INTERNATIONAL JOURNAL OF BUSINESS AND MANAGEMENT STUDIES
Vol 9, No 1, 2017 ISSN: 1309-8047 (Online)

BUSINESS GROUP CORPORATE DIVERSIFICATION: EXTENSION OF A TWO-DIMENSIONAL CONCEPTUALIZATION

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-Abstract-

Studies on unrelatedly diversified business groups in emerging economies have theoretically addressed the drivers of their diversification. However, the extent and type of these groups' corporate diversification has not been adequately explored. In this paper, we propose an extension of Varadarajan and Ramanujan's (1987) two-dimensional conceptualization of firm diversity as a useful tool for classifying groups across diversification categories: (1) very low diversifiers, (2) predominantly related diversifiers, (3) predominantly unrelated diversifiers, and (4) very high diversifiers. To illustrate how business groups may be categorized into these categories, we use a sample of family-owned business groups in one emerging market, Turkey. Additionally, we conduct cluster analytic techniques to refine our findings. Our study validates the appropriateness of using the extended conceptual framework and proposes combining its application with the cluster analytic techniques in order to better improve the results. Our work should inspire new studies on business group corporate diversification.

Key Words: *Business groups, corporate diversification, conceptual framework, measurement, Turkey*

JEL Classification: D22, L21, L25

1. INTRODUCTION

Business groups, typically consisting of legally-independent firms operating in multiple (often unrelated) industries under the common ownership of individuals, families, and state or under the dispersed ownership of many shareholders remain as the dominant form of business enterprise in emerging economies (Khanna and Yafeh, 2007, Cuervo-Cazurra, 2006). Business groups in emerging markets have attracted considerable scholarly attention. Academic journals such as the *Academy of Management Journal* (2000), the *Asia Pacific Journal of Management* (2005), dedicated special issues to their study. Even with this increased attention, however, we still know very little about the extent and types of their diversification (Khanna and Palepu, 2000; Kock and Guillén, 2001).

Corporate diversification ought to be an important issue for business group researchers to examine for a number of reasons. First, since unrelated diversification is a common characteristic of groups in emerging markets, its study could provide valuable insights into our understanding of group formation and evolution. Second, studies on business group diversification could unearth important insights on their various types. Third, such studies could provide better understanding of group affiliation and firm performance relationship. We hope to contribute to a better understanding of the conceptualization and measurement of business group diversification with our current paper which is theoretically and methodologically inspired by earlier studies on emerging markets (Yiu, Lu, Bruton, and Hoskisson, 2007), business groups (Hoskisson, Wright, Filatotchev, and Peng, 2013), and firm diversification (Varadarajan and Ramanujan, 1987).

In this paper, we aim to examine (a) why do we need a conceptualization of business group diversification, and (d) how we can classify business groups across diversification categories. Our paper is organized as follows. First, we bring insights from the diversification literature on business groups. Second, we review studies which conceptually categorize types of business groups. Second, we propose our extended conceptualization and examine its empirical application using a sample of business groups from one emerging economy, Turkey. Third, we conclude by offering conceptual and methodological questions for further

research. Our study should inspire new studies on business group corporate diversification.

