacted performance, when their effects were tested separately. Thus, both forms of structure (and corporate levels of diversification strategy) appeared to compensate for imperfections in the external market's institutional environments and to some extent alleviated the consequent negative effects on firm performance. Additionally, we observed that the M-form structure had a positive effect on performance when undertaking related diversification strategies. This corporate level diversification strategy produces positive performance effects in emerging market contexts possibly because of the effectiveness of internal corporate hierarchies in M-form firms that substituted for external market imperfections. By contrast, the BG form structure produced positive impact performance impacts only in the context of unrelated diversification (and not for related diversification). The overall pattern of results appeared to indicate that the BG (or Holding Company) form of structure was most suited for following an unrelated diversification strategy that sought to exploit financial synergies among businesses. This finding rebuts the received wisdom based primarily on research conducted in developed economies that all unrelated diversification is value-destroying (Christensen & Montgomery, 1981; Fryxell & Barton, 1990; Hill & Snell, 1989; Hitt & Ireland, 1986). Results from the regression models also showed that, within the context of a BG holding company structure, a strategy of related diversification strategy had a slightly negative impact on performance. This latter result might have been because of the inability of the BG structural form to capitalize on operational synergies. For this type of cooperative behavior to occur among the different businesses, divisional managers' behaviors had to be shaped and motivated either by performance appraisal and reward systems or through corporate HQ dictates.

Alternatively, the M-form structure was conducive to performance enhancement primarily with related diversification strategies that exploited operating synergies among sister divisions. Conceivably, with this form of diversification, the divisions in the M-form companies followed cooperative relationships that allowed for the sharing of tangible assets, skills, know-how and resources. Such behaviors may have been motivated either through appropriate performance incentives for divisional management or through transparent sharing of information and communication between divisions. Additionally, corporate HQ might have played supportive roles as facilitators for these positive exchanges that necessitated the toning down of adversarial and competitive interactions between sister divisions.

Limitations and Areas for future research

Our study examined strategy-structure linkages at an aggregate level, and inferred relationships based on the measured constructs. Undeniably, not all business group firms are alike and there are idiosyncratic differences among them that translate into varying abilities to implement different types of diversification strategies. For example, family-controlled business groups are able to use family kinship, personal contacts and socio-emotional ties to implement cooperative behaviors among managers of individual businesses. These informal coordination mechanisms are especially potent when family members are also executives in charge of the individual companies, as well as when the early family generations (such as the founding patriarchs) are still in control of the business in its incipient stages. The exploratory nature of our study did not permit us to delve into such nuances. This represents a fertile area for future research.

Another potential area for inquiry would be how non-family based business groups implement coordination and control mechanisms. Undoubtedly there are many such non-family

based business groups (for example the Swire Group and the Tata Group of companies) that exist in many emerging (as well as developed country) markets around the globe. There could be nuanced differences in the governance and control mechanisms that these non-family based BG organizations employ that could be a fertile area for future research. Another limitation is that we examined firms in only one large emerging market, India. Undoubtedly, business groups' governance mechanisms and practices vary and are inevitably shaped by the historical evolution and patterns of development of their respective individual home countries. These governance mechanisms are also tailored to meet the requirements of the country institutional environments within which they operate. Future research could examine business groups located across country contexts to tease out differences in governance and strategic control mechanisms that might exist across them, because of country institutional differences. In contrast, the multidivisional form (M-form) organization is undoubtedly an established and much more widely prevalent form of organization across multiple (including developed) country contexts, as generations of research has proven. However, the debate regarding the staying power of the BG form of organization is still alive, especially considering their relative rarity or even complete absence in developed country contexts. The jury is still out, and future research could examine the larger questions concerning the viability and appropriateness of this form of organizational structure (i.e., the BG form) and the modifications and reforms that might be necessary in order to ensure its viability and continued existence. This is especially important, considering its potency in implementing different types of diversification strategy, as we have shown in this study.

References

Adler P. S., & Kwon, S. 2002. Social Capital: Prospects for a new concept. *Academy of Management Review*, 27(1); 17-40

Amsden, A.H., & Hikino, T. 1994. Project execution capability, organizational know-how and conglomerate corporate growth in late industrialization. *Industrial and Corporate Change*, 3(1), 111-147.

Backman, M. 1999. *Asian Eclipse: Exposing the dark side of business in Asia*. Singapore: Wiley.

Baltagi, B. H. (2005). *Econometric analysis of panel data* (3rd ed.). Chichester, England: John Wiley & Sons.

Berger, P.G., & Ofek, E. 1995. Diversification's effect on firm value. *Journal of Financial Economics*, 37(1), 39-65.

Baker G, Gibbons R, Murphy KJ. 1999. Informal authority in organizations. *Journal of Law Economics and Organization* 15(1): 56–73

Bart, C.K. 1986. Product strategy and formal structure. *Strategic Management Journal*, 7: 293-312.

