# How do corporate governance model differences affect foreign direct investment in emerging economies?

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**Abstract**
This study examines the impact of national corporate governance models on inward foreign direct investment (FDI) in emerging economies. We consider three potential mechanisms, and conduct an empirical test of how family ownership and control in large group-affiliated firms in Taiwan affect joint venture investment from US and Japanese firms during the period 1988–1998. Results support the neo-institutional perspective of FDI developed in this study: the home-country corporate governance models are likely to shape foreign firms' choice of local partners.
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## INTRODUCTION

In the past two decades, rapid globalization has highlighted the existence of different national corporate governance systems to investors, policymakers, and researchers alike (Aguilera & Jackson, 2003; Shleifer & Vishny, 1997). In the developed world, one of the most prominent distinctions has been made between the shareholder model, which characterizes the US and UK, and the stakeholder model, which characterizes Japan and Germany (Ahmadjian & Robbins, 2005; Fiss & Zajac, 2004). The former features dispersed ownership, a separation between ownership and control, and external market-based financing and discipline, while the latter features concentrated ownership, insider control, and coordinated networks of firms and financial institutions. The rise of emerging economies (defined as countries with high potential for economic growth, political liberalization, and market transitions in the 1980s and 1990s; Sachs & Warner, 1995) has brought to the fore still another governance model, the family model, where family block-owners are also top executives, and family-headed member firms coordinate within business groups (Khanna & Rivkin, 2001; Luo & Chung, 2005).

However, whether and how foreign investment is affected by national corporate governance models has not been systematically examined. Studies of foreign investment generally consider factors such as financial returns (Caves, 1996) and proximities of firm-specific assets (Teece, 1986) as important for investment decisions,

and the quality and stability of national political-legal institutions have been found to be particularly relevant in emerging economies (Globerman & Shapiro, 2003; Henisz, 2000; Vaaler, Schrage, & Block, 2005). But, given that most emerging countries are characterized by severe information asymmetry and uncertainties (Ghemawat & Khanna, 1998), financial indicators of potential local partners tend to be incomplete or even misleading. While studies find that investors use corporate governance practices to gauge the quality of firms in uncertain domestic markets (Sanders & Boivie, 2004), whether the same is true in cross-national investment is left relatively unexplored.

In this study, we explore the impact of corporate governance practices on foreign investment in emerging economies by examining the selection of joint venture (JV) partners of foreign firms in these areas. Forming JVs with local firms is an attractive entry mode for foreign firms because of the opportunities to enlist strategic assets from local partners, to obtain local knowledge, and to gain an introduction into local social networks (Chen & Hennart, 2002; Kogut, 1991).[1] We consider three potential mechanisms through which corporate governance practices can affect how foreign firms choose local partners. The first is suggested by agency theory, which assumes that there exists a set of the most efficient governance parameters (typically patterned after the Anglo-American model; Coffee, 2002; Shleifer & Vishny, 1997). Foreign investors would use these parameters to select local partners to reduce monitoring costs. The second mechanism is that foreign firms are pressured to adapt to host-country practices because such institutional congruence can enhance performance in the local contexts. The comparative corporate governance research suggests that different national corporate governance systems might be equally efficient because of their compatibility with the local institutions (Hall & Soskice, 2001; Whitley, 1990). Studies in international business also suggest the importance of local adaptation (Davis, Desai, & Francis, 2000; Rosenzweig & Singh, 1991; Zaheer, 1995). Foreign investors therefore may choose partners featuring the local model.

What these two mechanisms have in common is that they both treat corporate governance systems as primarily functional tools for profit maximization and assurance of returns, though they differ with regard to what are the best tools. Based on the more phenomenological tradition of neo-institutionalism (Meyer & Rowan, 1977; Powell & DiMaggio, 1991), we develop a third mechanism, which treats corporate governance models not only as a set of tools, but also as normative belief structures and cognitive frameworks about legitimate practices. Given that corporate governance templates are highly institutionalized at the national level (Jepperson & Meyer, 1991), foreign firms are likely to be bounded in shared understandings about what constitutes appropriate corporate governance practices from their home countries – which are not necessarily the Anglo-US model – to the extent that they will apply such understandings to select local partners.

We test the predictions generated from these three mechanisms using a sample of large member firms of business groups in Taiwan (BGT) between 1988 and 1998. We compare how variations in their family ownership and control affect US and Japanese firms' JV investment in them. Ownership structure and executive power are among the most important elements in corporate governance (Shleifer & Vishny, 1997). We choose this empirical context for two reasons. First, business groups, defined as "sets of legally independent firms bound together in persistent formal and/or informal ways" (Granovetter, 1995: 95), play a dominant role in many emerging economies, including Taiwan, and group member firms represent the family model of corporate governance in emerging economies (La Porta, Lopez de Silanes, & Shleifer, 1999). We focus on large member firms because past research suggests that large organizations are more likely to be scrutinized for compliance with institutional expectations (Deephouse, 1996; Suchman, 1995). Second, since 1988, Taiwan has entered a period of large-scale market deregulation, and inward foreign investment has surged as an increasingly critical source of firm growth (Pack, 2001). Even family-dominated member firms desire to partner with foreign firms for the much-needed capital, technological expertise, and access to international markets (Hobday, 1995a).

Our study contributes to two areas of research. First, it deepens the research on foreign direct investment (FDI) in emerging economies by understanding how national corporate governance models affect foreign firms' choice of local JV partners. Our findings support the neo-institutional perspective of FDI developed in this study, and fill a critical gap in FDI literature by exploring how the "taken-for-granted" institutional forces shape FDI behavior (Ingram & Silverman, 2002). Second, this study

contributes to the corporate governance research by understanding how corporate governance practices matter (Davis, 2005). The current understanding has been guided primarily by the agency perspective. Our research adds the new insight that governance models also serve as institutional logics to shape corporate strategies.

