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Abstract

Extant research on influence of ownership structure on innovation suggests a positive relationship between business group affiliation and innovation. While it is true that firms affiliated to business groups seem to benefit from availability of internal capital, determinants that influence the process of innovation have not been examined. This Paper aims to study the influence of network diversity on innovation for firms affiliated to a business group. We draw upon literature on resource based and principal-agency literature to study nature of knowledge exploration and exploitation by business group firms. We argue that network diversity impacts nature of innovation by business group firms.

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Introduction

Firms from India, China, Mexico, Brazil and Russia commonly referred as emerging markets are replacing firms from developed countries in Fortune 500 lists. Emerging market firms are constantly transforming themselves to become innovators and global challengers. In 2013, emerging market firms have been granted three times more patents by US patents and Trademark office (USPTO) as compared to companies from developed markets. It is also expected that by 2018, emerging markets firms will constitute 25% patents granted as compared to 1% in 2006 (BCG Perspective, 2013). From this statistics, we can infer that the emerging market firms are becoming very aggressive in the global market and they are slowly moving away from low cost strategy to innovation centric strategy. The focus on innovation is quite pervasive, as developed market firms have also increased their innovation efforts to survive in a highly competitive environment. The data on number of patents granted shows that top three companies are USA based firms and seven are from Korea and Japan. Among these ten, seven companies are multinational conglomerates or are affiliated with business groups (USPTO, 2012). It is clear that business group firms are also high on innovation. In fact, business groups in emerging markets and top patent granted firms share the common characteristic of presence in multiple locations and multiple product domains.

In emerging markets, business groups developed mechanisms to fill institutional voids (Khanna and Palepu, 1997) and thus become market leaders in multiple businesses. However in the domestic market, emerging market firms were primarily competing with the developed market firms on the low-cost differentiation. As more and more emerging market firms entered

in the global market, they realized the need to go beyond the low-cost advantage. Innovation has become crucial for firm's survival and growth especially in fast changing highly competitive market (Brown and Eishenhardt, 2005).

Emerging market firms affiliated to business groups have responded well to this challenge and have come up with interesting innovations. For example, Tata motor came up with low-cost Nano based on the expertise developed within group. Tata also created fastest supercomputer EKA in collaboration with BARC (Tata Log, 2012). While there are many such other examples, our understanding of innovation process in firms affiliated to business groups is not very high. Extant literature suggests that business group firms that are legally independent firms controlled by common ownership have the advantage of formal and informal ties (Leff, 1978; Granovetter, 1995) with other firms in the group. The affiliation with business group provides access to internal capital and diverse technical know-how and capabilities from sister firms (Ref.). In addition, Individual firms affiliated with business groups can form alliances with outside players and can exploit group reputation to build credibility (Maurer and Sharma, 2001). Thus firms affiliated to a business group have the flexibility to partner with both internal (sister organizations in the business group) and external firms (non-business group organizations) for creating innovation.

Through a business group firm has the advantage of forming internal and external alliances for innovation, it is not know how these choices affect innovation performance of a focal firm. We define focal firm as a firm belonging to a business group. The focal firm can partner with any other sister firm for internal R&D or technology acquisition. These partnerships may result into a capability, which is new to the firm but not to the group. Thus collectively business group firms form a discrete source of knowledge and any member firm can access

knowledge and capabilities available within the group through continued interaction specific to its business domain. The accumulated knowledge is available to all affiliated members as a part of network. We term this as intra-group network as an affiliated network. The member firms in addition to accessing internal knowledge also have the option of approaching firms outside business group for knowledge transfer. In latter case, the firm has wider options to choose a partner and expand the knowledge base available to the firm. The outside partners can be consumers, suppliers, competitor or research centers and universities. We term this as a non-affiliated network. Accordingly, we formulate our research question as follows. How network diversity influence innovation performance of a business group firm?

This paper is organized as follows. The section on literature review provides a brief overview of different type of diversity studied in management context, relationship between diversity and innovation, and innovation in business group. Next we discuss propositions on how network diversity for a business group firm affects its innovation performance. We conclude by discussing the implications of this conceptual paper.

Literature review

Business groups and innovation

Innovation for the company can be product, service or practices new to the firm (Johannessen, Olson and Lumpkin, 2001). This innovation could be absolute or relatively new to the company (Johannessen, Olson and Lumpkin, 2001). An organization can innovate either by spending on R&D on its own or by collaborating with others. This collaboration could be for acquiring new technologies in the form of equipment or training or practices. As innovation is a highly risky and uncertain activity, thus requires huge capital for strategic flexibility (Cheng and

Van de Ven, 1996; Belenzon and Berkovitz, 2010). The success of business groups has been attributed to the fact that they could flourish in emerging markets because they were able to fill institutional gaps caused by failure or underdevelopment of capital, product and labor market (Khanna and Palepu, 1997). They overcame the handicap of underdeveloped capital market by pooling resources such as internal capital and labor. Therefore, they could exploit the opportunities in the environment and diversified into multi business as well as multi products. The related and unrelated diversification, enabled business groups to expand their technological and knowledge base as well as network of suppliers and consumers giving them advantage over standalone firms (Mahmood and Mitchell, 2004). While these factors worked well in the domestic market, emerging market business group firms have also been successful in the global market. In terms of form, the multi-business and multi-location nature of business groups is similar to the characteristics of most innovative firms as per USPTO, We therefore hypothesize that business group firms leverage these strengths for innovation.