Belenzon, S. &, Berkovitz, T. 2010. Innovation in business groups. Management Science 56(3):519-535.

Bettis, R.A. & Hall, W.K. 1982. Diversification strategy, accounting determined risk, and accounting determined return. *Academy of Management Journal*, 25, 254–264.

Bhappu, A. D. 2000. The Japanese family: An institutional logic for Japanese corporate networks and Japanese management. *Academy of Management Review*, 25(2), 409–415.

Campa, J. M., & Kedia, S. 2002. Explaining the diversification discount. *Journal of Finance*, 57(4), 1731–1762.

Cameron, C., Gelbach J. B. & Miller, D. L.2011. Robust inference with multiway clustering. *Journal of Business & Economic Statistics*, 29(2), 238-249

Campbell, A., Goold, M., & Alexander, M. 1995. The value of the parent company. *California Management Review*, 28(6): 107–108.

Carney, M., Gedajlovic, E. R., Heugens, P. R., Van Essen, M., & Van Oosterhout, J. H. 2011. Business group affiliation, performance, context and strategy: A meta-analysis. *Academy of Management Journal*, 54(3): 437-460.

Chacar, A., & Vissa, B. 2005. Are emerging economies less efficient? Performance persistence and the impact of business group affiliation. *Strategic Management Journal*, 26(10), 933-946.

Chakrabarti, A., Singh, K., and Mahmood, I. 2007. Diversification and performance: Evidence from East Asian firms. *Strategic Management Journal*, 101-120.

Chandler, A. D. Jr. 1962. *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*, MIT Press, Cambridge, MA.

Chang, S. J., and Hong, J. 2002. How much does the business group matter in Korea? *Strategic Management Journal*, 23(3), 265–274.

Chang, Y. & Thomas, H. 1989. The impact of diversification strategies on risk–return performance. *Strategic Management Journal*, 10, pp. 271–284.

Chari, M.D. & David, P. 2012. Sustaining superior performance in an emerging economy: An empirical test in the Indian context. *Strategic Management Journal*, 33: 217-229.

Chatterjee, S. & Wernerfelt, B. 1991. The link between resources and type of diversification: theory and evidence. *Strategic Management Journal*, 12, 33–48.

Chittoor, R., Kale, P., & Puranam, P. 2015. Business groups in developing capital markets: Towards a complementarity perspective. *Strategic Management Journal*, 36(9), 1277-1296.

Chittoor, R., & Ray, S. 2007. Internationalization paths of Indian pharmaceutical firms—A strategic group analysis. *Journal of International Management*, 13(3), 338–355.

Christensen, H.K. & Montgomery, C.A. 1981. Corporate economic performance: diversification strategy versus market structure. *Strategic Management Journal*, 2, 327–343

Chung, H.K. 2004. Business groups in Japan and Korea: Theoretical boundaries and future direction. *International Journal of Political Economy*, 34, 67–98.

Chung, C., & Mahmood, I. (2010). Business groups in Taiwan. In A. M. Colpan, T. Hikino, & J. R. Lincoln (Eds.), *The Oxford handbook of business groups* (pp. 180–209). NY: Oxford University Press.

Conger J.A. & Kanungo R.N. 1988. The empowerment process: Integrating theory and practice. *Academy of Management Review* 13(3): 471–482.

Datta, D.K., Rajagopalan, N. & Rasheed, A.M.A. 1991. Diversification and performance: Critical review and future directions. *Journal of Management Studies*, 28, 529–558.

Davis, G. F., Diekmann, K. A. & Tinsley, C. H. 1994. The decline and fall of the conglomerate firm in the 1980s: The deinstitutionalization of an organizational form. *American Sociological Review*, 59(4), 547-570.

Day, D. & Wendler, J.C.1998. The new economics of organization. *The McKinsey Quarterly* 1: 4–18

Encarnation, D. 1989. *Dislodging multinationals: India's comparative perspective*. Ithaca, NY: Cornell University Press.

Elango, B., & Pattnaik, C. 2007. Building capabilities for international operations through networks: A study of Indian firms. *Journal of International Business Studies*, 38(4): 541–555

Egelhoff, W. 1982. Strategy and structure in multinational corporations: An information-processing approach. *Administrative Science Quarterly*, 27(3), 435-458.

Feichter, C., Grabner, I & Moers F. 2018. Target setting in multi-divisional firms: State of the art and avenues for future research. *Journal of Management Accounting Research* 30:29-54

Fisman, R. 2001. Estimating the value of political connections. *The American Economic Review*, 91(4), 1095–1102.

Fryxell, G.E. & Barton, S.L. 1990. Temporal and conceptual changes in the measurement structure of financial performance: implications for strategy research. *Journal of Management,* 16, pp. 553–569.