2. THEORY AND RESEARCH ON BUSINESS GROUPS

3. Formation of Business Groups[1]

Business groups operate in unrelated industries through legally-independent firms which bound together by formal (e.g., interlocking directorates, cross shareholdings, loan dependence) and informal (e.g., family, kinship and personal friendship) ties (Khanna and Yafeh, 2007). These ties establish stable relations among affiliated firms operating under common ownership of families (e.g., Indian houses, Turkish family *holdings*, and Latin American *grupos*), state (e.g., Chinese and Russian state-owned business groups) or dispersed ownership of many shareholders (e.g., bank-centered groups in various developed and emerging economies). Our review of the literature (see, Yaprak, Karademir, and Osborn, 2007) suggests that scholars from a wide range of disciplines including but not limited to sociology, economy, and management developed various theories which aim to explain why business groups diversify into unrelated industries. For instance, (a) sociological perspective view business group diversification as a response to the absence of legal and regulatory mechanisms through developing trust-based relationships (Granovetter, 1995; Keister, 1998), (b) political-economy perspective view it as a response to state activities through *rent seeking* firm behavior (Strachan, 1976), (c) economic perspective, recognize it as a microeconomic response to *market failures* in (Leff, 1976, 1978), (d) management perspective suggest that it is a result of entrepreneurs' and firms' enhanced *project execution skills* facilitating repeated entry into unrelated industries in asymmetric foreign trade and investment environments (Amsden and Hikino, 1994; Kock and Guillén, 2001), and (e) international business perspective suggest that it is a result of inward-oriented international partnerships based on marketing capabilities such as local market knowledge and market access gateway (Guillén, 2000).

The sociological perspective suggests that market imperfections in emerging markets coupled with poor regulatory and legal enforcement mechanisms drive entrepreneurs to form coalitions based on trust-based relationships (e.g., relationships based-on family, kinship, friendship, ethnicity, religion, and region) in order to access, acquire, combine, and secure various organizational resources.

These relationships serve as a mechanism for efficient resource sharing and dispute resolution among the owners of the legally-independent firms (Granovetter, 1995; Keister, 1998).

The political-economy perspective suggests that politically connected entrepreneurs form business groups in order to extract rents from the state when the socioeconomic context is characterized by market imperfections and institutional voids (Carney, 2008). In addition to the rent-seeking behaviors of the entrepreneurs, the governments also back "trusted" entrepreneurs in exchange for their future political support. Historical studies on business group formation in various countries such as *the chaebol* in Korea (Kim, 1996), and *the family holding companies* in Turkey (Buğra, 1994) suggest that groups formed during the state centered economic periods are more likely to be among the "trusted few" which are directed and supported by the state (Selekler-Gökşen and Üsdiken, 2001).

The economics perspective, suggests that entrepreneurs in emerging markets suffer from difficulties in accessing firm-wide resources due to *market imperfections* in product, capital, and labor markets. Thus, entrepreneurs invest into unrelated industries and establish linkages among their firms in order to create internal mechanisms facilitating resource sharing among their portfolio of firms. These internal mechanisms substitute the role of markets and provide further growth opportunities (Khanna and Palepu, 1997). As an extension of this reasoning, it is suggested that diversification will create more costs than its benefits as market failures decrease. However, there is also some research evidence suggesting that decreases in market failures in time, increase the threshold level where business diversification creates value. Thus, some established groups are likely to further increase their diversification above this threshold level rather than narrowing down their scope. Moreover, they are also likely to increase their market intermediation roles during the deregulation periods due to slow development of markets (Khanna and Palepu, 1999, 2000).

The managerial perspective, suggests that entrepreneurs in emerging markets are more likely to develop and rely on contact and project execution capabilities since state backing paralleled with protectionist trade policies eliminate competition between the local and foreign firms. In earlier stages of economic development,

entrepreneurs' contact capabilities serve as the basis for unrelated diversification. In later stages, as the number of entrepreneurs competing for the state provided resources and benefits increase, project execution capabilities become more likely to be the primary drivers of unrelated diversification (Amsden and Hikino, 1994; Kock and Guillén, 2001).

2.2. Forms of Business Groups

Our review of the literature suggest that under protective trade policies, entrepreneurs possessing contact and project execution skills repeatedly enter into unrelated industries as a response to market imperfections, weak legal and regulatory mechanisms, and resource allocating functions of state. This review also suggests that groups emerge as a response to numerous contextual factors varying across time and location. Thus, business groups may arise in any shape and size. We believe that this ought to be an important phenomenon. In fact, we are aware of few conceptual studies aiming at developing a typology of business groups since previous studies mostly focused on the performance differences between group-affiliated versus non-affiliated firms (Cuervo-Cazurra, 2006).

