Unequal bedfellows: Gender role–based deference in multiplex ties between Korean business groups

Article *in* The Academy of Management Journal · July 2016

DOI: 10.5465/amj.2015.1270

3 authors, including:

Andrew V. Shipilov
INSEAD
44 PUBLICATIONS **1,492** CITATIONS

SEE PROFILE

Henrich Greve
INSEAD
113 PUBLICATIONS **8,614** CITATIONS

SEE PROFILE

UNEQUAL BEDFELLOWS:

GENDER ROLE–BASED DEFERENCE IN MULTIPLEX TIES BETWEEN KOREAN BUSINESS GROUPS

JUNGYUN HAN
College of Management
National Taiwan University
No.1, Sec. 4, Roosevelt Rd., Taipei, Taiwan
jungyunhan@ntu.edu.tw

ANDREW V. SHIPILOV
INSEAD
Boulevard de Constance
77305 Fontainebleau, France
shipilov@insead.edu

HENRICH R. GREVE
INSEAD
1 Ayer Rajah Ave.
138676 Singapore
henrich.greve@insead.edu

Forthcoming, ***Academy of Management Journal***

Abstract

Deference within a dyad occurs when one partner acknowledges that the other is entitled to some privileges. Although deference is a well-known consequence of relationships between partners of unequal status, little is known on whether deference in one domain can affect interactions between the same actors in the other domains. This can happen within multiplex relationships, especially when they involve firms that have both business and personal interactions between their key decision makers. We combine insights from the literatures on status, multiplex relationships and competitive positioning to examine how actors' behaviors in a business domain of a multiplex relationship are shaped by the deference norms in a personal domain of the same relationship. We argue that marriages between owner-families of Korean business groups cause deferential behaviors between these families as a function of gender-based status differences within kinship ties. We show empirically that the inter-personal deference resulting from marriage affects business group market entries or exits, and in turn the group's performance. Thus, we shed light on how deference spillovers represent a novel mechanism through which one partner can extract advantage over another within a multiplex relationship.

Status can be defined as an actor's relative position in a social hierarchy (Gould, 2002). Status differences lead to deference in dyads, where deference can be defined as one actor's acknowledgement that the other is entitled to certain privileges. Lower status actors routinely give the higher status actors more benefits than the latter are expected to return (Blau, 1964). Examples of such unequal interactions have been documented in network ties among firms (Castellucci & Ertug, 2010; Podolny, 1993) and individuals (Granovetter, 2005; Podolny & Baron, 1997). For example, lower status investment banks underwriting public offerings defer to the higher status banks because of their prominent positon in the underwriting network (Baum, Shipilov, & Rowley, 2003). As a result, lower-status banks are likely to offer advantageous terms to the higher-status counterparts for participating in their offerings (Podolny, 1993).

Most research examines how deference relationships work within a single domain, e.g. a buyer-supplier relationship (Castellucci & Ertug, 2010) or a relationship between suppliers (Podolny, 1993), and it is not known whether deference could also spill across different relational domains. In this paper we explore how deference between actors in personal relationships affects these actors' business decisions. This can happen within multiplex relationships, defined as ties in which actors share multiple bases for interaction (Kuwabara, Luo, & Sheldon, 2010; Verbrugge, 1979; Wasserman & Faust, 1994). Multiplex ties often involve firms whose business relationships are simultaneously intertwined with the personal relationships of their key decision makers (Ingram & Roberts, 2000). Such ties are pervasive around the world. Executives in family firms both in developed and emerging economies are frequently also members of owning families who are inter-connected through kinship (Ingram & Lifschitz, 2006; Luo & Chung, 2005); likewise managers in competing firms are often connected by friendship (Ingram & Roberts, 2000; Ingram & Zou, 2008) or college alumni relationships (Wasserman, 2012) which span both business and personal domains; and exchange of information and evaluation occurs through multiplex

relationships connecting managers and stock analysts (Cohen, Frazzini, & Malloy, 2010). Spillover of deference in a multiplex tie happens when deference in a personal relationship alters the partners' business behaviors.

Examining status differences among actors and the spillovers of deference across different domains of a multiplex tie is valuable because this may affect strategically important decisions, such as market positioning or reactions to a competitor's entry into a firm's markets (Ingram & Roberts, 2000; Podolny & Scott Morton, 1999). Research on competitive positioning traditionally examines how firm market entry or exit behaviors are caused by economic drivers such as prior overlap of their market positions or profitability (Korn & Baum, 1999; Korn & Rock, 2001). Personal interactions between the key decision makers, and especially their deference relationships, may also influence the pattern of market entries and exits of their companies, yet how these spillovers occur remains unexplored in management research.

In this study, we examine market entry and exit behavior of Korean business groups (chaebol) connected by marriage relationships between their owner families. Such marriage relationships represent multiplex ties that comprise both personal and business domains as bases for interaction. The business domain comprises a direct channel for information exchange between trusted business partners (i.e., owner families), which among other things involves the exchange of insights about chaebols' strategic positions in individual markets. The personal domain is the kinship relationship between the business owners' families that involves "husband" and "wife" roles of different family members. The husband/wife interactions are deeply embedded within the Confucian cultural tradition, which clearly spells out the roles and expectations about the appropriate behaviors for spouses and their families. We show that gender and family roles in a marriage tie, as prescribed by the Confucian tradition, affect business decisions of their chaebols in terms of entries to or exits from common markets.

Specifically, we propose that families in both chaebols will exchange information about markets in which their companies are involved. Had there been no clear deference relationship between the two families, both parties would have acted upon this information and reconfigured their market positions through market entries and exits in a similar fashion. Chaebols would do that in the expectation of benefits from the redeployment of resources and capabilities between different markets over time (Helfat & Eisenhardt, 2004). Yet, because this multiplex tie also involves personal interactions between the families of the husband and wife, which are governed by the Confucian tradition that gives privileges to the husband and his family, it will be the chaebol of the husband that takes advantage of this information and actively reconfigures its strategic position through entries to or exits from the common markets. By contrast, the wife's chaebol will restrain its market entry or exit behaviors and just accommodate those of the husband's chaebol. This study makes contributions to the literatures on multiplexity (Shipilov, 2012) and competitive positioning (Helfat & Eisenhardt, 2004; Korn & Rock, 2001) as detailed in the discussion section.

THEORY

Status, Deference and Multiplexity

There are different explanations for the origins of inequality in social systems that lead to situations in which some groups have better opportunities than the others (Blau, 1964). A market-based explanation suggests that some actors are at the top of the hierarchy because of their superior skills (Homans, 1961). Another view suggests that inequality is best explained through the existence of an enacted social order in which powerful individuals or social groups have hegemony over social positions that generate rents (Sørensen, 1996). Gould (2002:1147) synthesizes the two views and suggests that inequality can be explained by the notion of status,

i.e., “the prestige accorded to individuals because of the abstract positions they occupy rather than of their immediately observable behavior.” According to this framework, economic actors have some underlying qualities (e.g., superior skills) that allow them to attain a higher social position, which then increases the returns on these qualities. Regardless of the origins of inequality, individuals at the bottom of the social system show deference to the individuals at the top, which manifests itself in the former’s willingness to accept worse terms of exchange for the privilege of associating with the latter (Castellucci & Ertug, 2010), and these continued acts of deference perpetuate the inequality.

Deference in personal relationships matters for individual outcomes such as earnings and job opportunities (e.g. Blau, 1964), but it can also matter for business outcomes when the persons who exhibit deference also make important business decisions, such as whether to enter a new market or how to react to a new entrant. Podolny and Scott Morton (1999) examine how members of British shipping cartels in the 19th century reacted to the entries of competitors into their markets. Despite the reduction in the market profitability with an increase in competition, incumbents deferred to the new entrants of high status (e.g., when the owner of the shipping firm was a Knight) by accommodating their entries and avoiding price wars. By contrast, incumbents tried to prevent the entry of low status competitors through vigorous price wars. The reason for this unequal treatment was that shipping-firm owners of high status were judged to be more likely to uphold the norms of the cartel, and hence could be trusted not to cheat or attempt renegotiation of cartel agreements. Thus, assessment of an interpersonal status ranking and the resulting difference was transferred into the firm behavior of accommodating entry or starting a price war. While one can argue that deference based on personal status could be the thing of the past, in this paper we are interested in observing whether deference in personal relationships can affect business decisions in more contemporary settings and, if found, what such deference patterns can

tell us about social embeddedness of economic action—such as market entries and exits—more broadly.

The underlying qualities that allow individuals to claim a higher status position can have either internal or external sources of value (Zelditch Jr & Walker, 1984). The internal source is driven by the value of the underlying qualities, while the external source of value is driven by social norms. In working groups, for example, the internal source of value can come from the group's shared understanding that a certain skill (i.e., knowledge of math) is necessary to create a successful output (e.g., complex financial derivative product); and individuals with such skills can obtain a high status position specific to the focal working group (Ridgeway & Berger, 1986).

The external source of value derives from norms that dictate what the actors' roles are, and is generalizable beyond specific workgroups to the broader society. These norms often come from the national culture. In turn, culture includes a set of shared beliefs and norms held by the members in a society, which is communicated through socialization processes (Schein, 1990). Cultural influence can be a major source of deferential behavior within the dyad whereby a position (e.g., a title or a role) occupied by one actor requires the acceptance that the other actor, occupying a different social position, is entitled to certain privileges irrespective of the actor's skills. Cultural influences are absent from most organizational studies of status because these studies are predominantly executed at the level of the inter-firm networks, where the effect of national culture is either held constant or is so ambiguous that it is not clear which organization would benefit from the cultural norms (e.g.Podolny, 1993; Shipilov et al., 2011). Instead, scholars of status assume that deference is solely derived from the pattern of affiliations: the more relationships to high status individuals the focal individual has, the higher is the status of the focal individual (Podolny, 1993) to whom the lower status others have to defer (Castellucci & Ertug, 2010). However, cultural influences represent decidedly non-network based sources of deference

that available research tends to overlook. The fact that a Knighted person is entitled to privilege that spills over from a personal domain to a business domain is a cultural factor not based on this person's social ties or skills, but rather on the external source of value that is ascribed to this person's social position (Podolny & Scott Morton, 1999).

Examination of culture as a source of deference is important because cultural effects have both a broad set of sources and highly general reach. Culture affects the direction of personal deference relationships in many contexts, for example individuals from lower castes in India defer to individuals from the higher castes (Chen, Chittoor, & Vissa, 2015) while women tend to defer to men in the Asian societies (Greenhalgh, 1985; Lee, Parish, & Willis, 1994). Thus, at least in traditional societies, differences between individuals based on different castes or gender can lead to clearly defined hierarchical patterns of dyadic relationships that have nothing to do with their network positions. Economic impact of culture has also been linked to broader religious and philosophical systems such as claims of protestant ethic being a good match to capitalism (Weber, 1904) and Muslim restrictions on lending practices affecting economic growth (Kuran, 2004).

Recent resurgence of interest in multiplex relationships – ties that are comprised of multiple bases of interaction (Kuwabara et al., 2010; Verbrugge, 1979; Wasserman & Faust, 1994) – can provide a fruitful opportunity to reexamine the role of national culture as a source of deference within dyads. Multiplexity is relevant to our argument when it amounts to the existence of a personal relationship between key decision makers in different organizations, which then could affect collaborative behaviors of these organizations in a business domain. There are two cases in which one can think about multiplexity. First, multiplexity can arise when two actors are connected through different types of ties such that each tie offers them different bases for interaction. For example, two CEOs of different investment banks could be members of the same alumni association, which allows them to interact as acquaintances in an informal setting. At the

same time, they could work together on a deal to underwrite a public offering for a common client. Second, the two organizations could be connected through a single relationship in which its members have different bases for interaction. For example, two business groups could be connected by marriage between their owner-families. In this case, a marriage tie connects individuals who are related through personal kinship, yet these individuals are also involved in running businesses that could collaborate in different markets even without creating formal arrangements such as strategic alliances or joint ventures. These two cases are similar in that they involve relationships that form different bases of interactions—one in a personal domain and another in a business domain. These cases differ in that the first involves the formation of two types of ties, whereas the second involves the formation of a single type of tie. Yet, the number of ties between companies is not going to be as consequential for studying the impact of deference in personal ties on organizational outcomes. Rather, this effect will occur when a personal relationship involves individuals who are either the decision-makers for the business or who are so close to them that they affect information exchange and business decisions[1].