Gaur, A. S., & Kumar, V. 2009. International diversification, business group affiliation and firm performance: Empirical evidence from India. *British Journal of Management*, 20(2), 172-186.

Gerlach, M. L. 1992. The Japanese corporate network: A blockmodel analysis. *Administrative Science Quarterly*, 37(1), 105-139.

Ghemawat, P., & Khanna, T. 2003. The nature of diversified Business Groups: A research design and two case studies. *The Journal of Industrial Economics*, 46(1), 35-61.

Granovetter, M. 2005. The impact of social structure on economic outcomes. *Journal of Economic Perspectives*, 19(1), 33-50.

Granovetter M. 1995. Coase revisited: business groups in the modern economy. Industrial and Corporate Change, 4(1): 93–130.

Grinyer, P., & Yasai-Ardekani, M. 1981. Strategy, structure, size and bureaucracy. *The Academy of Management Journal*, 24(3), 471-486.

Gubbi, S. R., Aulakh, P. S., Ray, S., Sarkar, M. B., & Chittoor, R. 2010. Do international acquisitions by emerging-economy firms create shareholder value: The case of Indian firms. *Journal of International Business Studies,* 41(3), 397–418.

Guillen, M. F. 2000. Business groups in emerging economies: A Resource-Based View. *Academy of Management Journal*, 43(3), 362-380.

Hall, D.J. & Saias, M.A. (1980), Strategy follows structure! *Strategic Management Journal*, 1: 149-163

Hill, C.W.L. & Hoskisson, R.E. 1987. Strategy and structure in the multi-product firm. *Academy of Management Review*, 2, pp. 331–341.

Hill, C.W.L. and Snell, S.A. 1988. External control, corporate strategy, and firm performance in research-intensive industries. *Strategic Management Journal*, 9, 577–590

Hitt, M.A. & Ireland, R.D. 1986. Relationships among corporate level distinctive competencies, diversification strategies, corporate structure and performance. *Journal of Management Studies*, 23, 401–416.

Hoskisson, R. E., & Hitt, M. A. 1994. *Downscoping: How to Tame the Diversified Firm*. Oxford University Press: New York.

Hoskisson, R. E, & Hitt, M. A. 1988. Strategic control systems and relative R&D intensity in large multiproduct firms. *Strategic Management Journal*, 9(6): 605–621.

Hoskisson, R. E., Hitt, M. A., & Hill, C. W. L. 1993. Managerial incentives and investment in R&D in large multiproduct firms. *Organization Science*, 4(2): 325–341.

Hoskisson, R.E., Johnson, R.A., Tihanyi, L., & White, R.E. 2005. Diversified business groups and corporate refocusing in emerging economies. *Journal of Management,* 31(6), 941-965.

Jacquemin, A. P., & Berry, C. H. 1979. Entropy measure of diversification and corporate growth. *The Journal of Industrial Economics*, 27(4), 359–369.

Kakani, R.K. (2000). Financial performance and diversification strategy of Indian business groups. *Doctoral Dissertation* Indian Institute of Management Calcutta

Keister, L. 1988, Engineering growth: business group structure and firm performance in China's transition economy, *American Journal of Sociology*, 104(2), 404-440.

Khanna, T., & Palepu, K. 2000a. Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *The Journal of Finance*, L (V), 867-891.

Khanna, T., & Palepu, K. 2000b. The future of business groups in emerging markets: Long-run evidence from Chile. *Academy of Management Journal*, 43(3), 268-285.

Khanna, T., & Palepu, K. 1997. Why focused strategies may be wrong for emerging markets. *Harvard Business Review*, 75(4), 41-48.

Khanna, T., & Rivkin, J.W. 2001. Estimating the performance effects of Business Groups in emerging markets. *Strategic Management Journal*, 22(1), 45-74.

Kim, K., Kim, K., & Hoskisson, R.E. 2010. Does market-oriented institutional change in an emerging economy make business-group-affiliated multinationals perform better? An institution-based view. *Journal of International Business Studies,* 41(7), 1141-1160.

Kim, H., Hoskisson, R.E. & Lee, S.-H. 2015. Why strategic factor markets matter: "New" multinationals' geographic diversification and firm profitability. *Strategic Management Journal*, 36: 518-536.

Kock, C.J., & Guillen, M.F. 2001. Strategy and structure in developing countries: Business Groups as an evolutionary response to opportunities for unrelated diversification. *Industrial and Corporate Change,* 10(1), 77-113.

Kumar, V., Gaur, A. S., & Pattnaik, C. 2012. Product diversification and international expansion of Business Groups. *Management International Review*, 52(2), 175-192.

Kuppuswamy, V., & Villalonga, B. 2015 Does diversification create value in the presence of external financing constraints? Evidence from the 2007–2009 financial crisis. *Management Science,* 62(4), 905-923.