## THE CONTEXT: BGT DURING MARKET-ORIENTED TRANSITION

Member firms of BGT are characterized to varying degrees by the family governance model. On the one hand, the founding family owns substantial shares in member firms either directly or through other member firms that are under their control (Claessens, Djankov, & Lang, 2000). On the other hand, the most powerful executive in member firms, the chair of the board (called *Tung Shih Chang*), is often a member from the founding family. The chair not only controls the board by appointing other board members but is also involved in goal setting, strategic planning, resource coordination, and external buffering. The chair plays a similar role as the CEO in US firms.[2] Family norms of patriarchal authority and mutual obligation constitute the foundation for inter-firm relationships within the group (Hamilton & Kao, 1990). Affiliates often pool resources for group-level strategies, and cross-subsidize one another in financial distress (Luo & Chung, 2005). Table 1 illustrates the family governance model by comparing it with the prevailing models in US and Japan.

The post-1987 era was characterized by economic liberalization and political democratization at the largest scale in Taiwan's modern history. Scholars estimate that, between 1988 and 1993,

the Taiwanese state introduced more deregulatory measures than in the previous two decades (Cheng & Chu, 2002: 46). With regard to foreign investment, since 1987 Taiwan has stopped pegging New Taiwanese dollars to US dollars and has removed regulations on the transfer of US dollars in or out of Taiwan. In 1988 the government altered the FDI regulations from case-by-case approval to approval required only for a few industries. As a result, inward FDI increased more than three times in the period 1988–1998 as compared with the period 1970–1987. The US and Japan were the two largest source countries of FDI in Taiwan, accounting for about half of the total FDI between 1988 and 1998 (26% from Japan and 23% from the US; Council for Economic Planning and Development, 2000). Establishment of JVs was the main entry mode of US and Japanese firms. These JVs often involved the transfer of technology, R&D, components, machinery, management skills, and financial capital from the US and Japan, and utilized the low-cost and high-quality labor in Taiwan (Hobday, 1995b).[3]

While the market transition provided foreign investors with unprecedented opportunities, the transition also featured the intensified uncertainties that characterize most emerging economies. The establishment of market infrastructures was slow, with still substantial information asymmetry in the late 1990s. For instance, the requirement for affiliated firms to file consolidated reports was not implemented until 2001. Further, no independent bodies existed to ratify the financial information submitted. The first independent credit rating agency in Taiwan, Taiwan Rating, was founded only in 1997. Even in 2004 only 72 financial institutions and 28 companies were rated and had online reports available (http://www.taiwanratings.com/en/). Also

**Table 1** Comparison of ownership and control in family governance model of Taiwan, shareholder model of US, and stakeholder model of Japan

|  | Taiwan | US | Japan |
|---|---|---|---|
| Ownership concentration | High | Low | Moderate |
| Dominant owners | Family and affiliated group firms | Institutional investors | Main banks and affiliated group firms |
| Board composition (majority) | Inside directors (family members and associates) | Outside and independent directors | Inside directors (employees and bank representatives) |
| CEO (board chair) background | Family members and close relatives | Professional managers | Long-term employees |
| Markets for corporate control | Not active | Active | Not active |
| Markets for top executives | Not active (personal network-based) | Active | Not active (internal promotion) |

underdeveloped was the market for corporate control.

The family governance model continued during the market transition, and was popular both among business firms and the public in general. Surveys of corporate reputation (similar to the Most Admired Companies surveys conducted by *Fortune*) in Taiwan have taken family control in corporate governance for granted, and hence never included it as a ranking criterion. Furthermore, the state and legal frameworks endorse, or at least do not question, this system (Lai, 1986).

## THEORY AND HYPOTHESES

### The Monitoring Costs Mechanism
Recent studies in financial economics suggest that a monitoring vacuum has occurred in emerging economies with the market transition (Khanna & Palepu, 2000a). On the one hand, the state no longer played the monitoring role because of the deregulatory policies. On the other hand, the underdeveloped market could not provide efficient monitoring.

Given the extreme difficulty of monitoring in emerging markets, foreign investors tend to invest in local firms that are relatively easier to monitor so as to reduce the prohibitively high monitoring costs. Such firms need to be more transparent and less controlled by insiders. Khanna and Palepu (2000b) find that foreign investors avoid Indian firms affiliated with business groups where there is a high incidence of intragroup financial transactions (such groups are typically family-dominated). They suggest that such local firms present high monitoring costs because of the lack of transparency. Based on agency theory, firms with concentrated family ownership are difficult to monitor. Because of their concerns about family wealth and identity, family blockowners may have different goals from minority shareholders, and can satisfy their private benefits at the cost of profit maximization of the firm and the interests of minority shareholders (Davis, Schoorman, & Donaldson, 1997; Shleifer & Vishny, 1997).

Moreover, firms with concentrated family ownership are even more difficult to monitor when family owners are also in executive positions, because of the lack of separation between ownership and control. Research in mature market economies suggests that CEOs who also serve as chairs of the board enjoy more discretion (for instance, they can appoint board members) and are therefore more difficult to monitor (Westphal & Zajac, 1994). In Taiwan, given the dominance of the chair over the board and the fact that the majority of the board often consist of family members, having a family chair can allow family blockowners to pursue their private interests in an even less constrained way. Conversely, an outside chair can mobilize non-family board members and contain the influence of family board members, thus providing counterbalance, albeit limited, to family control.

While research in financial economics addresses monitoring difficulties for financial investment and foreign institutional investors, monitoring remains a concern for FDI such as JVs. Research on JVs points out the potential risks (e.g., withdrawal of proprietary assets) and conflicts arising from the constant need for coordination and (re)negotiations (Hennart & Zeng, 2002). Local partners featuring family ownership and control may be less transparent and hence present higher monitoring costs for foreign partners. Therefore we propose:

**Hypothesis 1a**: The level of family ownership in local affiliated firms is negatively related to the likelihood of JV investment from US and Japanese firms.

**Hypothesis 1b**: The negative relationship between family ownership and US and Japanese investment is stronger when the chair of the local firm is from the founding family of the business group.

### The Local Adaptation Mechanism
Both institutional economics and sociological institutionalism assert the importance for organizations to achieve congruence with their institutional contexts. Based on the institutional economics perspective, alignment with the rules of the game leads to competitive advantages in resource mobilization and performance (North, 1990). The sociological institutionalism emphasizes the benefits of being accepted as legitimate players as a result of conforming to social norms (Suchman, 1995).