Available research tends to think about multiplexity as desirable, because it stabilizes exchange and creates trust and interdependences between partners. Rogan (2014) has shown that multiplex relationships between the advertising agencies and their clients have a low likelihood of dissolution. Multiplexity helps maintain client-agency relationships even if one of the executives who built those relationships in the first place leaves the firm. Uzzi and Gillespie (1999) find that the clients obtained capital at the lower cost from the bank if they had a multiplex relationship. When two organizations are connected by an alliance and a board interlock, multiplexity helps

[1] In contrast to a multiplex relationship, a "uniplex" relationship would involve a single basis for interaction between the actors. For example, two companies can be connected either by a strategic alliance or by board interlock (Beckman & Haunschild, 2002). Alternatively, two individuals can be relatives but not collaborate in business (Ingram & Lifschitz, 2006) or work for alliance partners yet not share any personal relationships.

facilitate mutual learning from partnering experience (Beckman & Haunschild, 2002).

Despite these benefits, multiplex ties could have significant costs that the literature tends to overlook. When senior decision makers acknowledge the existence of a status hierarchy and show deference to some partners in a one domain of a multiplex relationship, this can affect their decisions in the other domain, which can put one partner at a disadvantage over another. For instance, Ingram and Lifschitz (2006) demonstrated that kinship between shipbuilders reduced the failure rates of their companies, yet they did not explore the possibility that individuals occupied unequal roles in the kinship relationships (e.g. a patriarch of a family vs. a distant cousin; a relative who is a Knight vs. a relative who is a commoner), producing an inequality that could result in deference relationships spilling over into the business domain. Specifically, businesses run by the family patriarch may have more flexibility than businesses ran by the lesser kin. Even beyond cultural influences, deference could come from the unequal distribution of status in one domain of a multiplex relationship and still affect another domain. For example, two companies connected by a board interlock may have a high status board member who clearly favors the interests of one company over another. As the other board members defer to this person, these influences can spill over to their strategic alliance where partner favored by the high status board member will be given the leading role over the other, less favored, partner. Thus, multiplex ties can contain "Trojan horses": relationships with clear deference patterns in one domain that could hijack the partners' behaviors in the other domains.

In the sections that follow, we examine how deference can spill over across different domains of a multiplex relationship, making business decisions between otherwise equal partners subject to hierarchies within personal relationships. Our specific conjecture is that deference in roles among the individuals in a personal domain of a multiplex tie can manifest itself in asymmetry of business strategies adopted by the businesses owned by these individuals' family

members. Thus, interpersonal deference based on culturally induced status hierarchies affects the interactions in the business domain.

Business Consequences of Personal Deference in Korea

Our context is marriage ties between owner families of business groups in Korea. This context is a perfect laboratory to examine how cultural influences in a personal domain of a multiplex tie can create asymmetry in its business domain because of the Confucian norms that strictly guide personal relationships, which then affect how these groups behave within their business relationship. Marriages between business families have been historically important drivers of information exchange, coordination, and trust among economic actors (Granovetter, 1995). They have been documented as early as Florentine Europe (Padgett & Ansell, 1993); in modern data they have been shown to secure long term inter-group collaboration (Kerbo & McKinstry, 1995) and exchange of product knowledge, coordinated bidding, and pricing (Ingram & Lifschitz, 2006). Nowadays, kinship networks are closely integrated with business groups around the world, which help enterprises overcome weakly developed judicial and business systems (Khanna & Rivkin, 2001; Manikandan & Ramachandran, 2015).

The hierarchy in the family relationships in Korea follows a strict pattern that is prescribed by the traditional Confucian value system and directs deference in personal relationships. Confucian culture emphasizes strong bonds of loyalty to family members (Omohundro, 1982; Redding, 1990), and promotes a dutiful responsibility to seniors (Greenhalgh, 1985; Hamilton, 1985). A key feature of Confucian culture is the asymmetry in gender roles that puts males in a privileged position. A son is responsible for taking care of his parents, and he inherits the parents' wealth and social status. A daughter is exempt from the duty of caring for her original family, but she is also deprived of property rights (Greenhalgh, 1985). In other words, sons are entitled to be

descendants of the family (Greenhalgh, 1985; Lee et al., 1994) whereas daughters have to re-build own identity and economic resources through marriage and fully integrate into a husband's family.[2]

The deference in personal relationships will matter when it affects business outcomes, for instance, when marriage involves members of the families that own companies, most notably business groups (chaebol). In order to understand how behaviors of these groups in business can be affected by deference in personal relationships, it is important to first consider the principal drivers of these groups' success. These groups optimize their use of resources, skills, or customer bases across markets (Rumelt, 1974). Member companies can leave some markets and redeploy their resources and skills or target customers in what they think are the more promising markets. Such behaviors are observed when companies look for inter-temporal economies of scope, i.e. the synergies that arise from reallocating resources across different markets (Helfat & Eisenhardt, 2004). If we can show that such market entry and exit behaviors are collaborative in nature and are shaped by deference in the marriage relationships involving the groups' owner-family members, then we have demonstrated that deference in personal relationships can affect business outcomes.

Business groups provide three critical inputs to their affiliates which can be transferred across markets, even when these markets are unrelated. These inputs are finance, technology and

[2] These asymmetries in gender roles are pervasive in most Asian societies that have adopted Confucian value system, and they become extremely significant when marriage involves family members of business groups. Although the contemporary Korean society has over the past 20 years moved away from blatantly discriminatory practices based on gender roles, they are still very much alive among the owner-families of chaebols who tend to be extremely conservative in their attitude towards the family institution. Of course, this culture-specific view about gender inequality is morally questionable, especially in the Western society. However, as Gould (2002) points out, the scientific utility of trying to understand the determinants of status hierarchies is independent from the judgment about the moral values on the basis of which these hierarchies are constructed. We believe that such (antiquated) inter-personal institutional norms have to be brought to light and studied precisely *because* of our moral objections, since, as we shall show below, they are consequential to the choices of business strategies even now.

management talent. First, chaebols provide their affiliates with access to capital. Given capital market imperfections, chaebols mostly fund their operations through retained earnings or debt, as opposed to outside equity. By exiting one market, a chaebol can free up the retained earnings, debt carrying capacity, or simply available cash flows, which it can then use to enter another market. Second, chaebols offer technology development services to their affiliates. They do so by integrating R&D centers along very broadly defined lines, such as electronics, infrastructure or automotive, which can provide shared services to both related and unrelated businesses. Third, chaebols provide talent management services, including managerial and technical training to their workers, which compensate for scarcity of talented managers and engineers. Consequently, in addition to reallocating financial resources, a business group can also reallocate shared R&D capacity and talent by exiting one market and entering another (Chang & Hong, 2000; Khanna & Palepu, 1997).

Yet, the transfer of resources will be associated with significant adjustment costs. The direct costs involve moving these resources from one market to another. Indirect costs involve disruption of business in the market which the focal firm is trying to exit as well as the costs associated with operating below the optimal capacity both in the new market and in the market that the firm is in the process of exiting (Helfat & Eisenhardt, 2004). When a firm enters a new market, it needs to learn how to compete in that market, who the key customers or suppliers are, and how to deal with government regulation (Day & Montgomery, 1983). Furthermore, incumbent competitors may launch preemptive attacks on the newly established positions of the focal firm in order to dissuade it from expanding its presence in the focal market (Fudenberg & Tirole, 1986; Kreps & Wilson, 1982). Such competitive attacks could amount to significant below-cost pricing from the incumbent competitors' affiliates, which can compensate for the losses through cross-subsidization and low transfer prices from the other affiliates of the

competing chaebol (Chang & Hong, 2000). Costs specifically related to exits occur because competitors that remain in the market that the focal chaebol is planning to exit can attack the weakened position of the affiliate, which has already transferred some of its resources (e.g. cash, talent) to the new market, thus lowering the value of the assets which the focal firm can sell and reducing the value of additional resources that the focal firm can transfer into the new market.

Social relationships often influence the structure of competition in a given market (Dyer & Singh, 1998; Zaheer, Gulati, & Nohria, 2000) as well as a firm's decisions to configure market presence (Jensen, 2003; Rider, 2012). A trusted partner in a market will reduce the firm's adjustment costs both for entry and for exit. The formation of a marriage tie opens a reliable communication channel between two business groups. As the owner families exchange information about the markets in which they are operating, they learn about potential benefits of redeploying resources across different markets with mutual support.

In principle, both groups related by marriage should benefit from such mutual support. However, given the asymmetric roles in the newlywed family between the husband and the wife, the husband's chaebol will be allowed to actively reconfigure its position through increased entry to or exit from the common markets; whereas the wife's chaebol will support the market entry or exit activities of the husband's chaebol and will remain passive in its own market position. These behaviors can be explained by the fact that in the Confucian tradition, the husband's family extends a "favor" to the wife's family by selecting her as a bride. This is considered to be a favor in the Confucian tradition because, as noted earlier, the daughter is not required to take care of her parents' family in the old age and thus doesn't inherit the family's assets. The bride' family (in this case the owner-CEO of the wife's chaebol) must repay this favor, which in the context of inter-chaebol interactions means supporting the husband's chaebol. In essence, helping in the markets to which the husband's chaebol is planning to enter or exit represents a form of informal

"dowry" that is payable from the wife's to the husband's chaebol, even though both the husband and wife are normally too junior to have authority in their chaebol at the time of marriage.

The adjustments in business strategy following this relation can be either the result of informal information exchange and norms, or more explicit agreement. The two owner families may develop an informal plan for the husband's chaebol market position re-configuration. The wife's chaebol would provide information to the husband's chaebol about potential market expansion opportunities, which includes insights into the most attractive markets in which the wife's chaebol is operating as well as the identities of the most reliable customers and suppliers in those markets. The wife's chaebol can also pledge not to attack the husband's chaebol after it enters into its markets, it can answer favorably to an informal request for no attack, or the husband's chaebol may simply expect peaceful entry as a result of the family norms related to the wife family's obligations. Given any of these insights and help, the husband's chaebol is able to increase its propensity to enter the markets of the wife's chaebol in which the former has no prior presence. More specifically:

Hypothesis 1a: After marriage, a business group owned by a husband's family increases the probability of entering the markets occupied by the business group which is owned by a wife's family.

In order to enter more promising markets, the husband's chaebol might need to free up resources from the markets in which it is currently operating. The wife family's chaebol may provide support facilitating the exit, when it already has operations in one or more markets in which the husband's chaebol seeks to leave. Again, this assistance could be the result of the owner families of the husband's and the wife's chaebols either developing an exit plan, or engaging in the less formal coordinating actions. When both chaebols find themselves in common markets and the husband's chaebol sets its sights to redeploying resources elsewhere, the

husband's chaebol may approach the wife's chaebol for help by purchasing its assets (e.g. factories, distribution networks, buildings or the like). Importantly, the husband's chaebol does not have to sell off failing businesses; it can also sell well performing businesses to the wife's chaebol that is already present in these markets, yet at a price sufficiently high to cover the husband chaebol's costs of resource reallocation across markets. The husband's chaebol exit can also be facilitated by other means such as the wife's chaebol pledging not to join other firms seeking to prey on the weakened husband chaebol during the exit, which enables the husband's chaebol to redeploy its resources across markets at a lower cost. Hence, we propose the following:

Hypothesis 1b: After marriage, a business group owned by a husband's family increases the probability of exiting the markets occupied by the business group which is owned by a wife's family.