Cuervo-Cazurra (2006), for instance, suggests that business groups are characterized by common ownership and control. Accordingly, he separates business groups from other firm networks such as supplier networks, distribution networks, strategic networks, and geographic networks. He then categorizes three types of business groups based on their ownership: widely-held, state-owned, and family-owned business groups. He argues that the differences in ownership of these groups have implications for their management and control practices. First, widely-held groups diversify into technologically unrelated industries when there is slowdown in their existing businesses and corporate entrepreneurs engage in opportunity-seeking behaviors. These groups exit from industries relatively easier than others since assets sold in one business can be used for growth in others. Second, state-owned groups diversify into unrelated industries primarily because of political concerns and problems associated with market imperfections. These groups are less likely to make exit decisions since they are predominantly driven by political concerns. Third, family-owned groups diversify as a result of the entrepreneurial orientation and rent-seeking behaviors of the family members. These groups make exit decisions easier than all other groups since the money an

affiliate loose belongs to the members of the same family. However, it should also be considered that family dynamics may have diverse influences on exit decisions. These arguments suggest that researchers should consider ownership, management and control differences among business groups and also contextual differences across time and location when they study unrelated diversification.

Yiu et al. (2007), suggest that business groups arrange their internal mechanisms as a response to the changes in their contexts. The internal mechanisms of groups have two dimensions: the linkages among member firms (horizontal connectedness), and the control of the core elite (vertical linkages). First, the horizontal linkages among group affiliates can be established through a combination of three mechanisms: (a) internal transaction mechanisms: exchanging goods and services, and allocating resources among affiliated firms, (b) interlocking directorates: persons with two or more board positions, (c) social ties: non-ownership governance device coordinating managerial activities. The groups that have looser linkages between their affiliates have lower relatedness between them in terms of assets, resources, skills, and capabilities. The groups that have tighter relations, however, have relatively higher interdependence. Second, the vertical linkages between the dominant owner(s) of the group and the affiliated firm managers can be established through: (a) core owner elite: pyramidal ownership and cross-shareholdings, and (b) managerial control: assigning family and friendly personnel to the strategic positions in order to integrate ownership and management; maintaining the representation of an elite group of managers among affiliated firms; controlling strategic resources such as technology, distribution, production. The groups that have a core or a parent company have stronger vertical control whereas others have less control often maintained through cross-shareholdings, interlocking directorates, and control of resources. Yiu et al. (2007), based on these two dimensions of internal mechanisms of groups, categorize them into four types: holding (H-form), multidivisional (M-form), network (N-Form), and club (C-Form).

In an, H-form business group, a holding or a parent company which is controlled by the core owner elite, acts as the corporate headquarters. Core owner elite tightly control affiliated firms through cross-ownership or pyramidal structure, and assigns family or friendly personnel to key positions. These firms have looser relations referring to weaker internal transaction mechanisms. The typical

examples are the family-owned business groups in India and Turkey, for example Tata Group and Koç Group respectively (Yiu et al., 2007).

In an, M-form business group, a parent or a core company which is controlled by the core owner elite acts as the headquarters. Core owner elite tightly control affiliated firms investments of a parent/core company in ownership of the affiliated firms. Legally independent group firms operating in related industries are similar to the divisions in M-form firm. Thus, internal transaction mechanisms of the group mobilize industry-specific assets such as technology and knowledge as well as the more common resources such as financial capital. The typical examples are Korean Chaebols such as LG and Samsung, groups such as Perez-Coampanc in Latin America (Yiu et al., 2007).

In an, N-form business group, a center firm concentrates in one industry; other firms are the suppliers of technology, intermediate products, and other services. In this network a center firm exerts looser control on other firms through inter-firm transactions and resource sharing rather than developing a pyramidal ownership structure or assigning family and friendly personnel to key positions in affiliated firms. Affiliates are horizontally connected through interlocking directorates, cross-shareholdings, and social ties between executives and managers. The typical examples are guanxi qiye in Taiwan such as Lin Yuan Group (Yiu et al., 2007).