The comparative corporate governance research analyzes how distinct national corporate governance systems evolve from and are aligned with the unique cultural and political configurations and interests of powerful business elites in their own national contexts (Guillén, 2001; Whitley, 1990). Studies in international business are focused on the

need for foreign firms to adapt their organizational practices and strategies to local government regulations and economic pressures (Kogut & Singh, 1988; Rosenzweig & Singh, 1991). While recognizing that foreign firms are also under pressure to conform with institutional practices from their home country, this body of research tends to argue that the imperative to align with host-country practices is stronger when there is significant difference between home- and host-country environments, as such disparity may render the home-country-based practices inapplicable in local contexts (Davis et al., 2000). Davis et al. (2000) further suggest that foreign firms are more likely to adapt locally when they choose a more adaptive mode of entry such as JVs.

While the international business research has not investigated corporate governance practices, the reasoning above would suggest that foreign firms conform to the local model of corporate governance when choosing their JV partners in emerging economies. Studies suggest that the family model can be advantageous in emerging markets. First, family ownership through cross-shareholding creates strong ties between affiliated firms, which enable better transfer of information and resources in turbulent markets because of the enhanced mutual trust (Luo & Chung, 2005). Second, in view of the underdeveloped external labor market for executives, the family chair may have longer investment horizons and more insider's knowledge about the business (Jensen, 1994), and therefore contribute to an even more effective use of the resources pooled by family owners. Hence the local adaptation mechanism would suggest a set of predictions opposite to those based on the monitoring costs mechanism:

**Hypothesis 2a**: The level of family ownership in local affiliated firms is positively related to the likelihood of JV investment from US and Japanese firms.

**Hypothesis 2b**: The positive relationship between family ownership and US and Japanese investment is stronger when the chair of the local firm is from the founding family of the business group.

### The Institutional Logics Mechanism

We develop a third mechanism drawing on the more phenomenological tradition of neo-institutionalism (Berger & Luckmann, 1966; Meyer &

Rowan, 1977),[4] which emphasizes the importance of institutional logics, defined as collectively constructed assumptions, values, beliefs, rules, and practices (Friedland & Alford, 1991), in providing organizations with constitutive principles to interpret experiences and plan for the future. Recent research in corporate finance and strategic management contends that evaluation of corporate practices is not simply driven by the inherent efficiency of the practices, but is also shaped by prevailing institutional logics (Davis, 2005; Dobbin & Baum, 2000; Ingram & Silverman, 2002; Zajac & Westphal, 2004). Viewed as institutional logics, corporate governance systems matter not only because they affect how ownership rights of private enterprises are structured and how CEOs and boards are selected, but because they also shape norms and beliefs about legitimate and efficient governance practices. This mechanism therefore differs from the first two mechanisms in that it stresses the shaping force of corporate governance models as evaluative frameworks, independent of their efficacy in reducing monitoring costs and mobilizing local resources.

Although exposed to different national models, because of their cross-border investment, foreign firms are likely to be constituted by and committed to the institutional logics of corporate governance of their *home* countries for the following reasons. First, Stinchcombe (1965) argues that the institutional environment at an organization's founding can be imprinted in the organization's routines and have lifelong effects on the organization. Empirical studies have found support for the imprinting effect (e.g., Kriauciunas & Kale, 2006). The national corporate governance model of the home country, to which foreign firms are exposed at the early stages of their organizational life cycle, may lead them to adopt the practices and become committed to the values of such practices (Kostova, 1999), to the extent that they will use these practices as criteria to evaluate governance practices in host countries. Second, based on the neo-institutional perspective, the enormous uncertainties involved in JV operations in emerging economies can strengthen foreign firms' reliance on models they are more familiar with, that is, the home-country corporate governance models, as evaluative criteria (Powell & DiMaggio, 1991). Third, foreign firms may be precluded from thinking of the host-country governance model as a possible evaluative framework because of the low prestige of the family model, as the family model is

often associated with emerging economies rather than mature markets. Lastly, foreign firms may be pressured to conform to the expectations of their domestic investors, who provide resources for their foreign expansion. Constituted by the national governance model at home, these investors are likely to evaluate firms in emerging economies based on such a model.

Next, we describe the different national corporate governance models in the US and Japan as institutional logics, and how they shape US and Japanese firms' evaluation of the family model in emerging economies and in turn their choice of local partners.

### The US model of corporate governance and investment of US firms.

In the US, the political history of the federal system, Congress, populism, and anti-trust legislation has led to a system of dispersed shareholding (Roe, 1994). Public opinion tends to distrust blockowners of companies, especially when such owners are insiders of the companies. Boards are recommended to be composed of a majority of outside, independent directors. The normative beliefs about the importance of independent directors culminated in 2002 in the passage of the Sarbanes-Oxley Act, which makes it compulsory for listed companies to have a majority of outside, independent directors. While there is not much distinction between ownership and management in many entrepreneurial firms, this distinction becomes a template for an appropriate business once firms outgrow the early stage (Chandler, 1977). The merits of such governance practices are bolstered by agency theory, which has become the dominant perspective in financial economics since the mid-1980s in the US (Zajac & Westphal, 2004).

Because the US model emphasizes the virtues of outside ownership and separation between ownership and control, US firms are likely to evaluate negatively the opposite governance practices in emerging economies, such as concentrated family ownership and a combination of family ownership and control, in the belief that these practices constitute a corrupt form of corporate governance (Orrù, Biggart, & Hamilton, 1991).[5] Research on international JVs points out that JV partners often have divergent objectives, and therefore the issue of control is central to their concern (e.g., Desai, Foley, & Hines, 2004). In order to profit from their worldwide production and pricing strategies, US investing firms may perceive the family governance practice in the local firm as a key obstacle to

realizing effective control over the JV. For instance, member firms of Taiwanese business groups are known to cross-subsidize one another in order to maintain stable performance in turbulent times (Khanna & Yafeh, 2005). Such tunneling activities can shift profits away from the JV and hurt the global objective of the US firm. US firms are likely to regard local firms with both high family ownership and family participation in management as a hotbed of non-transparent value-destroying practices, and the perceived high monitoring and coordination costs can make US firms refrain from partnering with such local firms.