Finally, the "dowry" will manifest itself in the decreased propensity of the wife's chaebol to reconfigure its own market positions vis-à-vis the husband's chaebol. While the wife's chaebol will accommodate the entry of the husband's chaebol in its markets, despite the fact that this reduces the value that the wife's chaebol can capture there, the wife's chaebol will refrain from entering the husband's markets in order to avoid reducing the value that the latter can extract from its own markets. Yet, the wife's chaebol will also refrain from exiting the markets in which the husband's chaebol is still present in order not to deprive the husband's chaebol of a friendly competitor with whom it can cooperate. This can create benefits either from the tacit norms of cooperation between the inter-married chaebols or from explicit collusion between them. The two chaebols can agree to work together for attacking other (unrelated) competitors in the common markets, the wife's chaebol might promise not to join forces with the competitors to attack the husband's chaebol, or the two chaebols can agree to collude against customers or suppliers. The reduced probability of a wife's chaebol entry into the markets of the husband's chaebol coupled

with reduced probability of exit from the common markets implies that the wife's chaebol doesn't want to create *new* competition for the husband's chaebol, but agrees to collude with it in the markets where both of them are already present. Hence, we propose the following hypotheses:

Hypothesis 2a: After marriage, a business group owned by a wife's family decreases the probability of entering the markets occupied by the business group which is owned by a husband's family.

Hypothesis 2b: After marriage, a business group owned by a wife's family decreases the probability of exiting the markets occupied by the business group which is owned by a husband's family.

Many Korean executives, whom we interviewed, offered qualitative evidence in support of our hypotheses. They recognized that marriage ties among the business groups were important sources of coordinating business activities. One interviewee suggested that "*kinship and marriages between owner-families are the strongest relationships between chaebols one can think of.*" We also learned that chaebols took asymmetric actions as a result of marriage relationships. Another executive recalled: "*when two families that owned chemical companies intermarried in 1990s, they stopped aggressive competition against each other in the chemical business. After the marriage, I've seen that the husband's chaebol reconfigured its presence in chemicals' markets whereas the wife's chaebol supported this behavior without changing its competitive position. This is a normal courtesy behavior between the in-laws.*" Another interviewee reflected on the multiplex nature of the personal/business relationship: "*For owner-families, marriage is a complex relationship containing both economic and social considerations. The wife's chaebols always give away, or at least avoid stirring a male chaebol's emotion, by entering the in-laws' markets…If in-law families have some conflicts, the odds are always against the wife because she*

becomes a part of the husband's family. That's why even when a wife's chaebol sees some potential economic benefits from marriage [i.e. through the opportunity to enter new markets], they hesitate to exploit it. They put more weight on moral costs and reputation in Korean society and on the well-being of their daughter in the husband's family than on the exploitation of immediate business interests." Hence, it is plausible that marriages can influence chaebols market entry and exit behaviors. We now turn to the quantitative testing of our arguments.

METHODOLOGY

We collected data on the composition of owner families of the largest 60 Korean chaebols between 1987 and 2011. Data on intermarriage came from the book *Chaebol-Ga,* where chaebol families and their marriage networks are tracked by Seoul News Corporation. We updated, validated, and supplemented this information with searches in daily newspapers, business magazines and web archives. We also collected data on the chaebols' presence in different industry markets in the same period from the Korean Information Service (KIS) , the biggest credit rating agency in Korea. We operationalized the presence of a chaebol in particular industry market as the existence of at least one affiliate company in an industry's 4-digit SIC code. We supplemented KIS data with companies' annual reports and press releases, as well as with data available from the Federation of Korean Industries.

To collect background information on the relationships between chaebols in general and their marriage interactions in particular, we interviewed the three journalists who authored the *Chaebol-ga* book (Seoul News Corporation, 2005). We also did 15 interviews with 10 business executives between 2011 and 2015. The subjects were senior managers with extensive experience of working with the owner-CEOs of the chaebols, and they were familiar with social dynamics surrounding social ties between owner families and their market entry and exit behaviors. The

interviews lasted on average 90 minutes and were conducted in person in Korea. The interviews were conducted in Korean, and the quotes we give above are translations.

Data Structure and Empirical Strategy

Because we are interested in examining the consequences of marriages on the probability of one chaebol to enter or exit markets in which the other chaebol might be present, we used the event study methodology. Our units of analysis were dyad-market-year observations: we are interested in the presence of two chaebols in particular markets (defined at the level of 4 digit Korean Standard Industrial Classification (SIC) codes) which we tracked +/- 3 years around the marriage events. Each observation can be denoted as *ijmt* or *jimt* where (i) and (j) are the IDs of the chaebols who could enter or exit each other's markets, (m) is the ID of the specific market and (t) is the time when this market entry or exit could happen. The three-year cut off points around the marriage event have contextual significance. The pre-marriage courtship period in Korea is on average one to two years (Kim & Lee, 2003), thus by looking at the three years prior to the marriage we can accommodate the gradual build-up of trust between families throughout the courtship period, as well as capture the dyad before the courtship even began. The three years after the marriage is sufficiently long to reflect the duration of administrative paperwork that needs to be done in Korea to open a new subsidiary (MaeIlKyungJe, 1996). There were 23 marriages among 60 chaebols during our observation period.

Our hypotheses are tested in four related datasets: two built around market entries and two built around market exits. All datasets are constructed as treatment/control samples in which the treatment sample takes all available data from the intermarried chaebols, while the control sample takes available dyad-market-year observations involving one married and all other non-married chaebols (i.e. the chaebols that were active in a given year and to which the member of the

chaebol which got married could have extended, but did not extend, a marriage tie).

To study the determinants of market entry of chaebol (i) into a market (m) of chaebol (j) after marriage that happened at time (t), for example, we identified all markets (based on 4-digit SIC codes) in which any affiliate company of chaebol (j) was present from three years prior to (t-3) to three years after the marriage event took place (t+3). Then we examined whether, in these seven years, the chaebol (i) entered any of these markets. To study the determinants of exits of chaebol (i) from a market (m) of chaebol (j) after marriage that happened at time (t), we identified all markets in which chaebols (i) and (j) were present from three years prior to (t-3) to three years after the marriage event took place (t+3). Then we examined whether chaebol (i) exited any of these markets in a given year. The presence of affiliates of the chaebols (i) and (j) in a specific 4-digit market (m) in a given year (t) was coded as 1 and the absence was coded as 0.

Dataset 1: To test Hypothesis 1a about the entries of husbands' chaebols into the markets of the wives' chaebols, our treatment sample comprised all dyad-market-year observations (ijmt) of pairs of chaebols whose children got married within our observation window (at times t-3 and t+3, where t is the year of marriage). This dataset is built around cases where the wife's chaebol is present in the focal markets and a husband's chaebol is not present in these markets prior to marriage, but could enter these markets. The control sample for this dataset comprises all dyad-market-year observations (ijmt) of chaebols who did not form marriage relationships within the same time period (from t-3 to t+3).[3] Dyad-market-year observations in the treatment and control

[3] Another approach to construct a control sample would have been to randomly select a group of dyad-market-year observations involving chaebols (j) to which chaebol (i) did not form a marriage relationship. However, a priori it was not clear how many random observations we should retain, and even more importantly, it was impossible manually to accurately identity the dyad-market-year observations that would be similar to those in the treatment sample on all of the variables. Therefore, we collected all possible dyad-market-year observations of non-realized market entries and then used the CEM procedure described below to weigh the dyad-market-year observations in the control sample by their similarity to the dyad-market-year observations in the treatment sample. The same logic applies to the selection of control sample in the other three datasets.

samples were distinguished by a dummy variable $Married_{(ij)}$ set to 1 for each dyad-market-year observation of chaebols that were involved in a marriage tie between (t-3) and (t+3) and otherwise a zero for dyad-market-year observations involving chaebols which did not marry. We also constructed a dummy variable $After\ Marriage_{(ijt)}$ to designate dyad-market-year observations in the treatment group at (t+1), (t+2) and (t+3) time-periods where (t) is the marriage year. Positive effect of the dummy $After\ Marriage_{(ijt)}$ will provide support for H1a. This dataset contained 77,956 dyad-market-year observations after deletions for missing values on theoretical and control variables. We also used dummies $Married_{(ij)}$ and $After\ Marriage_{(ijt)}$ in the other datasets.

Dataset 2: To test Hypothesis 1b about the exits of husbands' chaebols (i) from the markets of the wives' chaebols (j), our treatment sample comprised all dyad-market-year observations (ijmt) of chaebols between the periods of (t-3) and (t+3), whose children got married at time (t) and in which the husband's chaebol was at risk of exiting the common markets from (t+1) to (t+3). This dataset is built around cases where the wife's chaebol is present in the focal markets and a husband's chaebol is also present in these markets prior to marriage, but could exit from these markets. The control sample in this dataset comprised all dyad-market-year observations (ijmt) of chaebols who did not form marriage relationships between (t-3) and (t+3) but in which the husband's chaebol was present together with other chaebols. Positive effect of $After\ Marriage_{(ijt)}$ in this dataset (controlling for whether the observation belonged to a treatment or a control group with $Married_{(ij)}$ variable) will provide support for H1b. This dataset had 12,378 dyad-market-year observations.

Dataset 3: To test Hypothesis 2a about the entries of wives' chaebols into the markets (m) of the husbands' chaebols, our treatment sample comprised all dyad-market-year observations (jimt) of pairs of chaebols whose children got married within our observation window (at times t-3 and t+3, where t is the year of marriage). This dataset is built around cases where the husband's

chaebol is present in the focal markets and a wife's chaebol is not present in these markets prior to marriage, but could enter these markets. The control sample for this dataset comprises all dyad-market-year observations (jimt) of chaebols who did not form marriage relationships within the same time period (from t-3 to t+3). This dataset had 58,215 observations.

Dataset 4: To test Hypothesis 2b about the exits of wives' chaebols (j) from the markets of the husbands' chaebols (i), our treatment sample comprised all dyad-market-year observations (jimt) of chaebols between the periods of (t-3) and (t+3), whose children got married at time (t) and in which the wife's chaebol was at risk of exiting the common markets from (t+1) to (t+3). This dataset is built around cases where the husband's chaebol is present in the focal markets and a wife's chaebol is present in these markets prior to marriage, but could exit from these markets. The control sample comprised all dyad-market-year observations (jimt) of chaebols who did not form marriage relationships between (t-3) and (t+3) but in which the wife's chaebol was present together with other chaebols. This dataset had 9,382 observations.

Control Variables

Because the matching procedure (outlined below) normally drops many unmatched observations to create a sample of similar observations in the control group as in the treatment group and the number of dropped observations increases rapidly with the number of matched variables, we cannot use too many matching variables. Yet, this is not a problem because models with similar control and treatment groups don't require as many additional controls as models in which control and treatment groups are different. This is because the models with different control and treatment groups have much more unobserved heterogeneity that needs to be accounted for with extra control variables (Iacus, King, & Porro, 2011).

There are several economic drivers of market entry and exit. For example, multimarket contact between chaebols could affect their probability of market entry or exit (Korn & Baum, 1999). To control for these influences, we counted the number of common 4-digit SIC codes in which the two chaebols were present. We performed a logarithmic transformation of this variable to reduce its skewness. This variable was labelled *Dyadic MMC* $_{(ijt)}$. For each specific dyad (ij) this variable did not vary by market, but did vary over time, as the number of common markets involving chaebols (i) and (j) can change between (t-3) and (t+3).

A market that a focal chaebol can enter or exit could be more or less competitive as a function of how many other competitors are present in that market. To control for this, we constructed a variable $Competition_{(ijmt)}$ as a count of how many other competitors, not counting the partner chaebol, were present in the focal market which the focal chaebol entered or exited. This dyadic variable was specific to each individual 4-digit market, thus it varied both by market (m) and by time (t).

The deference in the relationships between chaebols could also be explained by the differences in the breadth of their market presence. A more diversified chaebol might have stronger capabilities of managing businesses in multiple markets than a more focused chaebol; thus the former may be more likely to successfully search for the inter-temporal scope economies than the latter. Chaebols are known to diversify into multiple markets as soon as they had enough power to do so (Chang & Hong, 2000), so this measure can also be thought of one of relative power: the more markets the chaebol is present in, the more power this chaebol has over a chaebol which is not present in many markets. To control for this, we first computed the total number of 4-digit SIC code-based markets in which the chaebols had affiliates and computed the logged absolute difference between the counts of the number of markets occupied by chaebols in each dyad. We labelled this variable $Specialization\ Difference_{(ijt)}$.

Chaebols also have different sizes. This was captured by examining the absolute differences in the value of their assets. We labelled this variable *Asset Size Difference*$_{(ijt)}$. These business groups could have different debt loads, which could affect their propensity to enter and exit markets. To that end, we collected the information on the value of their outstanding debt and computed the absolute difference. We labelled the resulting variable *Debt Load Difference*$_{(ijt).}$ Likewise, we also collected information on the absolute difference in the chaebols' total profits and computed a variable *Profitability Difference*$_{(ijt)}$. For each specific dyad (ij), this set of variables did not vary by market, but did vary over time within a dyad. All of these variables were logged.