In an, C-form business group, a formal president club or brand-named business association offers a platform or infrastructure for member firms. Members vary in size and scope from single firms to large corporations consisting of many subsidiaries. These firms coordinate with each other and share resources. C-form business group may improve their horizontal connectedness through cross shareholdings, interlocking directorates and social ties for the purposes of increasing coordination among member firms. These groups lobby the governments in regard for favorable industrial policies. The typical examples are financial groups in Russia (Yiu et al., 2007).

3. EXTENSION OF A TWO DIMENSIONAL CONCEPTUALIZATION

3.1. Recategorizing Business Groups

Major theoretical perspectives on business group formation and evolution suggest that groups arrange their structures (e.g., internal mechanisms) and pursue strategies (e.g., diversification and internationalization) as a response to the surrounding social settings (Yiu et al., 2007). Earlier studies conceptualized business groups based on their ownership structures (Cuervo-Cazurra, 2006) and internal mechanisms (Yiu et al., 2007). In this study, we propose an extension of Varadarajan and Ramanujan's (1987) two-dimensional conceptualization of firm diversification as a useful tool for identifying the types of business group diversification along two dimensions (see, Figure-1): (a) degree of diversification, high versus low, and (b) its direction, predominantly related or predominantly unrelated. Based on these two dimensions, a typology of business group diversification is developed: (1) very low diversifiers, (2) related diversifiers, (3) unrelated diversifiers, and (4) very high diversifiers.

Figure-1: An Extended Typology of Business Group Diversification

Broad Spectrum Diversification (BSD)		**Low** (MNSD)	**High** (MNSD)
	High	Cell C: High BSD-Low MNSD Predominantly Unrelated Diversifiers	Cell D: High BSD-High MNSD Very High Diversifiers
	Low	Cell A: Low BSD-Low MNSD Very Low Diversifiers	Cell B: Low BSD-High MNSD Predominantly Related Diversifiers

Mean Narrow Spectrum Diversification (MNSD)

Source: Adapted from Varadarajan and Ramanujan (1987)

Very low diversifiers are the least diversified business groups in a particular institutional country context. These groups consist of firms operating in a limited number of unrelated industries under common ownership and control. Internal mechanisms for resource exchange among affiliated firms are relatively less developed. Assuming that most business groups start at the low-low cell, these groups may be at the very early stages of their formation, and accumulating resources, developing contact and project execution skills, and screening the environment for further (related and/or unrelated) diversification opportunities.

Predominantly related diversifiers are business groups that are relatively limited in scope (low degree of diversity) and consist of affiliated firms operating in technologically related industries. These groups are more likely to establish internal mechanisms for sharing resources among their affiliated firms. These groups may be emergent business groups in early stages of their life-cycle. It is possible for them to pursue unrelated diversification strategies in later stages. However, it is also possible for them to increase their relatedness and emerge as M-form business groups as well.

Unrelated diversifiers are business groups which expanded their scope (high degree of diversity) through investing into unrelated industries. They possess contact and project execution skills which allow them entering into unrelated industries repeatedly. They primarily screen state activities and business opportunities for further growth. Since their affiliates lack technological relatedness, their internal exchange mechanisms are relatively less developed.

Very high diversifiers are established business groups which consist of many affiliated firms operating in a wide range of unrelated industries but are also more related when compared to other groups. Some of these groups may have subgroups of technologically related firms in some selected industries. Thus, they have better developed internal exchange mechanisms.