Lamin, A. 2013. The business group as an information resource: An investigation of business group affiliation in the Indian software services industry. *Academy of Management Journal*, 56(5): 1487–1509.

Lang, L. H. P., & Stulz, R.M. 1994. Tobin's Q, corporate diversification, and firm performance. *Journal of Political Economy*, 102(6), 1248-1280.

Lee, K., Peng, M.W., & Lee, K. 2008. From diversification premium to diversification discount during institutional transitions. *Journal of World Business*, 43(1), 47–65.

Li, M., & Wong, Y. 2003. Diversification and economic performance: An empirical assessment of Chinese firms. *Asia Pacific Journal of Management*, 20(2), 243–265.

Lien, Y. C., & Li, S. 2013. Does diversification add firm value in emerging economies? Effect of corporate governance. *Journal of Business Research*, 66, 2425–2430.

Lins, K.V. & Servaes, H. 2002. Is corporate diversification beneficial in emerging markets? *Financial Management*, 31, pp. 5–31.

Lewellen, W. G. 1971. A pure financial rationale for the conglomerate merger. *The Journal of Finance,* 26(2), 521-537.

Luo, X., & Chung, C. N. 2005. Keeping it all in the family: The role of particularistic relationships in Business Group performance during institutional transition. *Administrative Science Quarterly,* 50, 404-439.

Mahmood, I.P., & Mitchell, W. 2004. Two faces: Effects of Business Groups on innovation in emerging economies. *Management Science*, 50(10), 1348-1365.

Majumdar, S. K., & Bhattacharjee, A. 2014. Firms, markets, and the state: Institutional change and manufacturing sector profitability variances in India. *Organization Science*, 25(2), 509–528.

Majumder, S.K. 1997. The impact of size and age on firm-level performance: Some evidence from India. *Review of Industrial Organization,* 12, 231-241.

Manikandan, K.S. & Ramachandran, J. 2015. Beyond institutional voids: Business groups, incomplete markets, and organizational form. *Strategic Management Journal*, 36(4), 598-617.

Martin, J.D., & Sayrak, A. 2003. Corporate diversification and shareholder value: a survey of recent literature. *Journal of Corporate Finance*, 9(1), 37-57.

Montgomery, C. A, & Wernerfelt, B. 1988. Diversification, Ricardian rents, and Tobin's q. *RAND Journal of Economics,* 19: 623–632.

North, D. 1990. *Institutions, institutional change and economic performance*. Cambridge, MA: Cambridge University Press

Palepu, K. 1985. Diversification strategy, profit performance and the entropy measure. *Strategic Management Journal*, 6(3), 239-255.

Palich, L. E, Cardinal L. B., & Miller, C. C. 2000. Curvilinearity in the diversification–performance linkage: An examination of over three decades of research. *Strategic Management Journal*, 21(2): 155–174.

Prahalad, C.K. & Bettis, R. A. 1986. The dominant logic: a new linkage between diversity and performance. *Strategic Management Journal* 7(6): 485–501

Purkayastha, P., Manolova, T. S., & Edelman, L. F. 2012. Diversification and performance in developed and emerging market contexts: A review of the literature. *International Journal of Management Reviews*, 14(1), 18-38.

Rajan, R., Servaes, H., & Zingales, L. 2000. The cost of diversity: the diversification discount and inefficient investment. *Journal of Finance*, 55(1): 35–80.

Ramachandran, J., Manikandan, K.S., & Pant, A. 2013. Why conglomerates thrive (outside the U.S.)? *Harvard Business Review*, December, 110-119.

Ramanujam V, & Varadarajan P. 1989. Research on corporate diversification: A synthesis. *Strategic Management Journal*, 10(6): 523–551.

Ramaswamy, K., Li, M., & Petit, B. S. P. 2004. Who drives unrelated diversification? A study of Indian manufacturing firms. *Asia Pacific Journal of Management*, 21(4), 403-423.

Ramaswamy, K., Li, M., & Petitt, B. S. 2012.Why do business groups continue to matter? A study of market failure and performance among Indian manufacturers. *Asia Pacific Journal of Management*, 29(3), 643–658.

Ramaswamy, K., Purkayastha, S., & Petit B. S. 2017. How do institutional transitions impact the efficacy of related and unrelated diversification strategies used by business groups? *Journal of Business Research* 72: 1–13

Rangan, S. 2000. The problem of search and deliberation in economic action: When social networks really matter. *Academy of Management Journal*, 25(4): 813-828.

Roberts, M. R., &Whited, T. M. 2012. *Endogeneity in empirical corporate finance.* (Working paper) The Wharton School, University of Pennsylvania and NBER.

Rumelt, R.P. 1974. *Strategy, structure and economic performance*. Cambridge, MA: Harvard University Press.