Market entries and exits can also be affected by the munificence of markets. Unfortunately, we did not have data to directly capture the munificence of 4-digit markets, so we resorted to proxies. These were the variables capturing the dynamics of all chaebols' entry to and exit from the focal markets. That is, as all chaebols observe the munificence of each of the 4-digit markets, they should exit less munificent markets and enter more munificent markets. Hence, for each year, we computed the ratio of how many of the chaebols that were present in the focal market in the past year actually exited the focal market. We averaged this ratio over a three year period to smooth annual shocks, giving us a control *Exit Ratio* $_{(mt)}$. In a similar fashion, we computed *Entry Ratio* $_{(mt)}$ by dividing the total number of firms that entered the focal market by the number of firms which are already present in that market. Munificent markets will have low exit ratios and high entry ratios.

In addition to these economic drivers of market entry and exit, there could be other kinds of relationships between chaebols and other drivers of deference as well. First, we computed the total number of formal alliances between each pair of the chaebols. This gave us a variable *Alliance Count* $_{(ijt)}$. Second, we controlled for whether owner-CEOs of two chaebols went to the

same school, which meant that they belonged to the same-school alumni association, effectively creating another informal communication channel between them. This gave us a variable *Same School*$_{(ijt)}$. Third, chaebols could have varying levels of power as a function of their political connections, which could affect their deference towards each other (Siegel, 2007). To that end, we computed how many former government officials worked as CEOs of the chaebols' subsidiaries and calculated the absolute difference in these values. This gave us a variable *Political Power Difference*$_{(ijt).}$ We also controlled for the fixed effects of the marriage year.

Coarsened Exact Matching

Following Aggarwal and Hsu (2014), in our analysis we combined the difference-in-differences estimation with Coarsened Exact Matching (CEM) approach. The latter is a nonparametric method of preprocessing data, similar to propensity score matching, that allows us to construct a treatment sample of dyad-market-year observations that has similar characteristics to the control group of dyad-market-year observations in everything except the treatment (marriage) itself. The algorithm first creates different strata based on all matching variables, into which it classifies observations from the pool of dyad-market-year observations for the treatment and control groups. Then, based on these strata, it calculates the weights which should be given to each member of the control group based on the similarity of this member to the members of the treatment group. If the differences between the member of the treatment group and all the members of the control group are too large, the algorithm leaves the observations unmatched and drops them from the analysis (Iacus et al., 2011). It thus sacrifices statistical power to gain robustness against confounding effects of unmeasured differences. The use of CEM reduces differences between treatment and control groups that could introduce bias in difference-in-differences estimation. The advantage of CEM is that it is able to remove bias (e.g. omitted

variables, measurement error or reverse causality) related to observed variables on which the matching is performed. The CEM procedure allowed us to weight dyad-market-year observations in the control and treatment group by their similarity and to exclude those observations that were highly dissimilar. This should enable us to estimate regression models on similar samples.

Because each additional matching variable reduces the sample size, which was a problem for smaller datasets, we did not match our data on all possible variables (e.g. Younge, Tong, & Fleming, 2015). As we are interested in the relational drivers of market entry and exit behaviors, we wanted matching to ensure similarity of treatment and control groups based on the economic drivers of market entry and exit (e.g. Greve, 2006; Korn & Baum, 1999) and left relational explanations as controls. That is, we initially attempted to match on the *Dyadic MMC*, *Competition*, *Specialization Differences*, *Asset Size Differences*, *Debt Load Differences*, *Profitability Differences* as well as on market *Entry* and *Exit Ratios*. While matching on all of these variables gave us reasonably large samples to work with in Dataset 1 and 2, we faced complications in the two other datasets. In Dataset 3 (Wives' Chaebol Entry) CEM on all these eight variables only retained observations related to entries to markets of a single partner; whereas in Dataset 4 (Wives' Chaebol Exits) CEM did not retain enough observations for the probit models to converge. Matching on all eight economic drivers of market entry and exit shrank sample sizes in two datasets to unworkable levels, so in these two datasets we performed the match on fewer variables. In Dataset 3, we matched on *Dyadic MMC*, *Competition*, *Specialization Differences*, *Asset Size Differences* and *Profitability Differences* whereas in Dataset 4 we matched on *Dyadic MMC, Competition, Specialization Differences*, *Asset Size Differences, Debt Load Differences* and *Profitability Differences*. Since the resulting matching weight affects all variables describing the focal observation, matching on a subset of variables can still generate control and treatment samples that are similar not only on this subset of variables, but also on those variables

on which we did not explicitly match.

----- Insert Table 1 about Here -----

Table 1 shows the means of our control variables before and after matching. As can be seen in this table, dyad-market-year observations of control and treatment groups were different on the economic drivers of market entry and exit prior to matching in all four datasets. For example, in Dataset 1 examining the entries of the husbands' chaebols into the markets of wives' chaebols, the dyad-market-year observations of the control group (i.e. chaebols that did not form a marriage tie) involved pairs of chaebols that had significantly ($p<0.001$) lower multimarket contact with each other (mean $MMC_{(ijt)}$ for the control group was 1.25 whereas it was 1.53 for the treatment group). After the application of CEM procedure, the dyad-market-year observations for the control group became similar to those in the treatment group for all samples. Interestingly, the CEM procedure also selected observations in Datasets 3 and 4 which after weighting were similar in control and treatment groups across all eight economic drivers of market entry and exit, despite the fact that in Datasets 3 and 4 we matched on some of these variables and not on the others. Thus, we preserved sample sizes in Datasets 3 and 4 without sacrificing similarity of control and treatment groups based on economic drivers of market entry or exit.[4]

RESULTS

Table 2 shows descriptive statistics and correlations of the variables. Panel 2a has descriptives and correlations for Dataset 1 (Husbands' Chaebols Entries), Panel 2b has for Dataset 2 (Husbands' Chaebols Exits), Panel 2c has for Dataset 3 (Wives' Chaebols Entries), and Panel

[4] The only exception was a variable *Exit Ratio* in Dataset 4 based on which we found marginally significant differences between control and treatment groups (significant at $p<0.1$ level only), but our results using Dataset 4 were identical with or without this variable.

2d has for Dataset 4 (Wives' Chaebols Exits). There is no evidence of high correlations between any pair of variables, hence collinearity is not an issue in these data.

----- Insert Table 2 about Here -----

Our results are presented in Table 3. We used probit models with clustering of standard errors on 4-digit market IDs. This choice was based on the observation that standard errors are more reliable with an increase in the number of clusters; and the errors' reliability is questionable when the number of clusters is less than 20 (Bertrand, Duflo, & Mullainathan, 2002). An alternative approach would be to cluster on the chaebols but this produced substantially fewer than 20 clusters in multiple datasets (because the sample has been reduced after matching), and thus unreliable standard errors. Clustering on markets produced more than 20 clusters in all datasets as can be seen at the bottom of Table 3. The number of observations used in each dataset after matching is slightly smaller in Table 3 than what we have in Table 2 (e.g. Table 1 shows that we have 2152 matched observations in Dataset 1 but in Table 3 the analyses based on this dataset use 1961 observations only), because the probit drops observations if a particular variable (e.g. a marriage year fixed effect) predicts either success (DV=1) or failure (DV=0) perfectly.

----- Insert Table 3 about Here -----

We test Hypothesis 1a in Models 1 and 2 that have the entries of the husbands' chaebols into the markets of wives' chaebols as a dependent variable. Model 1 is a baseline, and in Model 2 we enter the *After Marriage* $_{(ij)}$ variable. As expected, the coefficient of *After Marriage* $_{(ij)}$ is positive and significant, showing that husbands' chaebols increase the probability of entering the markets of wives' chaebols after the marriage. Hypothesis 1b is tested in Models 3 and 4. Model 3 is a baseline, while in Model 4 we enter *After Marriage* $_{(ij)}$ variable. It is also positive and significant, suggesting that after marriages, husbands' chaebols are systematically more likely to

exit the common markets in which they find themselves together with the wives' chaebols. We test Hypothesis 2a in Models 5 and 6 that have the entries of the wives' chaebols into the markets of husbands' chaebols as a dependent variable. Model 5 is a baseline, and in Model 6 we enter *After Marriage* $_{(ij)}$ variable. As expected, the coefficient is negative and significant, showing that the wives' chaebols have a lower probability of entering the markets of husbands' chaebols after the marriage. Hypothesis 2b is tested in Models 7 and 8. Model 7 is a baseline, while in Model 8 we enter *After Marriage* $_{(ij)}$ variable. It is also negative and significant, showing that after marriages, wives' chaebols are systematically less likely to exit the common markets in which they find themselves together with the husbands' chaebols.[5]

Interestingly, *Same School (ijt)* was dropped in Models 3-6 whereas *Alliance Count (ijt)* was dropped in Models 5 and 6. This is because when we matched on the economic drivers of market entry and exits, CEM in these specific datasets retained observations that only had zero values on these two relational variables. As there was no variation in these variables, they were dropped from the probit analysis. In other words, Models 3-6 are estimated on the matched sample of firms that did not have owner-CEOs that went to the same school and the Models 4-5 are estimated on a matched sample in which firms don't have alliances with one another. This is another reason why we did not match on these relational variables to begin with: if there is little variation in a particular variable across a large enough sub-sample, this variable is not a great

[5] In a supplementary analysis, we also examined whether market attractiveness moderated the effect of marriage by entering interactions between *After Marriage* and *Entry Ratio* to reflect the extent to which the spouse chaebol was present in the attractive (growing) market. The coefficient estimate was positive and significant for husbands' chaebols, but could not be estimated for wives's chaebols because they never entered growing husbands' markets after marriage. We did the same analysis for exits (i.e. constructed interactions *After Marriage* x *Exit Ratio*) and found that the husbands' chaebols increasingly exited unattractive markets of the wives' chaebols that other firms also exited. Finally, we found that the wives' chaebols remained in the unattractive husbands' markets unless there was an extreme exodus of other firms from these markets. This analysis shows that the husbands' chaebols decisions to enter and exit markets are driven by the strategic logic of entering and exiting markets together with the other firms, whereas the wives' chaebols defer to the husbands' chaebols, often against common strategic logic.

candidate on which to do the match. Given that there was more variance on the *Political Power Difference (ijt)* than in the *Same School (ijt)* and *Alliance Count (ijt)*, in a supplementary analysis we added it to the list of matched variables that captured economic drivers of market entry and exit, obtained a balanced sample between treatment and control groups, and found that our theoretically meaningful results were very similar to those reported above.

Alternative Clustering Solution

As we still were concerned about potential non-independence of observations across chaebol dyads, in a supplementary analysis we clustered on chaebol dyad IDs instead of clustering on the ID of the market. Clustering on the ID of the chaebol dyad can be appropriate because our unit of analysis is a dyad-market-year observation. In the clustering on the dyad, we had 27 clusters in the Dataset 1 predicting husbands' chaebols entries, 18 dyad-based clusters in Dataset 3 predicting wives' chaebols entries, 26 dyad-based clusters in the Dataset 2 predicting husbands' chaebols exits, 42 dyad-based clusters in the Dataset 4 predicting wives' chaebols exits. Our probit results reported in Table 4 were the same.

--Insert Table 4 around here--

Testing for endogeneity

If the assignment of observations to control and treatment groups is not random after matching, then difference-in-differences estimator can still be biased. To that end, we supplemented CEM with augmented Durbin Wu-Hausman (DWH) tests to see whether marriage (treatment) was endogenous. To do this test, we needed to identify strong instruments for the first-stage equation in which we would predict the probability of marriage. To achieve this goal, we used two sets of instruments. The first set of instruments was based on the *Partner's Father Age* as an exogenous variable to predict $Married_{(ij)}$ in the first-stage regression. For the dataset

examining the market entry and exit of the husbands' chaebols, *Partner's Father Age* was the age of the wives' fathers; for the dataset examining the market entry and exit of the wives' chaebols, *Partner's Father Age* was coded as the age of the husbands' fathers. This variable was a proxy for the average ages of the potential husband or wife, the data on which was not available to us. The higher the *Partner's Father Age*, the more eligible children for marriage is this person likely to have. For example, if a parent is 30 years old, he is unlikely to have children of marriable age; yet a parent of 60 years of age is likely to have several children of marriable age. However, the number or the age of children in one chaebol's owner family will have no direct impact on the propensity of the *other* partner chaebol to enter or exit specific markets, thus the exclusion restriction of *Partner's Father Age* on the dependent variables is satisfied. To allow for the non-monotonic effect of this exogenous variable on the probability of marriage—when the partner's father is very old, the prospective partner is likely to be older and might have already been married—we included both linear and quadratic terms of *Partner's Father Age* into regressions.