This negative belief is reflected in McKinsey's Emerging Markets Investors Opinion Surveys (1996, 2001) (most of whom are US- or UK-based; Mobius, 2001). As reported, the most important factor affecting investment decision is the "distinction between company and family interests" (Coombes & Watson, 2001: 5). Articles in *The Economist* (e.g., 1996, 2000) paint the family chair of family-dominated firms in emerging economies as a dictator who dismisses minority shareholders' opinions and indulges in secretive practices. The institutionalized negative opinion toward family ownership and control not only gives US firms reservations about such companies, but also affects their investment decisions through professional analysts. Lang, Lins, and Miller (2004) find that, across 27 countries, US investment analysts tend not to follow firms with concentrated family ownership, giving them less attention and lower valuation. We hence propose:

**Hypothesis 3a**: The level of family ownership in local affiliated firms is negatively related to the likelihood of JV investment from US firms.

**Hypothesis 3b**: The negative relationship between family ownership and US investment is stronger when the chair of the local firm is from the founding family of the business group.

Notice that this set of predictions generated from the institutional logics mechanism is the same as that from the monitoring costs mechanism regarding US firms. This is because agency theory was developed in the Anglo-US contexts and is therefore in line with the logic of corporate governance in the US. However, the predictions from the two mechanisms would not be exactly the same if a national governance model deviated from the assumptions of agency theory.

*The Japanese model of corporate governance and investment of Japanese firms.* The group-based governance system in Japan has taken shape through two historical eras. The first was the transition to an industrialized and capitalist society between the 18th and 19th centuries. Business groups formed during this period (called *zaibutsu*) were characterized by ownership and control by families (Fruin, 1992). Whitley (1990) suggests that the group-based business system has its cultural roots in collectivism. The second era was the US occupation after World War II, when General McArthur dismantled large family-dominated business groups. The new generation of business groups, called *keiretsu*, no longer has concentrated family ownership. Empirical studies support that the prevailing governance model in Japanese firms has outgrown family ownership concentration. Claessens et al. (2000) find that 42% of the 1240 listed companies in Japan are widely held, another 38.5% are held by financial institutions, and only 13.1% are family-owned. This survey suggests that, in terms of separation between corporate and family ownership, Japanese governance is closer to the US model than to the family model in other East Asian countries, where only 3.08% of the listed firms are widely held and about 60% are family-owned (Claessens et al., 2000).

However, while having departed from family ownership concentration, the Japanese governance system has not evolved into the arm's length, transaction-based, market-centered model typical of the US. The *keiretsu* links corporations and banks with extensive cross-shareholding (Lincoln & Gerlach, 2005). Major banks and insurance companies hold majority shares, and exercise control over internal management through relational lending, a combination of debt and equity, and provision of advice and monitoring in times of financial distress (Lincoln, Gerlach, & Ahmadjian, 1996). The strong reliance on the affiliated financial institutions and firms within the group boundary results in a relationship between ownership and control that is distinct from that in the US model. The Japanese corporate governance model features strong insider control, where representatives of powerful owners (such as affiliated banks and firms) and long-term employees take the top executive and board positions. Corporate boards in Japan usually have only minimal legal distinction between inside and outside members, and barely distinguish management from monitoring functions (Hoskisson, Yiu, & Kim, 2004). For example, even the role of statutory

auditors is typically filled by insiders of the business group. Japanese boards are hierarchically structured, with decision-making power concentrated in the hands of a set of inside directors under the CEO. The practice of insider domination is probably due to the seniority orientation, closed internal labor market, and small external market for managers in Japan. Directors and top managers are usually promoted from within the companies and business groups (Wailerdsak & Suehiro, 2004). The practice of insider domination has been found to be quite resistant to US influence (Jackson & Moerke, 2005).

These features of the Japanese model can shape Japanese firms' evaluation of the governance practices in local Taiwanese firms. First, because the Japanese model de-emphasizes concentrated family ownership, Japanese firms are likely to evaluate high levels of family ownership in local firms negatively. Second, because the Japanese model of insider domination is not diametrically opposite to the model of family participation in management in Taiwan, the local practice of having family chairs in family-owned firms may look less illegitimate for Japanese firms as compared with US firms. Indeed, the two models are partially overlapping with regard to the combination of ownership and control and insider control. They diverge in who are the typical insiders: whereas the insiders are predominantly long-term employees and affiliated bank representatives in Japan, the insiders are often members from the founding family in Taiwan. In addition, family leadership has traditionally been part of the Japanese business culture (at least before World War II), and has not been completely eradicated. For example, up until the late 1990s the board and the CEO position of Toyota Motors has been occupied primarily by the descendants of the Toyata family (Lincoln & Gerlach, 2005).[6] Therefore, influenced by their home-country governance model, Japanese investors may regard concentrated family ownership as an impediment for them to achieve firm growth and effective control; but the lack of separation between family ownership and management may not exacerbate the negative impact of family ownership on Japanese investment, as is the case with the US investment. We hence propose:

**Hypothesis 3c**: The level of family ownership in local affiliated firms is negatively related to the likelihood of JV investment from Japanese firms.

Table 2 summarizes our hypotheses based on the three different mechanisms.

## METHODS

### Data and Variables

The primary data source for this study is the biennial directory *Business Groups in Taiwan* (*BGT*), compiled by the China Credit Information Service (CCIS) in Taipei, the most prestigious credit-checking agency in Taiwan and an affiliate of Standard & Poor's in the United States. This directory contains information on the top 100 groups (in terms of sales) whose core firms are registered in Taiwan. The directory is the most comprehensive source for BGT, and has been used in previous studies (Khanna & Rivkin, 2001; Luo & Chung, 2005). For each member firm, the directory provides information about family ownership and FDI by country of origin, but it does not provide information on profitability.

Given our theoretical interest in the large member firms, we then added the financial data from the directory *The Largest Corporations in Taiwan* (*LCT*) (in terms of sales) to the member firm information collected from the BGT directories. Also published by CCIS, the LCT directory has annual data on financials such as total sales, return on assets, and debt/equity ratio for the 500 largest firms in Taiwan.[7] Our final dataset therefore contains the large member firms of the top 100

BGT for 6 years: 1988, 1990, 1992, 1994, 1996, and 1998. We chose 1988 as the beginning year because of the surge of foreign investment in the 1990s after the market transition, and we used 1998 as the ending year to avoid the confounding effects of the Asian financial crisis. Given that some groups enter or leave the top 100 list and some member firms enter or leave the LCT list because of their changing sales, our sample is an unbalanced panel. Our final sample is composed of a total of 175 business groups, 801 firms that are affiliates of these business groups, and 2107 firm/year observations over the 11-year period (six time points).[8] There are 75 firms that remained in the sample throughout the time period studied, contributing to 21.4% of the firm/year observations. There are 357 firms that remained at least for 5 years (three time points), constituting 57.9% of the firm/year observations.