Rumelt, R. P. 1982. Diversification and profitability. *Strategic Management Journal*, 3(4), 359-369.

Sarkar, J. 2010. Business groups in India. In A. M. Colpan, T. Hikino, & J. R. Lincoln (Eds.), *The Oxford handbook of business groups* (pp. 294–324). NY: Oxford University Press

Scharfstein, D.S. & Stein, J.C. 2000. The dark side of internal capital markets: divisional rent seeking and inefficient investment. *Journal of Finance* 55(6): 2537–2564.

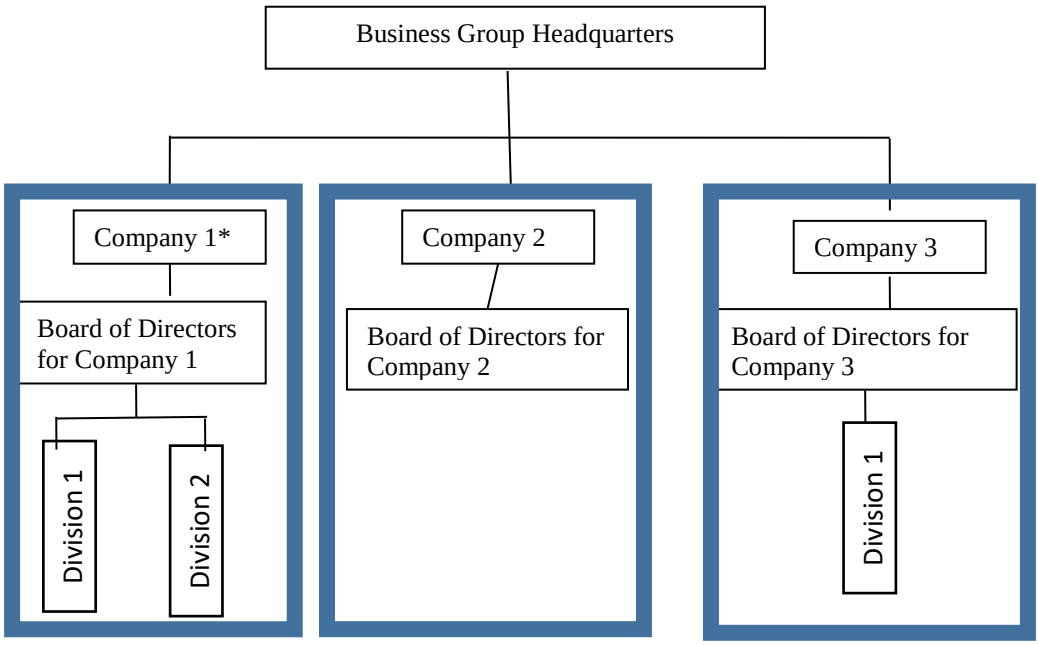
Siegel, J., & Choudhury, P. 2012. A reexamination of tunnelling and business groups: New data and new methods. *Review of Financial Studies*, 25(6), 1763–1798.

Singh, M., Nejadmalayeri, A., & Mathur, I. 2007. Performance impact of business group affiliation: An analysis of the diversification-performance link in a developing economy. *Journal of Business Research*, 60, 339-347.

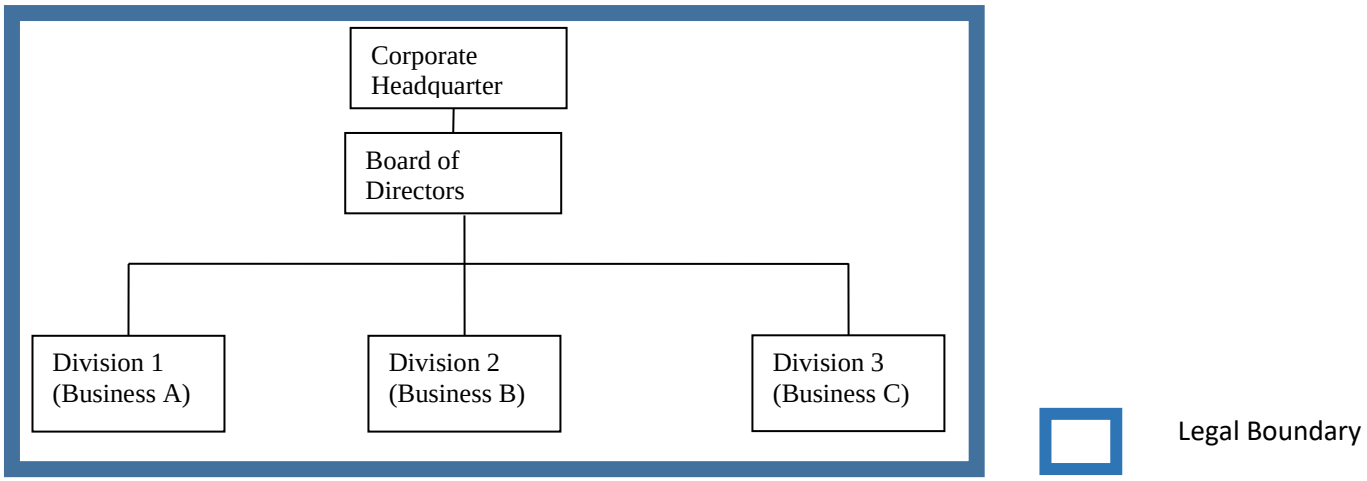
Villalonga, B. 2004. Does diversification cause the diversification discount*? Financial Management*, 33(2), 5–27.