The second set of instruments was based on a count of how many children from the partners' family have already been married to non-chaebol partners. Since each owner-CEO is likely to have a number of children, after some of these children get married to the other families, the probability of subsequent marriages involving the children of the same owner-CEO to other chaebols should initially increase (because the owner CEO has "learned" how to marry off their children), but then decrease as the number of eligible to marry children in an owner CEO family is reduced as many of them have been already married. However, as children captured in this variable are married to families outside of the focal chaebol's social circle, then their number cannot directly affect the other chaebol's market entries or exits, which satisfies the exclusion restriction. This variable was labelled *Partner's Family Other Marriages;* we computed a linear and a quadratic term for it.

The augmented Durbin Wu-Hausman test (DWH) involves computing residuals after the first stage regression predicting the endogenous variable (*Marriage*) that includes all of the co-variates used the second stage plus exogenous instruments. These residuals are then included in the second stage regression together with the main effect of the endogenous variable. If residuals are significant in the 2nd stage, then there is endogeneity. In other words, the DWH test is the significance test for the predicted residuals of the endogenous variable in the second stage regression. Of course, for this test to be meaningful, the instruments predicting endogenous variable have to be strong. In other words, they have to have high F-statistics for the first stage regressions (which attests to the strength of the instruments). In the market entry datasets (i.e. Dataset 1 and Dataset 3) as well as in the husband's market exit (Dataset 2) after matching, the linear and quadratic terms for *Partner's Father Age* produced high F-statistics in stage 1 regression. In Dataset 4 (capturing the wife's chaebols exits) *Partner's Father Age* did not produce a strong F-statistic, hence we replaced it with a linear and a quadratic term for the *Partner Family Other Marriages*. The resulting F-statistics and the corresponding augmented DWH tests for the specific models are reported at the bottom of Table 3. These results indicate that despite the strength of the instruments, there was no endogeneity in marriage after matching; hence we don't have to use models with instrumental variables for our analyses.

Economic Effects

We assessed the economic effects of our results based on the changes in the predicted probabilities of market entry and exit. Based on Model 2, for example, we determined that the estimated marginal effect of *After Marriage* was 0.065. The mean probability of market entry before marriage is 0.087 in Dataset 1, so the formation of a marriage tie increases the probability of a husband's chaebol entering the specific market of a wife's chaebol by approximately 75% (i.e., 0.065/0.087). In Model 4, *After Marriage* increases the probability of the husband's chaebol

market exit by 0.036. The mean probability of market exit before marriage is 0.077 in Dataset 2, so the formation of a marriage tie increases the probability of a husband's chaebol exiting the specific market of a wife's chaebol by approximately 50%. Based on the results in Model 6, we determined that the average marginal effect of *After Marriage* was -0.016. The mean probability of market entry before marriage is also 0.016 in Dataset 3, so the formation of a marriage tie totally freezes the market entry behavior of a wife's chaebol in the markets where it overlaps with the husband's chaebol. In Model 8, *After Marriage* affects the probability of the wife's chaebol market exit by -0.075. Because the mean probability of market exit before marriage is 0.11 in Dataset 4, the formation of a marriage tie decreases the probability of a wife's chaebol exiting the specific market of a husband's chaebol by 68%. These are all very large effects on chaebol entry and exit behaviors.

Seemingly Unrelated Estimation

In Table 5 we also examined whether the coefficients for husbands' and wives' chaebols entries and exits were significantly different from one another in a seemingly unrelated estimation models. This technique combines estimation results – parameter estimates and associated covariance matrices – from pairs of regressions, so we can account for possible non-independence of entry and exit decisions made by the husbands' and wives' chaebols. The tests for the equality of coefficients of *After Marriage* in each pair of models (i.e. Model 1a vs. Model 1b and Model 2a vs. Model 2b) are rejected ($p<0.01$), suggesting that wives' chaebols indeed defer to the husbands' chaebols by limiting their entries and exits. In the second panel of the table we pool analyses based on the entries and exits of the husbands' chaebols separately from those of the wife's chaebol. This combines parameter estimates and associated covariance matrices that involve regressions related to husbands' chaebols market behavior in Model 1a and Model 1b and wives' chaebols market behavior in Model 2a and Model 2b. These models could in theory have

different estimates of the robust standard errors because the combined models have different clusters, but we find that our results remain unchanged.

--- Insert Table 5 about Here---

Performance Consequences of Entries and Exits

Our deference arguments were based on the assumption that husbands' chaebols actually benefit -- or at least that believe that they benefit -- from market entries or exits. To test this assumption, we collected data on the personal wealth of chaebols' owner CEOs. This data is published annually by the Korean government in the form of a ranking with a lower number (i.e., 1) illustrating a higher wealth rank of a given person as compared to a higher number (i.e., 30) indicating an inferior wealth rank. The wealth of the owner-CEOs is highly linked to the overall financial performance of the chaebol, hence it represents a good proxy for the chaebol's performance. For this analysis, we use only the chaebol that had marriage events, and we change the organization of the data from the dyad-market-year structure to chaebol-year structure in the same time period that we performed our main analyses. In addition to the variables which we used in the main analysis (e.g. chaebols's *Asset Size*, *Specialization*, *Debt Load*, *Profitability*), we also constructed a dummy – *Husband's Chaebol* – to identify whether the focal observation belonged to a chaebol which married its son (=1) or daughter (=0). We also counted the number of entries to and exits from the markets which the focal chaebol has done in a given year after the marriage. As chaebols could enter and exit both the markets of the marriage partners and the other markets, we constructed four variables: *Market Entries (Partner)* and *Market Exits (Partner)*, which captured the entries to and exits from the marriage partners' markets as well as *Market Entries (Other)* and *Market Exits (Other)* that captured entries and exits of markets which did not involve marriage partners. We took logarithms of these variables.

Because the number of alliances in the markets that chaebols have entered differed from the number of alliances in the markets from which chaebols have exited, we computed two variables for this analysis: *Alliances in Entered Markets* and *Alliances in Exited Markets* as the counts of the number of inter-chaebol alliances in the markets that individual chaebols have entered and exited respectively. We also counted separately the school ties that chaebols owner-CEOs had in the markets that their chaebols entered and exited, giving us the variables *School Ties in Entered Markets* and *School Ties in Exited Markets*. We also counted the competitors that the focal firm has encountered in the markets that it entered and in the markets from which it exited separately. This yielded the variables *Competition in Entered Markets* and *Competition in Exited Markets*. There was very high correlation between competition in entered/exited markets and multimarket contact that the chaebols experienced with each other in these markets, so we did not include MMC-based variables in this analysis. Finally, we averaged entry and exit ratios across all markets that the focal chaebol has entered or exited in a given year to account for the munificence of these markets.

Table 6 shows the results of our performance analysis. These are OLS models with clustering on the chaebol and fixed effects for the focal chaebol and marriage year. We only kept observations related to market entries and exits following year of marriage. Negative interaction between *Husband's Chaebol* and *Market Entries(Partner)* would show that the husbands' chaebols improve their wealth ranking, relative to the wives' chaebols (i.e., they get superior wealth ranks of 1, 2 or 3 vs. inferior ranks of 15 or 30, for example), by entering markets. Negative interaction between *Husband's Chaebol* and *Market Exits(Partner)* would show that the husbands' chaebols improve their wealth ranking, relative to the wives' chaebols, by exiting from markets.

----- Insert Table 6 about Here -----

Model 1 in Table 6 is a baseline. We enter an interaction between *Husband's Chaebol* and *Market Entries* in Model 2 and then an interaction between *Husband's Chaebol* and *Market Exits* in Model 3. The interaction *Husband's Chaebol* and *Market Entries(Partner)* is negative and significant, but the other interaction is not, indicating that husbands' chaebols improve their owner CEOs' wealth ranking through market entries, but not through market exits. Furthermore, the main effect of *Husband's Chaebol* is positive and significant, indicating that CEOs with sons tend to begin as less wealthy than their compatriots with daughters (again, higher values in our DV imply inferior wealth rank), but the "dowry" in the form of improved market access increases the wealth rank of the CEOs of the husbands' chaebols at the expense of the CEOs of the wives' chaebols. Hence, the deference behaviors of chaebols' owner families have clear business consequences for their enterprises through their increased propensity to enter markets. Because the dependent variable is a rank, we also wanted to check the extent to which our results would change if we used non-linear models such as ordered probit. Hence, we estimated an ordered probit in Model 4 and found the same interaction results as those in Model 3.

DISCUSSION AND CONCLUSIONS

This study was motivated by the neglect of research on the role of status in multiplex relationships, especially on how deference between partners - based on their status differences - can spill over across different domains of a multiplex tie. Such spillovers are most likely in the multiplex ties that involve both a personal and a business domain, especially in contexts where one party occupies a position within a personal relationship that forces this person to show deference to another. In a study of market entry and exit behaviors of Korean chaebols, following the formation of a marriage tie, we found that cultural values giving status differences and obligations from the wife family to the husband family lead to personal deference, which in turn

influences business behaviors of their related chaebols. Specifically, the chaebol owned by the husband's family is much more likely to enter and exit common markets, as compared to the chaebol owned by the wife's family. These results underscore the important role of cultural understanding and norms, of which gender inequality is just one example, as a source of deference spillovers within multiplex relationships.

Our main contributions are to the literatures on multiplexity and competitive positioning. Although this study is set in the specific context of Confucian culture, its implications go well beyond Korea and other Confucian cultures, and can help us understand multiplexity more generally. In a recent essay, Shipilov (2012) developed the beginnings of a relational multiplexity perspective. It is based on three related premises: "a) organizations are simultaneously embedded in different kinds of relationships, b) these relationships are interdependent and c) this interdependence influences organizations" (p. 215). Although highly generalizable, this perspective lacks specificity on how exactly the interdependence of relationships can influence organizations. Our study begins to flesh out a relational multiplexity perspective by zeroing in on personal inter-actor deference as a mechanism that influences organizations within a multiplex dyad. We suggest that clear patterns of deference in one domain of a multiplex relationship can affect behavior of actors in another domain of this relationship. To make our point very clear, we do not claim that business groups–the corporate entities–show deference to each other. What we are showing instead is that their owner-CEOs' familial deference in the personal domain spills over to the business domain by affecting these groups' collaboration in market entry and exit, which then favors one group over another.

We have shown only one type of interdependence within a multiplex tie that involves direct spillovers of dependence in one domain to another. However, there could be other types of interdependence. For instance, one type of interdependence is mediation, where ties in the social

domain may be a bottleneck restricting the functions in the business domain. Another type of interdependence could be amplification or attenuation, where ties in the social domain may positively or negatively moderate the effects of economic drivers in the business domain.

An important insight from our study is that our findings point to the dark side of multiplexity. Conventional wisdom suggests that when companies are connected through multiplex relationships of their key decision-makers, these relationships become durable, strong and stable (Uzzi, 1996) as well as enable actors to deepen their understanding of each other and build trustworthy relationships (Beckman & Haunschild, 2002). Scholars suggest that multiplex ties confer competitive advantages to firms, such as greater ease of knowledge transfer, prevention of client loss (Rogan, 2014), sharing of customers (Ingram & Roberts, 2000), and even increasing the probability of the firms' survival (Ingram & Lifschitz, 2006). While we don't deny these benefits of multiplex ties, our findings suggest that they could also be "Trojan horses" through which a partner could control operations of another within one domain of a multiplex tie by exploiting a deference relationship in another domain of this tie. This point generalizes well beyond Korean business context and marriage ties: a dominant board member (e.g. the person with elite credentials, connections or skills) acting in the interests of one firm inside the board interlock with another firm can elicit deference of other board members from the partner's organization, which in turn can influence the distribution of value that these two firms obtain from their strategic alliance, for example. Failing to account for the multiplex ties between firms and the possibility of deference relationships in these multiplex ties can lead to overlooked factors that affect the behavior and performance of firms connected through these ties.