3.2. An Illustrative Analysis[2]

To illustrate how business groups in emerging economies may be categorized into the quadrants of our conceptual framework, we examined family-owned business groups in one emerging economy, Turkey. While we have focused our attention on family-owned business groups, we are well aware of the challenges of sample selection and data collection in such a study (Çolpan and Hikino, 2008; Selekler-Gökşen and Üsdiken, 2001). First, there is no available list of the population although some of these groups are well known since they appear on popular business publications. Second, detailed data on groups and their affiliates are not accessible with the exception of those listed on the stock exchange market. Third,

business groups do not publish a full list of their subsidiaries on their annual reports or web sites. Fourth, business group affiliates are not necessarily member of only one group (Çolpan and Hikino, 2008; Özkara, Kurt, and Karayormuk, 2008; Selekler-Gökşen and Üsdiken, 2001).

We identified a set of rules to identify the groups to be included in the study. First, we agreed to define 2003-2016 as an institutional time period characterized by single-party governments which contributed to political and economic stability with a pro-market approach (Karademir and Yaprak, 2012). Accordingly we identified our first rule; the sample was to include groups which had at least one affiliate firm listed in either Capital 500 list of the largest companies of Turkey or a bank registered to Banking Regulation and Supervision Agency in one of the mentioned years of the study. This rule was expected to eliminate the so called "slum holdings" as to include only established business groups (Buğra, 1994; Selekler-Gökşen and Üsdiken, 2001). Second, the sample was to include groups which have at least one holding company investing in part or whole ownership of affiliated firms in both years of the study. This rule was expected to exclude business groups which have different structural arrangements than the H-form (holding) business groups (Yiu et al., 2007). Third, the sample was to include, family-owned business groups in which an individual or a family involved in the ownership, control, and management of the business groups in both years of the study. This rule was expected to exclude state-owned and widely held business groups (Cuervo-Cazurra, 2006). Fourth, the sample was to include groups which operate in 4 or more 2-digit SIC industries in both years of the study. This rule was expected to exclude firms which are not unrelatedly diversified (Çolpan and Hikino, 2008).

There were 104 groups which had at least one affiliate firm listed in either Capital 500 list of the largest companies, or a bank registered to Banking Regulation and Supervision Agency in one of the years of the study. Among the 104 groups 64 groups' parent company were legally constructed as holding companies, and 62 of these were family-owned groups. Finally, 49 of these operated in 4 or more 2-digit SIC industries. Therefore, the sample represents family-owned, h-form business groups.

Through data collection process, we identified business groups' affiliated firms and assigned each of them both 2-digit and 4-digit SIC codes (Rev.3.1) using

multiple secondary sources including annual reports, web sites, and official trade registries. Our complete list includes 49 business groups and a total number of 2942 affiliated firms. Our study employed two categorical measures of business group diversification adopted from Varadarajan and Ramanujan's (1987) study on firm diversity: broad spectrum diversification (BSD) and mean narrow spectrum diversification (MNSD). We used BSD -a simple count of 2-digit SIC codes in which business groups operate-, and MNSD -the average number of 4-digit SIC codes within 2-digit codes- measures to categorize groups into one of four cells. Following Varadarajan and Ramanujam (1987), this is done by first computing BSD and MNSD measures for our sample of business groups, and then using the median values as cut-off points to establish low-high splits along each dimension.

Table 1: Distribution of Business Groups Across Diversification Categories

	Diversification Categories			
	Cell A: Low BSD-Low MNSD	**Cell B: Low BSD-High MNSD**	**Cell C: High BSD-Low MNSD**	**Cell D: High BSD-High MNSD**
Number of BGs	13	9	9	18
Percentage	26.53	18.37	18.37	36.73
Mean BSD score	11.31	10.67	16.78	21.39
Mean MNSD score	1.15	1.37	1.16	1.51