Figure 1

Structure of a Business Group



M-form Structure of a Corporation



Adapted from Manikandan and Ramachandran (2015) & Ramachandran, Manikandan, & Pant (2013)

Table 1: Mean, standard deviation and correlations

Variable	Mean	Std. Dev	1	2	3	4	5	6	7	8	9	10	11
1. ROA	0.118	0.181	1										
2. Firm diversity – unrelated (entropy)	0.157	0.281	0.162*	1									
3. Firm diversity –related (entropy)	0.022	0.105	0.045*	0.033*	1								
4. BG diversity – unrelated (entropy)	0.306	0.521	0.062*	0.166*	0.062*	1							
5. BG diversity –related (entropy)	0.043	0.119	0.009	0.045*	0.084*	0.368*	1						
6. Size	6.871	1.617	0.076*	0.004	0.044*	0.254*	0.148*	1					
7. Age	27.933	20.199	0.050*	0.200*	0.127*	0.251*	0.147*	0.156*	1				
8. Debt - equity ratio	0.629	1.894	-0.016*	0.058*	0.008	0.021*	0.023*	0.051*	0.028*	1			
9. R&D Intensity	0.002	0.006	0.021*	-0.038*	-0.003	0.026*	0.011	0.127*	0.032*	-0.004	1		
10. Marketing Intensity	0.039	0.049	0.016*	-0.006	0.024*	0.114*	0.038*	0.091*	0.117*	0.04*	0.091*	1	
11. Foreign sales to total sales	0.154	0.255	0.034*	-0.051*	0.012	-0.031*	0.001	0.114*	-0.047*	-0.018*	0.115*	0.071*	1

*p<0.10

Table 2: Panel Regression Results

	Model 1a (BG firms)	**Model 1a (BG Firms)**	**Model 2a (M Firms)**	**Model 2b (M Firms)**	**Model 3 (BG Firms)**	**Model 4 (M Firms)**
Constant	0.089** (0.013, 0.000)	0.091** (0.013, 0.000)	0.121** (0.022,0.000)	0.126** (0.023,0.000)	0.090*** (0.013, 0.000)	0.124** (0.023,0.000)
Size	0.036** (0.002,0.000)	0.036** (0.002, 0.000)	0.039** (0.004,0.000)	0.039** (0.004,0.000)	0.036** (0.002, 0.000)	0.039** (0.004,0.000)
Age	-0.000** (0.000, 0.000)	-0.007** (0.000, 0.000)	-0.009** (0.001,0.000)	-0.009** (0.001,0.000)	-0.007** (0.000, 0.000)	-0.009** (0.001,0.000)
Debt-Equity ratio	-0.001* (0.000, 0.025)	-0.001* (0.000, 0.023)	-0.002** (0.001,0.001)	-0.002** (0.001,0.001)	-0.001* (0.000, 0.023)	-0.002** (0.001,0.001)
R&D Intensity	0.577* (0.263, 0.028)	0.561* (0.263, 0.033)	2.081** (0.659,0.002)	2.089** (0.659,0.002)	0.570* (0.263, 0.030)	2.118** (0.658,0.001)
Marketing Intensity	0.137** (0.033, 0.000)	0.138** (0.033, 0.000)	0.022 (0.043,0.605)	0.022 (0.043, 0.610)	0.135** (0.033, 0.000)	0.023 (0.043,0.602)
Foreign Sales to Total Sales	-0.003 (0.008, 0.687)	-0.003 (0.008, 0.732)	0.009 (0.014,0.554)	0.008 (0.014,0.576)	-0.003 (0.008, 0.756)	0.008 (0.014,0.597)
BG- No. of firms	0.000* (0.001, 0.023)					
BG- Diversification		0.089* (0.045,0.047)				
M form- No. of segments			0.007* (0.003,0.016)			
M form- Diversification				0.022** (0.007,0.003)		
BG- Unrelated diversification					0.041** (0.013, 0.001)	
BG- Related diversification					-0.004 (0.005, 0.490)	
M form- Unrelated diversification						-0.002 (0.010,0.842)
M form- Related diversification						0.066** (0.024,0.006)
F Statistics	71.944**	71.594**	127.093**	127.200**	64.612**	124.974**
Hausman Statistic	437.04**	434.55**	191.49**	193.56**	437.29**	199.27**
R Square	0.172	0.172	0.176	0.176	0.173	0.178
No. of observations	10470	10470	13524	13524	10470	13524