This study also helps understand the determinants of market entry and exit behaviors of companies through a sociological lens. More conventional, organizational economics based explanations, suggest that companies reconfigure their market positions in search of the inter-

temporal economies of scope (Helfat & Eisenhardt, 2004). This explanation, however, assumes that there is no social tie between competitors through which they could explicitly coordinate their market entry or exit behaviors (Yu & Cannella, 2013). Our findings imply that – beyond the Korean context – competitors frequently have social ties between each other and these ties can affect their market entry or exit behaviors by offering a direct communication channel and a vehicle for implicit or explicit collusion. Thus, existing models of the origins and consequences of market entry and exit should be re-examined by looking at the existence of collaborative relationships between competitors, such as their joint ventures, or even personal ties between the members of their top management team. Importantly, to affect market entry or exit patterns, the social tie connecting competitors doesn't have to be multiplex: all that is required is that the companies trust one another sufficiently to exchange information about markets.

In our context, the deference interactions within the personal domain of a multiplex tie were clearly directional and capable of influencing behavior within this tie's business domain. Yet, in the other contexts, different domains of a multiplex tie might involve actor roles that generate deference interactions that go in the opposite directions. Specifically, in one domain of a multiplex tie, actor A might occupy an institutionally defined role that gives it privileges over B; yet in another domain B might have a role (or simply have higher bargaining power) than gives it privileges over A. In our study, we controlled for the economic differences of the chaebols – which might generate non-cultural, economic deference relationships in a business tie – through the event study design coupled with matching and instrumental variable estimation. However, future research could more directly examine the conditions under which deference pattern in one domain of a multiplex tie could dominate another.

In conclusion, researchers recognize that many inter-organizational ties are multiplex in nature, but have frequently chosen not to examine the interdependences within multiplex

relationships. We agree that this approach was necessary when inter-organizational research was a young field of study. Now we believe that research has progressed to the point in which ignoring multiplexity, and the interdependences within the different domains of multiplex ties, impedes further progress. Overlap of personal and business ties is omnipresent and infuses networks with multiple sources of status, including some that stem from culture. By showing how a highly personal relation such as marriage, combined with cultural norms, influences corporate market entry and exit we have demonstrated that multiplex ties can have unique properties. This is just a starting point, however, and we expect future research to uncover many other sources of multiplexity effects on inter-organizational networks as well as interpersonal behaviors in organizations.

REFERENCES

Aggarwal, V. A. & Hsu, D. H. 2014. Entrepreneurial exits and innovation. ***Management Science***, 60(4): 867-887.

Baum, J. A., Shipilov, A. V., & Rowley, T. J. 2003. Where do small worlds come from? ***Industrial and Corporate change***, 12(4): 697-725.

Beckman, C. M. & Haunschild, P. R. 2002. Network learning: The effects of partners' heterogeneity of experience on corporate acquisitions. ***Administrative Science Quarterly***, 47(1): 92-124.

Bertrand, M., Duflo, E., & Mullainathan, S. 2002. How much should we trust differences-in-differences estimates?: National Bureau of Economic Research.

Blau, P. M. 1964. ***Exchange and power in social life***. Brunswick, NJ: Transaction.

Castellucci, F. & Ertug, G. 2010. What's in it for them? Advantages of higher-status partners in exchange relationships. ***Academy of Management Journal***, 53(1): 149-166.

Chang, S. J. & Hong, J. 2000. Economic performance of group-affiliated companies in Korea: Intragroup resource sharing and internal business transactions. ***Academy of Management Journal***, 43(3): 429-448.

Chen, G., Chittoor, R., & Vissa, B. 2015. Modernizing without Westernizing: Social structure and economic action in the Indian financial sector. ***Academy of Management Journal***, 58(2): 511-537.

Cohen, L., Frazzini, A., & Malloy, C. 2010. Sell-Side School Ties. ***Journal of Finance***, 65(4): 1409-1437.

Day, G. S. & Montgomery, D. B. 1983. Diagnosing the Experience Curve. ***Journal of Marketing***, 47(2): 44-58.

Dyer, J. H. & Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. ***Academy of Management Review***, 23(4): 660-679.

Fudenberg, D. & Tirole, J. 1986. A" signal-jamming" theory of predation. ***The RAND Journal of Economics***: 366-376.

Gould, R. V. 2002. The Origins of Status Hierarchies: A Formal Theory and Empirical Test1. ***American Journal of Sociology***107(5): 1143-1178.

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

Granovetter, M. S. 1995. ***Getting a Job: A Study of Contacts and Careers***. Chicago: University of Chicago Press.

Greenhalgh, S. 1985. Sexual stratification: The other side of" growth with equity" in east Asia. ***Population and Development Review***: 265-314.

Greve, H. R. 2006. The intent and extent of multimarket contact. ***Strategic Organization***, 4(3): 249-274.

Hamilton, G. G. 1985. Why no capitalism in China? Negative questions in historical, comparative research. ***Journal of Developing Societies***, 1(2): 187.

Helfat, C. E. & Eisenhardt, K. M. 2004. Inter-temporal economies of scope, organizational modularity, and the dynamics of diversification. ***Strategic Management Journal***, 25(13): 1217-1232.

Homans, G. C. 1961. Social behavior: Its elementary forms.

Iacus, S. M., King, G., & Porro, G. 2011. Causal inference without balance checking: Coarsened exact matching. ***Political Analysis***: mpr013.

Ingram, P. & Roberts, P. W. 2000. Friendships among Competitors in the Sydney Hotel Industry1. ***American Journal of Sociology***, 106(2): 387-423.

Ingram, P. & Lifschitz, A. 2006. Kinship in the Shadow of the Corporation: The Interbuilder Network in Clyde River Shipbuilding, 1711–1990. ***American Sociological Review***, 71(2): 334-352.

Ingram, P. & Zou, X. 2008. Business friendships. ***Research in Organizational Behavior***, 28: 167-184.

Jensen, M. 2003. The role of network resources in market entry: commercial banks' entry into investment banking, 1991–1997. ***Administrative Science Quarterly***, 48(3): 466-497.

Kerbo, H. R. & McKinstry, J. A. 1995. ***Who rules Japan?: the inner circles of economic and political power***: Praeger Publishers.

Khanna, T. & Palepu, K. 1997. Why focused strategies may be wrong for emerging markets. ***Harvard Business Review***, 75(4): 41-51.
Khanna, T. & Rivkin, J. W. 2001. Estimating the performance effect of business groups in emerging markets. ***Strategic Management Journal***, 22(1): 45-74.
Kim, H. & Lee, J. 2003. The Study on Premarital Preparation of Single Men and Women[translated in English]. ***The Korean Home Economics Association***, .
Korean Information Service. www.kisline.com.
Korn, H. J. & Baum, J. A. 1999. Chance, imitative, and strategic antecedents to multimarket contact. ***Academy of Management Journal***, 42(2): 171-193.
Korn, H. J. & Rock, T. T. 2001. Beyond multimarket contact to mutual forbearance: Pursuit of multimarket strategy. ***Advances in Srategic Management***, 18: 53-74.
Kreps, D. M. & Wilson, R. 1982. Reputation and imperfect information. ***Journal of Economic Theory***, 27: 253-279.
Kuran, T. 2004. ***Islam and Mammon: The economic predicaments of Islamism***: Princeton University Press.
Kuwabara, K., Luo, J., & Sheldon, O. 2010. Multiplex exchange relations. ***Advances in Group Processes***, 27: 239-268.
Lee, Y.-J., Parish, W. L., & Willis, R. J. 1994. Sons, daughters, and intergenerational support in Taiwan. ***American Journal of Sociology***: 1010-1041.
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(3): 404-439.
MaeIlKyungJe. 1996. Maekyung: KiupKyungJangRuyk JungBuKyuJe(Firm's Competitiveness and Government Regulation), ***Seoul: Maeil Kyungje Shinmun***.
Manikandan, K. S. & Ramachandran, J. 2015. Beyond institutional voids: Business groups, incomplete markets, and organizational form. ***Strategic Management Journal***, 36(4): 598-617.
Omohundro, J. 1982. Ethnic Groups and Social Change in a Chinese Market Town. By C. Fred Blake. Honolulu: University of Hawaii (Asian Studies at Hawaii No. 27), 1981. xviii, 180 pp. Plates, Maps, Figures, Table, Weights, Measures and Monetary Exchange Rates, Glossary of Chinese Words, References Cited, Index. $10.50. ***The Journal of Asian Studies***, 42(01): 122-123.
Padgett, J. F. & Ansell, C. K. 1993. Robust Action and the Rise of the Medici, 1400-1434. ***American Journal of Sociology***: 1259-1319.
Podolny, J. M. 1993. A status-based model of market competition. ***American Journal of Sociology***, 98(4): 829-872.
Podolny, J. M., Stuart, T. E., & Hannan, M. T. 1996. Networks, knowledge, and niches: Competition in the worldwide semiconductor industry, 1984-1991. ***American Journal of Sociology***: 659-689.
Podolny, J. M. & Baron, J. N. 1997. Resources and relationships: Social networks and mobility in the workplace. ***American Sociological Review***, 62(October): 673-693.
Podolny, J. M. & Scott Morton, F. M. 1999. Social status, entry and predation: The case of British shipping cartels 1879-1929. ***Journal of Industrial Economics***, XLVII(1 March): 41-67.
Redding, S. G. 1990. ***The spirit of Chinese capitalism***: Walter de Gruyter.
Rider, C. I. 2012. How Employees' Prior Affiliations Constrain Organizational Network Change A Study of US Venture Capital and Private Equity. ***Administrative Science Quarterly***, 57(3): 453-483.
Ridgeway, C. L. & Berger, J. 1986. Expectations, legitimation, and dominance behavior in task groups. ***American Sociological Review***: 603-617.
Rogan, M. 2014. Executive departures without client losses: The role of multiplex ties in exchange partner retention. ***Academy of Management Journal***, 57(2): 563-584.
Rumelt, R. P. 1974. Strategy, structure, and economic performance.
Sauder, M., Lynn, F., & Podolny, J. M. 2012. Status: Insights from Organizational Sociology. ***Annual Review of Sociology***, 38: 267-283.
Schein, E. H. 1990. ***Organizational culture***: American Psychological Association.

Seoul News Corporation. 2005. ***Chaebolga Mak***. Seoul: MooHan.
Shipilov, A. 2012. Strategic multiplexity. ***Strategic Organization***, 10(3): 215-222.
Shipilov, A. & Li, S. 2014. Toward a Strategic Multiplexity Perspective on Interfirm Networks, ***Contemporary Perspectives on Organizational Social Networks***: 95-109: Emerald Group Publishing Limited.
Shipilov, A. V., Li, S. X., & Greve, H. R. 2011. The prince and the pauper: Search and brokerage in the initiation of status-heterophilous ties. ***Organization Science***, 22(6): 1418-1434.
Shipilov, A. V. & Li, S. X. 2012. The missing link: The effect of customers on the formation of relationships among producers in the multiplex triads. ***Organization Science***, 23(2): 472-491.
Siegel, J. 2007. Contingent political capital and international alliances: Evidence from South Korea. ***Administrative Science Quarterly***, 52(4): 621-666.
Sørensen, A. B. 1996. The structural basis of social inequality. ***American Journal of Sociology***: 1333-1365.
Uzzi, B. 1996. The sources and consequences of embeddedness for the economic performance of organizations: The network effect. ***American Sociological Review***: 674-698.
Uzzi, B. & Gillespie, J. J. 1999. Corporate social capital and the cost of financial capital: An embeddedness approach, ***Corporate Social Capital and Liability***: 446-459: Springer.
Verbrugge, L. M. 1979. Multiplexity in adult friendships. ***Social Forces***, 57(4): 1286-1309.
Wasserman, N. 2012. The founder's dilemmas: New Jersey: Princeton University Press.
Wasserman, S. & Faust, K. 1994. ***Social network analysis: Methods and applications***: Cambridge university press.
Weber, M. 1904. The Protestant Ethic and the Spirit of Capitalism. Translated by Talcott Parsons. London: Unwin Paperbacks.
Younge, K. A., Tong, T. W., & Fleming, L. 2015. How anticipated employee mobility affects acquisition likelihood: Evidence from a natural experiment. ***Strategic Management Journal***, 36(5): 686-708.
Yu, T. & Cannella, A. A. 2013. A Comprehensive Review of Multimarket Competition Research. ***Journal of Management***, 39(1): 76-109.
Zaheer, A., Gulati, R., & Nohria, N. 2000. Strategic networks. ***Strategic Management Journal***, 21(3): 203.
Zelditch Jr, M. & Walker, H. A. 1984. Legitimacy and the stability of authority. ***Advances in Group Processes***, 1: 1-25.