To complement our extended two-dimensional business group diversification framework, we conducted cluster analysis. For the purposes of this study, we selected broad spectrum diversification (BSD) and mean narrow spectrum diversification (MNSD) as clustering variables. We standardized our variables before initializing the cluster analysis. To identify the clusters, we employed a two-stage procedure (hierarchical and non-hierarchical methods used in tandem) since both methods have weaknesses when used alone (Ketchen and Shook, 1996). In the first stage, we employed hierarchical cluster analysis using Ward's method in order to select the number of clusters and profile the cluster centers. In the second stage, we employed K-means clustering procedure in order to optimize the clusters. The cluster centres identified in the first stage were used as the initial seed points (Hair, Black, Babin, Anderson, and Tatham, 2010). The application of the procedure yielded to a five-cluster solution (Table 2). The cluster analytic findings suggest that the family holdings (family-owned, h-form business groups) are grouped into five cluster groups. The Appendix presents distribution of

business groups across cluster groups. We compare these cluster groups with the diversification categories of our extended conceptual framework.

Table 2: Distribution of Business Groups Across Group Clusters

	Business Groups' Cluster Group Membership				
	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**
Number of BGs	6	12	13	15	3
Percentage	12.24	26.53	24.49	30.61	6.12
Mean BSD score	10.33	10.50	15.85	20.33	26.67
Mean MNSD score	1.06	1.34	1.18	1.45	1.86

Cluster 1 (Group 1 in Figure-2) corresponds to very low diversifiers (Cell A in Figure-1) category of the two-dimensional framework. Cluster–analytic findings suggest that only a small number of family holdings are grouped together in the low BSD-low MNSD cell. Perhaps this can be explained through the "diversification threshold" argument which suggests that decreases in market failures increase the threshold level where group diversification creates value. As a response to the increasing threshold perhaps some groups further increase their diversification above the threshold level in order to further benefit from the diversification premiums (Khanna and Palepu, 1999). Thus, we can predict that very low diversifiers are in a temporary stage of business group formation.

Cluster 2 (Group 2 in Figure-2) corresponds to predominantly related diversifiers (Cell B in Figure-1) category of the conceptual framework. Findings suggest that family holdings grouped together in the low BSD-high MNSD cell are more relatedly diversified than very low diversifiers (Cell A in Figure-1) and predominantly unrelated diversifiers (Cell C in Figure-1). However, family holdings in this cluster are less closely grouped than Cluster 1 and Cluster 3. Perhaps some of the groups in this cluster are not typical related diversifiers and they may be expected to pursue unrelated diversification strategies in the future.

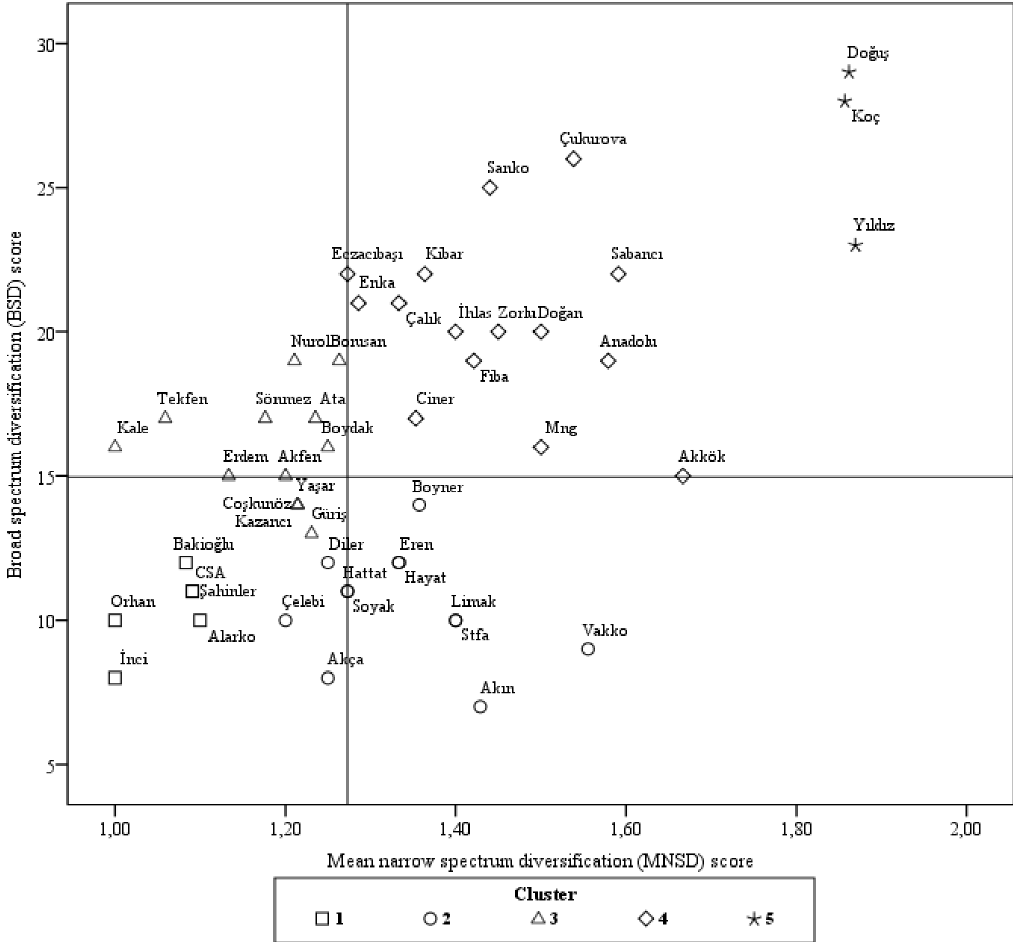
Cluster 3 (Group 3 in Figure-2) corresponds to predominantly unrelated diversifiers (Cell C in Figure-1) category of the proposed framework. Family holdings in this cluster which expanded their scope (high degree of diversity)