**p<0.01; **p<0.05 Numbers in parentheses represent Std. Errors, p-values

Table 3: 2 Stage Least Square Regressions Results

	Model 1a (BG Firms)	**Model 1b (BG Firms)**	**Model 2a (M Firms)**	**Model 2b (M Firms)**	**Model 3a (BG Firm)**	**Model 3b (BG Firm)**	**Model 4a (M Firms)**	**Model 4b (M Firms)**
Constant	0.066** (0.021,0.002)	0.080** (0.027,0.003)	0.089** (0.020,0.000)	0.088** (0.019,0.000)	0.093* (0.039,0.018)	0.067** (0.021,0.001)	0.088** (0.019,0.000)	0.081** (0.020,0.000)
Size	0.007** (0.002,0.002)	0.008** (0.003, 0.003)	0.007** (0.002,0.000)	0.006** (0.002,0.000)	0.009* (0.004, 0.020)	0.006** (0.002,0.002)	0.006** (0.002,0.000)	0.01† (0.006,0.064)
Age	0.000 (0.000,0.478)	0.000 (0.000, 0.455)	0.000† (0.000,0.066)	0.000† (0.000,0.067)	0.000 (0.000, 0.388)	0.000 (0.000,0.961)	0.000† (0.000,0.068)	0.000 (0.000,0.154)
Debt-Equity Ratio	-0.004** (0.001,0.002)	-0.003** (0.001, 0.004)	-0.002** (0.001,0.005)	-0.002** (0.001,0.004)	-0.004** (0.001, 0.005)	-0.003* (0.001, 0.020)	-0.002** (0.001,0.006)	-0.003† (0.002,0.057)
R&D intensity	1.876** (0.709,0.008)	2.000** (0.764, 0.009)	1.317** (0.386,0.001)	1.314** (0.387,0.001)	2.227* (0.975, 0.023)	1.751** (0.652,0.007)	1.313** (0.387,0.001)	1.319** (0.492,0.007)
Marketing Intensity	0.035 (0.061,0.563)	0.066 (0.048, 0.165)	0.047 (0.036,0.193)	0.047 (0.036,0.197)	0.073 (0.051, 0.154)	0.059 (0.048,0.222)	0.047 (0.036,0.191)	0.036 (0.05, 0.468)
Foreign sales to total sales	0.032** (0.012,0.008)	0.027** (0.010, 0.007)	0.014* (0.007,0.043)	0.015** (0.007, 0.030)	0.030* (0.012, 0.013)	0.024** (0.009,0.009)	0.015* (0.007,0.032)	0.018† (0.01, 0.064)
BG- No. of firms	0.049** (0.016,0.002)							
BG- Diversification		0.053** (0.026, 0.040)						
M form- No. of segments			0.028** (0.008,0.001)					
M form-Diversification				0.024** (0.009,0.005)				
BG- Unrelated Diversification					0.041* (0.020,0.045)			
BG- Related Diversification						-0.085 (0.075,0.262)		
M form- Unrelated diversification							0.021 (0.023,0.366)	
M form- Related diversification								0.044† (0.025,0.082)
F Statistics	13.271**	13.250**	15.038**	15.028**	12.706**	13.482**	15.027**	13.105**

R square	0.158	0.152	0.224	0.223	0.144	0.215	0.222	0.195
No. of Obs.	10470	10470	13524	13524	10470	10470	13524	13524

**p<0.01; **p<0.05; †p < 0.10 Numbers in parentheses represent Std. Errors, p-values

Table 4A: Temporal effects of diversification (2003-2007)