From a resource-based view perspective, it can be argued that business groups are suitably placed for carrying out innovation activities in an emerging market because of the following reasons., First, Business group operates in multiple industries and thus have wider knowledge base and experience than standalone firms. Constant interaction among affiliated member not only accumulates the knowledge base but also provides opportunities for higher cross-fertilization of ideas. Second, business group firms can have preferential access to foreign technology A business group can exploit its group reputation to attract a foreign partner than a standalone firm (Teece,1986) which provides access to foreign technology and adds to the existing knowledge base.. Third, affiliated members gain new insights from their independent business while interacting with customers, suppliers, competitors etc. Firms can form alliances

with individual business network as well as group network to innovate, suggesting higher innovation for a group affiliated member. Finally, by diversifying into different industries. business groups acquire capital, scientific talent, technologies and know-how (Mahmood and Mitchell, 2004). Diversification creates a diverse and unique knowledge base from a variety of sources (Hsieh et al., 2010) with in the group.

Role of diversity in innovation

Extant literature has identified diversity as a key determinant of innovation (Stirling, 2007). However there is no consistent definition of diversity. Broadly it has been defined in terms of differences in internal elements. “Diversity refers to the extent to which a system consists of uniquely different elements, the frequency distribution of these elements, and the degree of difference among the elements” (Stirling, 2007). In organizational context diversity has been defined as “real or perceived differences among people in race, ethnicity, sex, age, physical and mental ability, sexual orientation, religion, work and family status, weight and appearance and , other identity- based attributes that affects their interaction and relationship” (Bell, 2007).

From the firm’s perspective, the diversity of resources available inside a company has been studied as a source of innovation mainly top management team (TMT) or individuals (Ref.). By considering individual as discrete knowledge base, diversity in individual traits has been studied to understand how its influences the firm. In strategy, top management has been considered to be a crucial firm resource and detailed studies have been carried out to understand top management diversity. Ability of the top management to assess the opportunity and taking actions decides the firm’s performance in a competitive market. Under the TMT diversity, diversity has been studied for common attributes such as age, gender, race, education (Harrison

and Kelin, 2007) or functional diversity, experience, knowledge skills (Pelled, Eishenhardt and Xin, 1999). How individual members and their motivation affects innovation in a team has also been a topic of interests for scholars (Shin et al., 2012).

Apart from individual diversity within a firm, the diversity outside the firm and different partners has also been studied (Duysters and Lokshin, 2011). However even when knowledge base is widely available in the external environment of a firm, either is not easy accessible or firms lack the capability of combining these knowledge bases for augmenting existing knowledge base, creating new knowledge, or identifying alternate usage of existing knowledge. A firm can recombine the available knowledge to introduce minor changes to existing products or completely change the core design to bring radical changes to product or product itself (Henderson and Clark, 1990).

It is apparent that business groups firms have access to both internal as well as external networks. However not much is known how this diversity is leveraged by business group firms and what are the network diversity on their innovation outcomes.

Discussion

As discussed in the previous section, firms affiliated to a business group have the opportunity to leverage either internal or external or both networks for creating innovation. While the choice of preferring one network to other may not be a fully unconstrained choice, the decision to explore and exploit diversity in networks for innovation is a strategic choice for firms. Research on implications of this choice on innovation is sparse. Based on our focused literature review, we make the following argument.

First, there are advantages of accessing internal network for innovations as firms affiliated to a business group can access internal capital (Belenzon & Berkovitz, 2010). The group affiliation acts as insurance cover for affiliated members that enhance the risk taking capability of the firm. Second, the internal network in itself may be highly diverse and therefore offer advantages of a diverse knowledge base. Typically a multi-business business group diversify to overcome the underdeveloped market failures and tend to operate in unrelated technological area (Belenzon and Berkovitz,2010). In a related diversified business group, the group prefers to exploit the resource complementary and thus establish a centralized R&D center (Belenzon and Berkovitz, 2010). In a related diversified business group, the group tends to have centralized R&D center. An affiliated member can benefit from the complementary knowledge of sister firms as compared to standalone member of the consortium. Further, group firms are governed by common ownership and they tend to develop firm-specific advantages through frequent interaction and relatedness. Over the time, the firm tends to develop some shared routine, which decrease the barriers to identity and transfer knowledge between members and partners (Nelson & Winter, 1982). Sharing of novel knowledge among sister-firms foster innovation among affiliated members (Mahmood and Ruffins, 2005).