through investing into unrelated industries primarily possess contact and project execution skills. Some of these family holdings may be expected to further increase their scope through pursuing unrelated diversification strategies in the future. However, some others of these may be in an earlier phase of their life-course and may pursue mixed (both related and unrelated) strategies in the future as to move into Cluster 4 (Group 4 in Figure-2).

Cluster 4 (Group 4 in Figure-2) and Cluster 5 (Group 5 in Figure-2) correspond to very high diversifiers (Cell D in Figure-1) category of the framework. While Cluster 4 is a relatively less homogenous group located in the mid-range area of the spectrum, Cluster 5 is a very small group located at the high end of the spectrum. For the purpose of this study, we classify Cluster 4 as very high diversifiers and Cluster 5 as established diversifiers. Cluster 4 consists of family holdings which possibly emerge from all other cluster groups. Cluster 5 holding companies are the most established business groups which consist of many affiliated firms operating in a wide range of related and unrelated industries. Some of them have subgroups of related firms in some selected industries. Some studies in the literature speculate that these family holdings may transform into M-form business groups as market imperfections decrease in the future (Karaevli, 2008).

In summary, our results suggest that the extended two-dimensioal measure of business group diversification classified family holdings into different diversification categories. Our cluster analytic technique resulted with five cluster groups each corresponding to a diversification category. Cluster analytic results revealed that Cluster 1 (Group 1 in Figure-2) is smaller and more homogeneous than suggested by the two-dimensional categorization method. Results also disclosed that Cluster 2 (Group 2 in Figue-2) and Cluster 3 (Cluster 3 in Figure 3) are bigger and more heterogeneous than suggested by the two-dimensional categorization method. Finally, our analysis created two different cluster groups in the corresponding Cell 4 of the extended two-dimensional framework. These cluster groups are more homogenous when compared to group of family holdings that fall in Cell 4. All the findings above suggest that Varadarajan and Ramanujan's (1987) two-dimensional conceptualization of firm diversity is a useful tool for classifying groups across diversification categories. However, this method should be used in tandem with our suggested cluster analytic technique.