***Dependent variables.*** The first variable measures whether Taiwanese firms received any JV investment from US firms ("1" for receiving it and "0" for otherwise). The second measures whether local firms received JV investment from Japanese firms. The dichotomous measures were used because the distribution of US and Japanese shares in the local firms is highly skewed (see Appendix A). Only 4% of the firm/year cases involved investment from US firms and 12% from Japanese firms.[9] Based on such a distribution, the most important

Table 2 Summary of hypotheses and empirical results

| Mechanisms | Hypotheses | Do US and Japanese firms evaluate local corporate governance practices the same way? | Nationality of foreign firms | Predicted effect | Empirically supported? | Overall support of mechanisms |
|---|---|---|---|---|---|---|
| Monitoring costs | Hypothesis 1a (main effect) | Same | US | − | Yes | Partial |
| | | | Japan | − | Yes | |
| | Hypothesis 1b (interaction effect) | | US | − | Yes | |
| | | | Japan | − | No | |
| Local adaptation | Hypothesis 2a (main effect) | Same | US | + | No | No |
| | | | Japan | + | No | |
| | Hypothesis 2b (interaction effect) | | US | + | No | |
| | | | Japan | + | No | |
| Institutional logics | Hypothesis 3a (main effect) | | US | − | Yes | |
| | Hypothesis 3b (interaction effect) | Not entirely the same | US | − | Yes | Yes |
| | Hypothesis 3c (main effect) | | Japan | − | Yes | |

distinction is between local firms that received JV investment from US or Japan and those that did not. In our sample, most local firms received either US or Japanese investment (only eight cases had both US and Japanese investment at the same time). Nevertheless, we considered the amount of US and Japanese ownership as dependent variables for a further methodological check.

*Independent variables.* Family ownership is the percentage of shares owned by individual family members and other member firms controlled by family members. In our sample, 37% of the local firms have more than 50% of shares owned by family.

The interaction between family ownership and family chair was created by multiplying the two variables. Family ownership was mean-centered. Family chair is a dummy variable, indicating whether the chair is from the founding family. Chairs with the same family name as the founder are considered to be family chairs. Consistent with Chinese cultural norms (Hamilton & Kao, 1990), such coding includes members from both immediate and extended family. However, such coding might slightly overestimate the count of family chairs in cases of some popular Chinese surnames, and underestimate it in cases where some family members may not share the same family name (e.g., son-in-law).

*Control variables.* At the business group level, the level of debt can affect the member firms' economic viability and future strategies (Chang & Hong, 2000). Industry diversification at the group level, but not at the firm level, has been a unique feature of business groups in many emerging economies, and has been found to affect financial returns (Khanna & Rivkin, 2001). Foreign investors are likely to consider such group characteristics before investing in the affiliates. We use net assets as a percentage of total assets to reflect the level of debt, and the measure of total entropy (Palepu, 1985) to indicate the industrial diversification (this measure was based on hand-coded information about the products of member firms of the business group). At the firm level, we control for firm age, size, financial performance, leverage, and industry. Firm size is measured by total sales (logged). Prior research suggests a positive effect of financial returns on FDI (e.g., Caves, 1996), and we measure financial performance by return on assets. Leverage is indicated by debt/equity ratio (logged). Financial

data were adjusted with the 1996 price index. We control for seven industries: traditional industries (omitted category), machinery, electrical/electronics, construction, retailing, real estate and finance, and other professional services. The traditional industries took off in Taiwan in the 1950s and 1960s, including agriculture, food, textiles, wood, chemicals, non-metals, and metals.

In addition, we control for family chair, foreign investment other than that from the US (for US investment as the dependent variable) or Japan (for Japanese investment as the dependent variable), and the post-1994 period (including years of 1994, 1996, and 1998). This period witnessed an overall increase in foreign investment due to the more relaxed foreign financial policies (Industrial Development and Investment Center, http://www.dois.moea.gov.tw/).

## Analysis

We use hierarchical models to analyze the likelihood that local affiliated firms will receive JV investment from US and Japanese firms (Bryk & Raudenbush, 1992). Hierarchical models are appropriate when data at different levels are involved. Our data comprise time series information about the firms that are nested in different business groups. Empirical studies on business groups have shown the importance of group affiliation for member firms in a wide range of economic activities and outcomes (e.g., Chang & Hong, 2000). Member firms of the same business group, therefore, are more similar to one another than they are to firms that belong to a different group. Hence using ordinary pooled cross-sectional modeling violates the assumption of the independence of observations at the firm level, and can produce biased estimates of coefficients.

We apply three-level hierarchical modeling with random intercepts and fixed coefficients (Raudenbush, Bryk, Cheong, & Congdon, 2004). The first level pertains to the repeated observations of firms across the six time points. The level 1 equation is specified below, including time-varying predictors at both firm and group levels. Given that our dependent variables are dichotomous, we use a logistic model. The coefficients are estimated as fixed effects (i.e., the effects are assumed to be the same across firms and groups). The intercept of the level 1 equation is allowed to vary randomly at the second level, which pertains to individual firms. The intercept of the level 2 equation is further allowed to vary randomly at the third level,

which pertains to individual business groups. Such specification takes into account the fact that there might be unobserved heterogeneity among firms and business groups (Liao, 2002). Models were estimated with HLM 6 using the full penalized quasi-likelihood (PQL) estimation procedure (Raudenbush et al., 2004). Two-tailed tests of significance were used.

$$\text{Prob}(Y = 1|B) = P$$

Level 1 model:

$$\begin{aligned}
\log[P/(1-P)] = {} & \beta_0 + \beta_1(\text{group diversification}) + \beta_2(\text{group indebtedness}) + \beta_3(\text{firm age}) \\
& + \beta_4(\text{firm size}) + \beta_5(\text{firm ROA}) + \beta_6(\text{firm indebtedness}) + \beta_{7-12}(\text{industry}) \\
& + \beta_{13}(\text{post\_1994}) + \beta_{14}(\text{other foreign investment}) + \beta_{15}(\text{family chair}) \\
& + \beta_{16}(\text{family ownership}) + \beta_{17}(\text{family ownership} \times \text{family chair})
\end{aligned}$$