While there are inherent advantages of having access to an internal knowledge-network, there are some disadvantages as well. As a multi-business firm, a group is bombarded with immense information and the communication filter developed over years also may constraint knowledge transfer (Henderson & Clark, 1990). Despite diversity, group won't be able to cross-fertilize the ideas and thus innovation is not possible for an affiliated firm. Similarly for an unrelated diversified firm, the knowledge base of the group become so wide that firms are not able to communicate on the same term and affiliates prefers to have individual R&D center and

thus not able to exploit the diversity in the group. As emerging countries have underdeveloped technological bases as compared to developed countries, the firm will prefer to acquire new technology than developing internally. A business group controlling firm member can acquire the technology and share it with members but a firm with additional alliance with supplier will enable the firm to quickly adapt the innovation than others.

From the agency perspective, within business group, the holding company being the majority shareholder has the right of allocating resources. As innovation is a risky activity, the holding company may give preference to knowledge transfer within the group as opposed to acquiring technology from an external agency. So while the company on its own may be a cash rich company fully capable of undertaking costly internal R&D driven experimentation for innovation, the holding company may encourage acquisition of knowledge from other sister firms. The innovation from the emerging economies has been termed as imitation by western countries (BCG perspective, 2013). Diversified firms have negative relationship with innovation as firm prefers to acquire innovation through acquisition rather than through internal development (Hoskisson et al., 2002). A business group member can join the R&D consortium by forming alliance with different partners and got access to diverse knowledge base. As firms affiliated to a business group are likely to acquire knowledge from sister firms, and not developing internally which could be the case with unaffiliated firms, they are likely to have lower R&D expenditure for innovation. Accordingly we propose the following.

P1: For the purpose of innovation, firms affiliated with a business group prefer exploitation of knowledge from internal from internal network.

The second issue relates to the type of innovation, business group firms are likely to focus on. In the context of emerging market, firms compete with domestic players as well as multinational firms for safeguarding their dominant position. In a fast changing world, business group firms have also started pursuing an innovation strategy, especially as they also operate in a highly competitive market. Not surprisingly, most Business group firms are increasing R&D spending and engaging in collaborative R&D (Ref). However, within the domestic market, the threat is mainly through maturity of products, as emerging markets do not face technological upheavals. Therefore focus of R&D is more on improving product features. The approach for R&D is akin to problem solving and firms prefers to refine related technology and explore the existing knowledge base for finding solutions (Taylor and Greve, 2006). Further, Business groups tend to have a centralized R&D center to exploit synergies between myriad technological knowledge available within the group.. It is possible that the sister firms might possess complementary knowledge base and therefore in response to changing competition group will first look for a solution within the firm for readymade solutions and routines (Ingram and Baum, 2001). Innovation within a business group will reduce the experimentation and outcome closer to core competencies will be encouraged, resulting in incremental innovation. Accordingly, we propose the following.

P2: A business group firm that leverages only internal network for innovation is likely to come up with incremental innovation if the internal network is of related firms, and radical innovation if the internal network is of unrelated firms.

The other option of collaboration with organizations that are not part of business group has the following benefits. First, interaction of business group firm with outside firms will widen the knowledge base. This is especially true for technologies that are completely new to the

group. The partner can be customer, supplier, competitor, universities and research centers. Within a group as the partner options are limited; the innovation outcome is more likely to be incremental in nature. A firm can form an alliance with potential partners to widen the technology base and radical innovation. An outside partner will help bridging the gap and a ground for recombination of diverse knowledge base to come up with new ideas. Accordingly we propose the following.

P3: A business group firm that leverages external network for innovation is likely to create radical innovation.

Conclusion

Business group innovation is one of the emerging fields of study among scholars. As business groups are response of institutional voids in the emerging market, the multi-business operations enable them to overcome market failures. As more and more firms from emerging markets are competing in the global market, the large multinational firms are using their knowledge base to outperform emerging market firms. This it is imperative for business group firms to augment their innovation capabilities. Firms affiliated to business groups have unique advantage of having access to internal and external network. This paper highlights the fact that network diversity does influence the type of innovation by business group firms. Given that internal network may be more cost efficient, business group firms may have a tendency to over rely on knowledge transfer within the groups. However innovation in such cases will be incremental. In an open era innovation, when technology is changing at very fast pace, even larger firms are outsourcing the R&D activities or becoming part of alliances. For firms competing in global market or in industries where other players have capabilities for radical innovation, it is imperative for

business group firms to leverage external network. We believe that this paper adds to understanding of current innovation process within business groups. It will help managers to form innovation strategies and acquire required resources.

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