	Model 1a (BG Firms)	**Model 1b (BG Firms)**	**Model 2a (M Firms)**	**Model 2b (M Firms)**	**Model 3 (BG Firms)**	**Model 4 (M Firms)**
Constant	0.010	0.011	0.042*	0.044*	0.013	0.045*
	(0.024, 0.682)	(0.024, 0.657)	(0.018, 0.021)	(0.018, 0.013)	(0.024, 0.592)	(0.018, 0.012)
Size	0.014**	0.014**	0.010**	0.009**	0.013**	0.008**
	(0.003, 0.000)	(0.003, 0.000)	(0.002, 0.000)	(0.002, 0.000)	(0.003, 0.000)	(0.002, 0.000)
Age	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000,0.901)	(0.000, 0.976)	(0.000,0.745)	(0.000, 0.663)	(0.000, 0.991)	(0.000, 0.698)
Debt-Equity ratio	-0.006**	-0.006**	-0.004**	-0.004**	-0.006**	-0.004**
	(0.002, 0.000)	(0.002, 0.000)	(0.001, 0.001)	(0.001, 0.001)	(0.002, 0.000)	(0.001, 0.001)
R&D intensity	1.168	1.152	1.683**	1.690**	1.229	1.658**
	(0.953, 0.221)	(0.955, 0.228)	(0.620, 0.007)	(0.619, 0.006)	(0.955, 0.198)	(0.619, 0.007)
Marketing	0.071	0.073	0.098†	0.094†	0.068	0.093†
Intensity	(0.064, 0.270)	(0.064, 0.259)	(0.051, 0.056)	(0.051, 0.067)	(0.064, 0.291)	(0.051, 0.069)
Foreign Sales	0.035*	0.035*	0.019	0.020†	0.036*	0.019†
to total sales	(0.015, 0.021)	(0.015, 0.023)	(0.011, 0.104)	(0.011, 0.089)	(0.015, 0.018)	(0.011, 0.090)
BG- No. of firms	0.032*					
	(0.015, 0.035)					
BG- Diversification		0.106*				
		(0.051, 0.038)				
M form- No. of segments			0.008†			
			(0.005, 0.095)			
M form- Diversification				0.022*		
				(0.010, 0.022)		
BG- Unrelated					0.003	
diversification					(0.005, 0.493)	
BG- Related					-0.029	
diversification					(0.018, 0.115)	
M form-						-0.025*
Unrelated diversification						(0.010, 0.011)
M form-						0.005
Related diversification						(0.014, 0.718)
F Statistics	4.622***	4.611***	5.239***	5.294***	4.585***	5.245***
R square	0.230	0.230	0.167	0.168	0.232	0.170
No. of Obs.	5235	5235	5448	5448	5235	5448

**p<0.01; **p<0.05; †p < 0.10 Numbers in parentheses represent Std. Errors, p-values

Table 4B: Temporal effects of diversification (2008-2012)

Variable	Model 1a **(BG Firms)**	Model 1b **(BG Firms)**	Model 2a **(M Firms)**	Model 2b **(M Firms)**	Model 3 **(BG Firms)**	Model 4 **(M Firms)**
Constant	0.058** (0.018, 0.001)	0.061** (0.018, 0.001)	0.079** (0.013, 0.000)	0.081** (0.014, 0.000)	0.061** (0.018, 0.001)	0.081** (0.014, 0.000)
Size	0.007** (0.002,0.000)	0.007** (0.002,0.000)	0.007** (0.002,0.000)	0.005** (0.001,0.000)	0.007** (0.002,0.000)	0.005** (0.001,0.000)
Age	0.000 (0.000,0.887	0.000 (0.000, 0.971)	0.000* (0.000, 0.043)	0.000* (0.000, 0.049)	0.000 (0.000, 0.987)	0.000† (0.000, 0.050)
Debt-Equity ratio	-0.002† (0.001, 0.068)	-0.002† (0.001, 0.068)	-0.002** (0.001, 0.002)	-0.002** (0.001, 0.002)	-0.002† (0.001, 0.066)	-0.002** (0.001, 0.002)
R&D Intensity	3.165** (0.769,0.000)	3.246** (0.766,0.000)	1.524** (0.445,0.001)	1.514** (0.445,0.001)	3.262** (0.768,0.000)	1.504** (0.446, 0.001)
Marketing Intensity	0.053 (0.054, 0.324)	0.051 (0.054, 0.347)	0.124** (0.039, 0.001)	0.126** (0.039, 0.001)	0.051 (0.054, 0.342)	0.126** (0.039, 0.001)
Foreign sales to total sales	-0.012 (0.013, 0.359)	-0.012 (0.013, 0.361)	-0.003 (0.009, 0.735)	-0.002 (0.009, 0.858)	-0.012 (0.013, 0.353)	-0.002 (0.009, 0.850)
BG- No. of firms	0.040* (0.016,0.012)					
BG- Diversification		0.025* (0.007, 0.010)				
M form- No. of segments			0.008** (0.003, 0.009)			
M form-Diversification				0.018* (0.007, 0.011)		
BG- Unrelated diversification					0.069** (0.023, 0.003)	
BG- Related diversification					0.001 (0.015, 0.934)	
M form- Unrelated diversification						-0.019** (0.007, 0.009)
M form- Related diversification						0.021* (0.008, 0.010)
F Statistics	3.876**	3.914**	4.247**	4.240**	3.843**	4.168**
R square	0.153	0.154	0.106	0.106	0.154	0.106
No. of Obs.	5235	5235	8076	8076	5235	8076

**p<0.01; **p<0.05; †p < 0.10 Numbers in parentheses represent Std. Errors, p-values