Level 2 model:

$$\beta_0 = \gamma_{00} + \mu_0$$

where

$$\mu_0 \sim N(0, \sigma_0^2)$$

Level 3 model:

$$\gamma_{00} = g_{000} + \mu_{00}$$

where

$$\mu_{00} \sim N(0, \sigma_{00}^2)$$

## RESULTS

Table 3 presents descriptives for the variables. Tables 4 and 5 present hierarchical models predicting the likelihood of US and Japanese JV investment. While our choice of the three-level hierarchical model was guided by business group research, statistically, results suggest that the random variation of the intercept at the business group level (level-three) is significant ($p < 0.01$) for models with the Japanese investment as the dependent variable. This confirms the importance of considering the clustering among member firms of the same business group.

Models 1 and 4 are the baseline models. In Models 2 and 5, family ownership is added. In Models 3 and 6, the interaction between family ownership and family chair is added (family ownership was grand-mean-centered for both the main term and the interaction). The addition of the new variables did not create multicollinearity problems, and the variables added are statistically significant

(except for the interaction term for the model with Japanese investment as dependent variable). Therefore Models 3 and 6 are treated as the full models.[10]

Our hypotheses are concerned with the main effect of family ownership and the interaction effect of family ownership and family chair. In both Models 2 and 3, family ownership has a negative effect ($p < 0.001$ or $p < 0.01$) on the likelihood of JV investment from US firms. Based on Model 3, a standard deviation increase in family ownership (30.73, meaning 30.73% of total shares) will decrease the odds of a local firm's receiving US investment relative to not receiving it by 26% ($1 - \exp(30.73 \times (-0.01)) = 0.26$), holding other characteristics of the firm and group constant. Such an effect is sizeable, considering that a standard deviation increase in ROA (7.87) will not change the odds so much (this will increase the odds by 17%, ($\exp(7.87 \times 0.02) - 1 = 0.17$). Hypothesis 1a regarding US firms and Hypothesis 3a, which predicted a negative relationship between family ownership in local affiliated firms and the likelihood of US investment, are therefore supported. Hypothesis 1b regarding US firms and Hypothesis 3b predicted that the negative relationship between family ownership and US investment will be even stronger when the chair of the local firm is from the founding family. In Model 3, the interaction between family ownership and family chair is negative ($p < 0.01$). When the chair of the local firm is from the founding family, a standard deviation increase in family ownership will further decrease the odds of US investment by 26% ($1 - \exp(30.73 \times (-0.01)) = 0.26$). Hypothesis 1b regarding US firms and Hypothesis 3b are supported. However, Hypothesis 2a and Hypothesis 2b regarding US firms, which predicted a positive relationship between family ownership and US investment and a positive interaction between family ownership and family chair, are not supported.

In accordance with Hypothesis 1a regarding Japan and Hypothesis 3c, which predicted a negative relationship between family ownership and Japanese investment, the effect of family ownership on Japanese investment is negative

(p<0.001 or p<0.01) (Models 5 and 6). Based on Model 6, a standard deviation increase in family ownership will decrease the odds of receiving Japanese investment to not receiving it by 26% ($1-\exp(30.73 \times (-0.01))=0.26$). Such an effect is also sizeable, considering that a standard deviation increase in ROA (7.87) will only increase such odds by 17% ($\exp(7.87 \times 0.02)-1=0.17$). Hypothesis 1b regarding Japan predicted a negative interaction effect between family ownership and family chair on Japanese investment. The interaction in Model 6 is not significant. The lack of significance is unlikely to be caused by the sample size, since there are more observations of Japanese JVs (12% of total cases) than of US JVs (4% of total cases), and the interaction coefficient is significant for US investment. Hypothesis 1b regarding Japanese firms is not supported. Meanwhile, Hypotheses 2a and 2b regarding Japanese firms, which predicted a positive relationship between family ownership and Japanese investment and a positive interaction between family ownership and family chair, are not supported. Table 2 summarizes the results for the hypothesis testing. As a whole, the hypotheses based on the monitoring costs mechanism receive partial support, those based on the local adaptation mechanism are not supported, and those based on the institutional logics mechanism are fully supported.

Given that the interaction between family ownership and family chair is significant only for US firms, we illustrate it by plotting the effect of family ownership on the probability of receiving US investment (Figure 1). We assume that a local firm is in the electronics industry, in the post-1994 period, and has average characteristics on other dimensions. If its family ownership increases from 0% to 100% (this is the range in our sample), the probability of US investment would decline from 7% to 3% in the case of a non-family chair, whereas such a probability would decline from 10% to 1.5% in the case of a family chair. Such changes in the probability can be consequential, given that on average the probability of the firms in our sample receiving US investment in a given year during 1988–1998 is only 4%. The steeper slope for the