Table 1: Results of Coarsened Exact Matching Based on Economic Drivers of Market Entry and Exit

	Dataset 1		**Dataset 2**		**Dataset 3**		**Dataset 4**	
	Husbands' Chaebols Entries		**Husbands' Chaebols Exits**		**Wives' Chaebols Entries**		**Wives' Chaebols Exits**	
	Before matching	After matching	Before matching	After matching	Before matching	After matching	Before matching	After matching
Dyadic $MMC_{(ijt)}$	1.25/1.53 *** (0.80)/(0.71)	1.67/1.67 (0.73)/(0.74)	1.57/1.73*** (0.88)/(0.59)	1.76/1.76 (0.68)/(0.68)	0.95/0.89*** (0.56)/(0.55)	0.88/0.89 (0.55)/(0.55)	1.65/1.64 (0.85)/(0.72)	1.58/1.59 (0.69)/(0.69)
$Competition_{(ijmt)}$	1.69/1.68 (0.69)/(0.67)	1.59/1.58 (0.67)/(0.67)	2.29/2.23* (0.52)/(0.53)	2.26/2.26 (0.54)/(0.54)	1.58/1.64*** (0.66)/(0.65)	1.64/1.64 (0.65)/(0.65)	2.26/2.25 (0.51)/(0.53)	2.27/2.28 (0.53)/(0.51)
Specialization $Difference_{(ijt)}$	0.67/0.98*** (0.49)/(0.59)	0.96/0.97 (0.47)/(0.47)	0.79/1.12*** (0.55)/(0.53)	1.16/1.17 (0.55)/(0.54)	0.54/0.50*** (0.36)/(0.34)	0.50/0.50 (0.34)/(0.34)	0.81/1.02*** (0.58)/(0.44)	1.09/1.09 (0.52)/(0.51)
Asset Size $Difference_{(ijt)}$	2.87/3.82*** (5.15)/(6.02)	3.27/3.30 (5.31)/(5.30)	2.43/3.06*** (3.83)/(3.58)	3.28/3.32 (4.37)/(4.37)	2.74/2.64** (1.60)/(1.55)	2.63/2.64 (1.57)/(1.55)	2.17/2.56* (2.99)/(1.48)	1.94/1.88 (1.19)/(1.12)
Debt Load $Difference_{(ijt)}$	1.36/1.52*** (1.82)/(2.11)	1.58/1.57 (2.11)/(2.11)	1.08/1.46*** (1.53)/(2.07)	1.41/1.40 (1.99)/(2.00)	1.65/1.49*** (1.86)/(1.73)	1.47/1.49 (1.73)/(1.73)	0.93/1.27*** (1.21)/(1.93)	0.45/0.45 (0.32)/(0.31)
Profitability $Difference_{(ijt)}$.	2.22/2.68*** (1.67)/(1.55)	2.69/2.70 (1.58)/(1.60)	2.37/2.75*** (1.71)/(1.50)	2.98/2.99 (1.63)/(1.65)	2.94/2.83* (2.20)/(2.08)	2.83/2.83 (2.08)/(2.08)	2.41/2.78*** (1.71)/(1.46)	2.29/2.27 (1.26)/(1.29)
Exit Ratio $_{(mt)}$	0.11/0.13*** (0.12)/(0.14)	0.07/0.07 (0.09)/(0.09)	0.09/0.11*** (0.11)/(0.14)	0.04/0.04 (0.08)/(0.08)	0.09/0.08*** (0.12)/(0.11)	0.08/0.08 (0.11)/(0.11)	0.12/0.10** (0.13)/(0.13)	0.12/0.14+ (0.14)/(0.14)
Entry Ratio $_{(mt)}$	0.05/0.06*** (0.06)/(0.06)	0.04/0.04 (0.05)/(0.05)	0.05/0.06*** (0.06)/(0.06)	0.04/0.04 (0.05)/(0.05)	0.04/0.03*** (0.06)/(0.06)	0.03/0.03 (0.06)/(0.06)	0.06/0.06 (0.05)/(0.05)	0.06/0.07 (0.05)/(0.05)
Number of Observations	74995/ 2961	1144/1008	11992/386	337/195	56183/2032	48574/2030	9061/321	330/181
Total number of Observations	77956	2152	12378	532	58215	50604	9382	511

Note 1: The first number in each cell refers to the variable mean in control sample (i.e. firm-market-year observations that involved chaebols that did not form a marriage tie); the second number refers to the variable mean in the treatment sample (i.e. firm-market-year observations that involved chaebols which formed a marriage tie). Numbers in parentheses below these numbers represent standard deviations for control and treatment sample respectively.

Note 2: Significance levels (*** p<0.001, ** p<0.01, * p<0.05,+ p<0.1) are for the corresponding differences in means

Table 2: Descriptive Statistics

			Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
Panel 2a.	1	Market Entry	0.06	0.23	1												
Husbands' Chaebols	2	Dyadic $MMC_{(ijt)}$	1.26	0.80	0.13	1											
Entries	3	$Competition_{(ijmt)}$	1.69	0.69	0.16	0.08	1										
	4	$Married_{(ij)}$	0.04	0.19	-0.01	0.07	0.00	1									
	5	Profitability $Difference_{(ijt)}$.	2.22	1.66	0.02	0.01	-0.03	0.05	1								
	6	Debt Load $Difference_{(ijt)}$	1.33	1.79	-0.04	-0.14	0.01	0.01	-0.04	1							
	7	Asset Size $Difference_{(ijt)}$	2.69	4.64	-0.01	-0.08	-0.01	0.03	0.27	0.30	1						
	8	$Same\ School_{(ijt)}$	0.11	0.31	0.01	-0.06	0.00	0.00	-0.03	0.11	0.05	1					
	9	Alliance $Count_{(ijt)}$	0.02	0.15	0.01	0.16	0.00	0.01	-0.09	-0.04	-0.06	-0.02	1				
	10	Specialization $Difference_{(ijt)}$	0.67	0.50	-0.04	-0.26	-0.03	0.12	0.32	0.08	0.25	-0.02	-0.02	1			
	11	Exit $Ratio_{(mt)}$	0.11	0.12	-0.04	-0.08	-0.01	0.04	-0.14	0.09	-0.15	0.00	-0.08	0.06	1		
	12	Entry $Ratio_{(mt)}$	0.05	0.06	-0.01	0.02	0.03	0.04	-0.15	0.13	-0.12	0.01	-0.01	-0.06	0.48	1	
	13	Political Power $Difference_{(ijt)}$	0.24	0.59	0.02	0.09	0.03	0.00	0.09	-0.03	0.01	-0.04	0.15	-0.07	-0.25	0.04	1
	14	After $Marriage_{(ij)}$	0.43	0.50	0.10	0.09	0.01	0.02	0.03	0.03	0.12	-0.01	0.00	0.04	0.00	0.03	-0.06
Panel 2b	1	Market Exit	0.07	0.26	1												
Husbands' Chaebols	2	Dyadic $MMC_{(ijt)}$	1.58	0.87	-0.17	1											
Exits	3	$Competition_{(ijmt)}$	2.29	0.52	-0.10	-0.11	1										
	4	$Married_{(ij)}$	0.03	0.17	0.02	0.03	-0.02	1									
	5	Profitability $Difference_{(ijt)}$.	2.38	1.70	0.00	-0.15	-0.04	0.04	1								
	6	Debt Load $Difference_{(ijt)}$	1.09	1.54	0.01	-0.11	0.04	0.04	-0.02	1							
	7	Asset Size $Difference_{(ijt)}$	2.41	3.67	-0.01	-0.19	0.00	0.03	0.39	0.21	1						
	8	$Same\ School_{(ijt)}$	0.10	0.30	-0.02	-0.02	0.00	0.05	-0.01	0.10	0.03	1					
	9	Alliance $Count_{(ijt)}$	0.04	0.20	0.07	0.15	-0.05	0.01	-0.14	-0.05	-0.09	-0.01	1				
	10	Specialization $Difference_{(ijt)}$	0.80	0.55	0.12	-0.19	-0.07	0.10	0.51	0.02	0.32	0.02	-0.02	1			
	11	Exit $Ratio_{(mt)}$	0.09	0.11	-0.04	0.00	-0.02	0.04	-0.15	0.12	-0.12	0.03	-0.08	-0.07	1		
	12	Entry $Ratio_{(mt)}$	0.05	0.06	0.11	-0.03	-0.02	0.05	-0.18	0.25	-0.09	0.04	0.01	-0.10	0.44	1	
	13	Political Power $Difference_{(ijt)}$	0.29	0.64	0.08	-0.01	0.06	0.00	0.07	0.01	0.05	-0.07	0.15	-0.03	-0.24	0.04	1
	14	After $Marriage_{(ij)}$	0.43	0.50	0.04	0.08	0.00	0.00	0.02	0.07	0.04	0.01	0.01	0.06	-0.10	0.07	-0.05

			Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
Panel 2c	1	Market Entry	0.01	0.10	1												
Wives' Chaebols	2	Dyadic $MMC_{(ijt)}$	0.90	0.55	0.07	1											
Entries	3	$Competition_{(ijmt)}$	1.59	0.66	0.08	0.01	1										
	4	$Married_{(ij)}$	0.04	0.19	0.00	-0.02	0.01	1									
	5	$Profitability\ Difference_{(ijt)}$.	2.39	1.48	0.02	0.30	0.01	0.00	1								
	6	$Debt\ Load\ Difference_{(ijt)}$	0.75	0.48	-0.02	-0.06	0.00	0.01	-0.09	1							
	7	$Asset\ Size\ Difference_{(ijt)}$	2.45	1.41	0.02	0.33	0.01	0.00	0.90	-0.01	1						
	8	$Same\ School_{(ijt)}$	0.00	0.05	0.00	0.06	-0.01	-0.01	0.01	0.01	-0.03	1					
	9	Alliance Count $_{(ijt)}$	0.00	0.04	0.03	0.17	-0.01	-0.01	-0.03	-0.03	-0.05	0.00	1				
	10	$Specialization\ Difference_{(ijt)}$	0.54	0.35	-0.04	-0.38	0.00	-0.02	0.19	-0.16	0.14	0.01	-0.02	1			
	11	Exit Ratio $_{(mt)}$	0.06	0.07	-0.03	-0.31	-0.02	-0.02	-0.12	0.32	-0.13	0.00	0.01	0.10	1		
	12	Entry Ratio $_{(mt)}$	0.01	0.03	0.02	0.25	0.05	0.00	0.13	0.15	0.18	0.03	0.05	-0.01	-0.26	1	
	13	$Political\ Power\ Difference_{(iit)}$	0.31	0.55	0.07	0.25	0.02	0.00	0.29	0.24	0.32	-0.03	-0.02	-0.05	-0.17	0.32	1
	14	After Marriage $_{(ij)}$	0.34	0.47	-0.04	0.15	0.00	-0.00	0.03	-0.43	0.03	-0.03	-0.03	-0.21	-0.24	-0.05	-0.16
Panel 2d	1	Market Exit	0.08	0.27	1												
Wives' Chaebols	2	Dyadic $MMC_{(ijt)}$	1.65	0.85	-0.17	1											
Exits	3	$Competition_{(ijmt)}$	2.26	0.51	-0.04	-0.12	1										
	4	$Married_{(ij)}$	0.03	0.18	-0.01	0.00	0.00	1									
	5	$Profitability\ Difference_{(ijt)}$.	2.42	1.70	0.00	-0.07	-0.02	0.04	1								
	6	$Debt\ Load\ Difference_{(ijt)}$	0.90	1.16	0.01	-0.07	0.05	0.06	0.09	1							
	7	$Asset\ Size\ Difference_{(ijt)}$	2.16	2.87	0.01	-0.15	-0.01	0.03	0.41	0.21	1						
	8	$Same\ School_{(ijt)}$	0.11	0.32	-0.03	-0.02	-0.02	0.06	0.09	-0.04	-0.02	1					
	9	Alliance Count $_{(ijt)}$	0.05	0.23	0.08	0.11	-0.08	0.01	-0.18	-0.05	-0.12	-0.04	1				
	10	$Specialization\ Difference_{(ijt)}$	0.82	0.58	0.12	-0.25	-0.03	0.07	0.41	0.09	0.27	0.04	0.05	1			
	11	Exit Ratio $_{(mt)}$	0.13	0.13	-0.09	0.21	0.04	-0.03	0.01	0.09	-0.08	0.01	-0.02	-0.12	1		
	12	Entry Ratio $_{(mt)}$	0.06	0.05	0.12	0.12	-0.02	0.01	0.03	0.06	-0.02	-0.03	0.15	0.01	0.45	1	
	13	$Political\ Power\ Difference_{(iit)}$	0.23	0.51	0.07	0.03	0.02	0.02	-0.04	-0.04	-0.02	-0.02	0.15	-0.02	-0.18	0.29	1
	14	After Marriage $_{(ij)}$	0.42	0.49	-0.09	-0.10	-0.05	-0.01	0.08	0.03	0.01	0.03	-0.05	0.07	0.00	-0.07	-0.24