Figure-2: Cluster Analysis of Business Group



4. Conclusions

Our analysis suggests that the two-dimensional conceptualization and its operationalization prove to be useful in business group diversification research. A cluster analysis used in tandem improves the results through identifying the exact number of cluster groups and optimizing memberships. We believe that our adapted conceptualization is useful for a number of reasons; first, it provides

insights into the managerial essence of diversification (Montgomery, 1994). Second, it serves as a foundation for an alternative way of operationalizing diversification variable without any need for detailed business information such as breakdown of sales among business segments (Varadarajan and Ramanujan, 1987). Third, it may provide further insights into studies examining whether the performance of group affiliated firms differ across diversification categories (see, for example, Khanna and Palepu, 1999). Fourth, it may serve as a useful tool for longitudinal studies examining the changes in diversification strategies of business groups in emerging markets.

NOTES

* The authors thank Gökhan Korkmaz for his contribution to an earlier version of this paper that was presented at the "7. Yönetim ve Ekonomi Bilimleri Konferansı" of Sosyal Bilimler Araştırmaları Derneği (SOBİAD).

* The authors are thankful to the authors of two studies which inspired them to a great extent: Yiu, Lu, Bruton and Hoskisson (2007) and Hoskisson, Wright, Filatotchev and Peng (2013).

1. The section on formation of business groups draws partly from Yaprak, Karademir, and Osborn (2007).
2. We are aware of an earlier study Polat, S., Bahadır, C., Çelik, D., and Okumuş, P. (2002) which used Varadarajan and Ramanujam's (1987) two dimensions to illustrate how business groups spread on a diversification map. This study was published in *Globus* (2002), a supplement of the economic daily *Dünya* of Turkey. However, this article is not accessible in any of the business or academic databases. We thank authors who sent us a word format of the study report. We should note that the copy we have received do not have any academic references.

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APPENDIX

DIVERSIFICATION CATEGORIES

Business Groups' Distribution Across Diversification Categories[ab]

Cell A: Low BSD- Low MNSD	Cell B: Low BSD- High MNSD	Cell C: High BSD- Low MNSD	Cell D: High BSD- High MNSD
Very low Diversifiers	**Related Diversifiers**	**Unrelated diversifiers**	**Very high diversifiers**
Akça	Akın	Akfen	Akkök
Alarko	Boyner	Ata	Anadolu
Bakioğlu	Eren	Borusan	Ciner
Coşkunöz	Hatat	Boydak	Çalık
CSA	Hayat	Erdem	Çukurova
Çelebi	Limak	Kale	Doğan
Diler	Soyak	Nurol	Doğuş
Güriş	STFA	Sönmez	Eczacıbaşı
İnci	Vakko	Tekfen	ENKA
Kazancı			Fiba
Orhan			İhlas
Şahinler			Kibar
Yaşar			Koç
			MNG
			Sabancı
			Sanko
			Yıldız
			Zorlu

a.Diversification categories
b.Adapted from Varadarajan and Ramanujam (1987)

APPENDIX (Continued)

CLUSTER GROUP MEMBERSHIPS

Business Groups' Cluster Group Membership[a]

Cluster Group 1	Cluster Group 2	Cluster Group 3	Cluster Group 4	Cluster Group 5
Very low diversifiers	**Related Diversifiers**	**Unrelated diversifiers**	**Very high diversifiers**	**Established diversifiers**
Alarko	Akça	Akfen	Akkök	Doğuş
Bakioğlu	Akın	Ata	Anadolu	Koç
CSA	Boyner	Borusan	Ciner	Yıldız
İnci	Çelebi	Boydak	Çalık	
Orhan	Diler	Coşkunöz	Çukurova	
Şahinler	Eren	Erdem	Doğan	
	Hattat	Güriş	Eczacıbaşı	
	Hayat	Kale	ENKA	
	Limak	Kazancı	Fiba	
	Soyak	Nurol	İhlas	
	STFA	Sönmez	Kibar	
	Vakko	Tekfen	MNG	
		Yaşar	Sabancı	
			Sanko	
			Zorlu	

a.Cluster group membership