**Table 3**   Descriptive statistics and correlation matrix of variables in the models

| | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Industry diversification of business group | 0.401 | 0.205 | | | | | | | |
| 2. Net assets as % of total assets of business group (×100) | 45.881 | 16.461 | −0.137** | | | | | | |
| 3. Firm age | 20.33 | 11.703 | −0.050* | 0.113** | | | | | |
| 4. Firm size (total sales logged) | 7.653 | 1.414 | −0.034 | −0.085** | 0.302** | | | | |
| 5. Firm return on assets | 5.537 | 7.866 | −0.042 | 0.134** | 0.021 | 0.073** | | | |
| 6. Firm debit equity ratio (logged) | 4.691 | 1.111 | 0.016 | −0.382** | −0.144** | 0.093** | −0.350** | | |
| 7. Traditional industries (omitted category) | 0.419 | 0.494 | 0.029 | 0.190** | 0.282** | −0.066** | −0.019 | −0.231** | |
| 8. Machinery | 0.060 | 0.231 | −0.095** | 0.004 | 0.066** | 0.04 | 0.032 | 0.023 | −0.208** |
| 9. Electrical/electronics | 0.140 | 0.344 | −0.239** | 0.109** | −0.093** | 0.130** | 0.011 | −0.086** | −0.339** |
| 10. Construction | 0.030 | 0.159 | 0.021 | −0.100** | −0.007 | −0.032 | −0.037 | 0.153** | −0.139** |
| 11. Retail | 0.160 | 0.367 | 0.062** | −0.018 | −0.090** | 0.029 | 0.02 | 0.153** | −0.371** |
| 12. Real estate and finance | 0.090 | 0.289 | 0.106** | −0.283** | −0.121** | 0.079** | −0.049* | 0.134** | −0.270** |
| 13. Other services (professional) | 0.080 | 0.274 | 0.112** | −0.101** | −0.180** | −0.116** | 0.053* | 0.059** | −0.253** |
| 14. After 1994 | 0.560 | 0.497 | 0.052* | −0.078** | 0.030 | 0.152** | −0.089** | 0.001 | −0.160** |
| 15. Family chair | 0.630 | 0.484 | −0.114** | 0.065** | 0.210** | 0.205** | −0.034 | −0.048* | 0.094** |
| 16. Family ownership | 42.885 | 30.73 | 0.148** | 0.046* | −0.236** | −0.388** | 0.014 | 0.113** | −0.124** |
| 17. US joint venture (JV) investment | 0.039 | 0.195 | −0.031 | 0.006 | −0.088** | 0.042 | 0.091** | −0.080** | −0.019 |
| 18. Japanese JV investment | 0.114 | 0.318 | 0.023 | 0.072** | 0.44* | 0.087** | 0.080** | −0.028 | −0.057** |

case of a family chair suggests that US firms are even more likely to avoid local firms with high levels of family ownership when there is a lack of separation between ownership and control.

Regarding the control variables, US firms are likely to be attracted to Taiwanese firms that are younger, larger, with good financial performance (high ROA), and less leveraged (low debt/equity ratio) ($p < 0.001$ or $p < 0.01$). Local firms are also more likely to receive US investment after 1994 ($p < 0.05$). Japanese firms are likely to be attracted to local firms with good financial returns (high ROA) and to firms that belong to more diversified business groups ($p < 0.01$ or $p < 0.05$). Compared with those in traditional industries, local firms in the machinery industry are more likely to obtain Japanese investment ($p < 0.001$), and those in real estate and finance are less likely to attract Japanese investment ($p < 0.05$). Local firms with less other foreign investment are also more likely to receive US or Japanese investment ($p < 0.01$).

## Contrast of the Effects of Family Governance Practices on US and Japanese Firms

The institutional logics mechanism suggests that having a family chair magnifies the negative effect of family ownership on investment for US firms but not for Japanese firms, because the institutional logics in the two countries differ with regard to the separation between ownership and control. We further test whether the difference in the interaction effects (between family ownership and family chair) for US and Japanese investment is statistically significant. We estimated a hierarchical multinomial model by constructing a dependent variable with three categories: investment from the US, investment from Japan, and no investment from US or Japan (excluding the eight cases with both US and Japanese investment) (2099 firm/year cases, 799 firms, and 175 groups).[11] The coefficients of the interaction term for US and Japanese firms can thus be compared, since they were estimated in the same model. Given that family ownership above 50% of the total shares is considered majority

**Table 3** Continued

| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Industry diversification of business group | | | | | | | | | | |
| 2. Net assets as % of total assets of business group ($\times 100$) | | | | | | | | | | |
| 3. Firm age | | | | | | | | | | |
| 4. Firm size (total sales logged) | | | | | | | | | | |
| 5. Firm return on assets | | | | | | | | | | |
| 6. Firm debit equity ratio (logged) | | | | | | | | | | |
| 7. Traditional industries (omitted category) | | | | | | | | | | |
| 8. Machinery | | | | | | | | | | |
| 9. Electrical/electronics | −0.098** | | | | | | | | | |
| 10. Construction | −0.04 | −0.065** | | | | | | | | |
| 11. Retail | −0.107** | −0.174** | −0.072** | | | | | | | |
| 12. Real estate and finance | −0.078** | −0.127** | −0.052* | −0.139** | | | | | | |
| 13. Other services (professional) | −0.073** | −0.119** | −0.049* | −0.130** | −0.095** | | | | | |
| 14. After 1994 | −0.001 | 0.047* | 0.02 | 0.022 | 0.108** | 0.042 | | | | |
| 15. Family chair | 0.027 | 0.094** | −0.095** | 0.014 | −0.107** | −0.121** | −0.025 | | | |
| 16. Family ownership | 0.068** | −0.118** | 0.062** | 0.211** | −0.132** | 0.099** | −0.030 | −0.105** | | |
| 17. US joint venture (JV) investment | −0.007 | 0.125** | −0.018 | −0.049* | −0.005 | −0.025 | 0.028 | 0.010 | −0.077** | |
| 18. Japanese JV investment | 0.175** | 0.078** | −0.040 | 0.001 | −0.073** | −0.047* | 0.035 | −0.031 | −0.102** | −0.011 |

*$p < 0.05$ level, **$p < 0.01$ level (two-tailed).
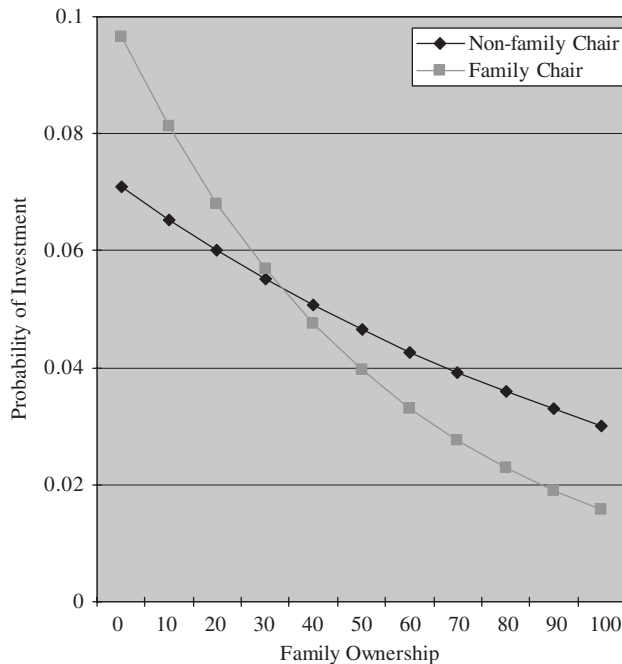
**Figure 1** Probability of joint venture investment from US firms at varying levels of family ownership in local Taiwanese firms.

ownership, we compare the coefficients of the interaction between majority family ownership and family chair for US and Japanese firms. We tested the equality constraint, and the chi-square test (adjusting for the covariance matrix) shows that the difference between the two coefficients is significant (p<0.05; chi square=3.83, df=1). This suggests that US and Japanese firms react differently to the combination of majority family ownership and control (results available with the authors).[12] Therefore Hypothesis 1b, which suggests similarity of the two countries in the exacerbating effect of family chair, is not supported.