This correlation table is produced with data prior to matching

Table 3: The Effects of Marriages on Market Entries and Exits

	Model 1. Husbands' Chaebols Entries	Model 2. Husbands' Chaebols Entries	Model 3. Husbands' Chaebols Exits	Model 4. Husbands' Chaebols Exits	Model 5. Wives' Chaebols Entries	Model 6. Wives' Chaebols Entries	Model 7. Wives' Chaebols Exits	Model 8. Wives' Chaebols Exits
Dyadic $MMC_{(ijt)}$	0.413+	0.316	-1.078*	-1.074*	-0.325	-0.010	-0.181	-0.262
	(0.250)	(0.252)	(0.478)	(0.455)	(0.314)	(0.257)	(0.172)	(0.188)
$Competition_{(ijmt)}$	0.528**	0.530**	-0.604+	-0.575+	0.526**	0.536**	-0.415	-0.460
	(0.137)	(0.138)	(0.325)	(0.326)	(0.087)	(0.089)	(0.287)	(0.285)
$Married_{(ij)}$	-0.517*	-0.486*	-0.178	-0.144	-0.108	-0.111	-0.250	-0.281
	(0.215)	(0.214)	(0.226)	(0.249)	(0.096)	(0.096)	(0.237)	(0.229)
Profitability $Difference_{(ijt)}$	-0.138*	-0.126+	0.044	0.043	-0.134	-0.217*	0.136	0.181
	(0.069)	(0.072)	(0.133)	(0.131)	(0.093)	(0.091)	(0.148)	(0.159)
Debt Load $Difference_{(ijt)}$	0.022	0.052	0.055	0.075	-0.555*	-0.882**	-1.127+	-1.476*
	(0.055)	(0.052)	(0.065)	(0.062)	(0.227)	(0.290)	(0.653)	(0.704)
Asset Size $Difference_{(ijt)}$	-0.017	-0.020	0.057*	0.053*	0.234	0.329*	-0.130	-0.201
	(0.018)	(0.019)	(0.023)	(0.022)	(0.155)	(0.145)	(0.214)	(0.214)
$Same\ School_{(ijt)}$	0.404	0.426	--	--	--	--	-0.179	-0.067
	(0.306)	(0.305)					(0.345)	(0.331)
Alliance $Count_{(ijt)}$	1.048+	1.186*	8.755**	8.952**	--	--	0.540	0.322
	(0.562)	(0.582)	(1.257)	(1.053)			(0.482)	(0.491)
Specialization $Difference_{(ijt)}$	0.454	0.314	-1.573*	-1.610**	-1.827**	-2.388**	0.727	0.777
	(0.366)	(0.375)	(0.616)	(0.586)	(0.325)	(0.434)	(0.445)	(0.476)
Exit $Ratio_{(mt)}$	1.009	2.137+	1.543	1.729	-1.416	-2.155	-1.489	-1.467
	(1.204)	(1.220)	(3.104)	(2.948)	(1.298)	(1.560)	(1.340)	(1.429)
Entry $Ratio_{(mt)}$	-0.359	-2.068	10.159*	9.952*	-1.305	0.517	9.500**	9.999**
	(1.554)	(1.773)	(4.694)	(4.779)	(1.864)	(2.220)	(2.797)	(2.893)
Political Power $Difference_{(ijt)}$	-0.021	-0.012	0.119	0.148	0.833**	0.584**	0.262	0.053
	(0.090)	(0.090)	(0.168)	(0.164)	(0.191)	(0.155)	(0.237)	(0.275)

After Marriage		0.370**		0.419+		-0.717**		-0.633*
		(0.144)		(0.241)		(0.219)		(0.262)
Constant	-6.337**	-6.198**	-3.438+	-3.575*	-2.067**	-1.910**	-4.542**	-4.283**
	(0.620)	(0.612)	(1.787)	(1.648)	(0.517)	(0.500)	(0.807)	(0.826)
Stage 1 F-statistic	136.34***	121.25***	12.52***	6.01**	26.01***	25.96***	71.00***	72.8***
Durbin Wu-Hausman (p-value)	0.20	0.29	0.67	0.36	0.35	0.41	0.65	0.67
Durbin Wu-Hausman (test statistic)	1.65	1.11	0.18	0.84	0.86	0.67	0.20	0.18
Observations	1,961	1,961	462	462	40,555	40,555	443	443
Number of clusters (markets)	225	225	49	49	317	317	60	60

** p<0.01, * p<0.05, + p<0.10. Robust standard errors clustered on market reported in parentheses.

Table 4: Clustering on a Chaebol Dyad

	Husband's Chaebol Entries (Dataset 1)	Husband's Chaebol Exits (Dataset 2)	Wife's Chaebol Entries (Dataset 3)	Wife's Chaebol Exits (Dataset 4)
After Marriage	0.370*	0.419+	-0.717*	-0.633*
	(0.161)	(0.241)	(0.305)	(0.275)
Controls from Table 3	entered	entered	entered	entered
Number of clusters	27	26	18	42

** p<0.01, * p<0.05, + p<0.10. Robust standard errors clustered on chaebol dyad reported in parentheses.

Table 5: Chaebol's Entries and Exits Seemingly Unrelated Estimation

Chaebol Entries and Exits	Model 1a, Husbands' Chaebols Entries (Dataset 1)	Model 1b. Wives' Chaebols Entries (Dataset 3)	Model 2a. Husbands' Chaebols Exits (Dataset 2)	Model 2b. Wives' Chaebols Exits (Dataset 4)
After Marriage	0.293** (0.106)	-0.658** (0.165)	0.747* (0.365)	-0.588** (0.200)
Controls from Table 3	entered	entered	entered	entered

Husband and Wife Chaebol	Model 1a. Husband's Chaebol Entries (Dataset 1)	Model 1b. Husband's Chaebol Exits (Dataset 2)	Model 2a. Wives' Chaebol Entries (Dataset 3)	Model 2b. Wife's Chaebol Exits (Dataset 4)
After Marriage	0.293** (0.106)	0.747* (0.363)	-0.658** (0.166)	-0.588** (0.199)
Controls from Table 3	entered	entered	entered	entered

** p<0.01, * p<0.05, + p<0.10. Robust standard errors in parentheses. This table is a result of seemingly unrelated estimation pooling the analyses of the determinants of entries and exits done by the husbands' and the wives' chaebols. This technique combines estimation results -- parameter estimates and associated covariance matrices – from the regressions to account for possible non-independence of entry and exit decisions made by the husbands' and wives' chaebols. The tests for the equality of coefficients of *After Marriage* in each pair of models are rejected (p<0.01), suggesting that wives' chaebols defer to the husbands' chaebols by limiting their entries and exits. In these models we cluster on the ID of the market.

Table 6: Performance Consequences of Entries and Exits

	Model 1 (OLS)	Model 2 (OLS)	Model 3 (OLS)	Model 4 (Ordered Probit)
Husband's Chaebol		30.303+	28.970+	6.610**
		(17.009)	(16.004)	(2.245)
Market Entries (Partner)	4.625	16.054	15.582	1.779+
	(9.693)	(12.048)	(11.728)	(0.930)
Husband's Chaebol x Market Entries(Partner)		-27.623+	-26.581+	-4.890**
		(13.270)	(13.031)	(1.599)
Market Exits(Partner)	-16.785	-15.647	-20.792	1.250
	(20.449)	(17.888)	(29.308)	(1.482)
Husband's Chaebol x Market Exits(Partner)			8.478	-0.401
			(27.928)	(1.291)
Asset Size	-5.756	-6.170	-6.093	0.384
	(9.209)	(7.950)	(7.999)	(2.064)
Specialization	-21.052	-20.075	-19.015	-4.991**
	(16.094)	(14.414)	(14.102)	(1.932)
Debt Load	-5.077	-3.794	-3.185	0.157
	(5.449)	(5.582)	(5.954)	(0.433)
Profitability	-5.534	-5.017	-5.499	0.733
	(7.003)	(7.120)	(7.212)	(1.113)
Alliances in Entered Markets	-1.485	-0.693	-0.061	0.594
	(3.353)	(3.175)	(4.218)	(1.215)
Alliances in Exited Markets	2.818	1.488	1.680	-0.046
	(2.272)	(2.016)	(2.357)	(0.411)
School Ties in Entered Markets	-1.392	-1.818	-2.015	0.130
	(1.236)	(1.459)	(1.820)	(0.738)
School Ties in Existed Markets	1.521	-4.199	-3.513	-0.830*
	(4.038)	(5.862)	(6.572)	(0.389)
Competition in Entered Markets	137.095	131.996	135.674	40.735**
	(92.986)	(91.351)	(96.594)	(11.641)
Competition in Exited Markets	-3.055	7.144	6.752	1.799
	(10.427)	(16.023)	(16.698)	(1.199)
Entry Ratio	-104.833	-141.574	-141.511	-29.640*
	(126.235)	(119.764)	(120.882)	(13.761)
Exit Ratio	-149.009+	-207.238*	-198.361*	-51.262**
	(77.461)	(86.168)	(89.871)	(12.681)
Market Entries (Other)	9.240	8.597	8.669	0.871+
	(6.463)	(6.075)	(6.099)	(0.479)
Market Exits (Other)	11.747	9.010	9.184	1.173
	(8.527)	(9.090)	(9.357)	(0.845)
Constant	211.121	212.170	205.867	
	(374.614)	(332.171)	(337.771)	
Observations	153	153	153	153
R-squared	0.837	0.847	0.847	
Year dummies	Yes	Yes	Yes	Yes

** p<0.01, * p<0.05, + p<0.10. Robust standard errors in parentheses. In Model 4, there are multiple intercepts (cuts) for the ordered probit model as a function of the number of individual values in the dependent variable.

JungYun Han(jungyunhan@ntu.edu.tw) is an assistant professor of management at National Taiwan University. She received her Ph.D. from INSEAD. In her research, she examines how inter-personal ties across organizations affect organizational behaviors and performance, focusing on kinship ties.

Andrew V. Shipilov (andrew.shipilov@insead.edu) is an associate professor of strategy and Akzo Nobel Fellow of Strategic Management at INSEAD. He received his PhD from the Joseph L. Rotman School of Management, University of Toronto. His research examines how social networks, strategic alliances, and partnerships evolve and affect competitive advantage

Henrich R. Greve (henrich.greve@insead.edu) is a Professor of Entrepreneurship at INSEAD and the John H. Loudon Chaired Professor of International Management. He received his Ph.D. from Stanford University's Graduate School of Business. His current research is on organization-community relations, organizational performance and aspiration levels, and organizational adaptation to institutional environments.