### Further Methodological Check
We considered different levels of US and Japanese ownership as dependent variables. Given the skewed distribution, we recoded the US and Japanese shares into four categories (1 for no investment, 2 for between 0% and 25% of total shares, 3 for between 25% and 50%, 4 for greater than 50%: see Appendix A).[13] We estimated three-level hierarchical Poisson models using HLM 6.0. Our key results remained (see tables of results in Appendix B).

We examined whether our unbalanced panel could introduce sample selection bias. Based on

the directories, the criterion for inclusion is organizational size measured by total sales rather than profitability. The correlation between total sales and return on assets for firms in our sample is also low (r=0.07). Hence it is unlikely that firms will enter or leave our sample because of performance. To further rule out the possibility of bias, we conducted the same analysis for the 357 firm that existed for at least 5 years (three out of the six time points in our sample), and our key results remained.

We also considered several alternative explanations for our results. First, local Taiwanese firms with large family stakes might be lower in quality with regard to some dimensions that US and Japanese firms value, and therefore be unattractive to these investors. To rule out this possibility, we collected information on earnings per share, Tobin's Q,[14] R&D expenditure, and labor cost (the latter two measured as a percentage of total sales). Such information was available only for some publicly listed firms.[15] We conducted ANOVA tests and found that the mean differences in these four measures were not significant for firms with large family stakes and firms without. (We measured firms with large family stakes in two ways: the family is the largest shareholder or the family owns more than 50% of the total shares.) We also regressed Tobin's Q on family ownership and the interaction between family ownership and family chair with appropriate controls.[16] Results showed that family ownership and the combined family ownership and control were not significantly related to Tobin's Q. Finally, we estimated the same models in Tables 4 and 5 with these four additional control variables. Our key results concerning the difference between the US and Japan remained.[17]

Second, while local firms generally looked for opportunities to obtain technological transfer and capital from foreign firms (Hobday, 1995a), some firms might feel a stronger need to do this than others. To rule out the possibility that it was the different needs of local firms that drove the pattern of JV investment, we examined subsamples of local firms with stronger demand for foreign capital and technology. With regard to demand for foreign capital, firms listed on the Taiwan Stock Exchange can be assumed to be more open to multiple sources of ownership. We estimated the same models for the listed firms in our sample (with 677 firm/year cases, 260 firms and 132 business groups). With regard to demand for technol-

**Table 4** Results of hierarchical logistic models with robust standard errors predicting likelihood of receiving JV investment from US Firms for large group-affiliated firms in Taiwan, 1988–1998

| Variable | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| *Control variables* | | | | | | |
| *Group-level characteristics* | | | | | | |
| Industry diversification | −0.024 | (0.431) | 0.308 | (0.421) | 0.377 | (0.416) |
| Net assets as % of total assets | −0.006 | (0.006) | −0.005 | (0.006) | −0.004 | (0.006) |
| *Firm-level characteristics* | | | | | | |
| Firm age | −0.056*** | (0.010) | −0.061*** | (0.011) | −0.062*** | (0.011) |
| Firm size (total sales logged) | 0.304*** | (0.078) | 0.199* | (0.081) | 0.198* | (0.081) |
| Return on assets | 0.019** | (0.006) | 0.023*** | (0.006) | 0.023*** | (0.006) |
| Debt equity ratio (logged) | −0.340*** | (0.079) | −0.281*** | (0.070) | −0.269*** | (0.070) |
| *Traditional industries (omitted category)* | | | | | | |
| Machinery | 0.110 | (0.585) | 0.421 | (0.588) | 0.457 | (0.589) |
| Electrical/electronics | 0.437 | (0.379) | 0.482 | (0.382) | 0.483 | (0.384) |
| Construction | 0.027 | (0.337) | 0.229 | (0.351) | 0.236 | (0.345) |
| Retail | −0.528 | (0.277) | −0.303 | (0.276) | −0.283 | (0.275) |
| Real estate and finance | −0.093 | (0.346) | −0.252 | (0.376) | −0.254 | (0.372) |
| Other services (professional) | −0.774 | (0.400) | −0.648 | (0.401) | −0.678 | (0.411) |
| After 1994 | 0.173 | (0.106) | 0.217* | (0.107) | 0.209* | (0.109) |
| Other foreign investment (other than US) | −0.013 | (0.007) | −0.017* | (0.007) | −0.018* | (0.007) |
| Family chair | 0.009 | (0.167) | −0.017 | (0.175) | −0.107 | (0.180) |
| *Independent variables* | | | | | | |
| Family ownership | | | −0.016*** | (0.003) | −0.010* | (0.004) |
| Family chair × Family ownership | | | | | −0.011** | (0.004) |
| Constant | −2.820*** | (0.838) | −1.889 | (0.977) | −2.624** | (0.872) |

*Notes*: Number of firm/year observations=2107; number of firms=801; number of business groups affiliated with=175.
Numbers in parentheses are standard errors.
*p<0.05, **p<0.01, ***p<0.001 (two-tailed tests).
HLM 6 currently does not produce statistics of overall model fit (such as deviance statistics) for dichotomous outcomes (Raudenbush et al., 2004). The same is true for models in Table 5.

ogy, we estimated the same models for the subsample of local firms in non-traditional industries (1320 firm/year cases, 545 firms, and 147 business groups).[18] Our main findings remained in these analyses.

Third, some recent studies suggest the possibility that US firms desire wholly owned subsidiaries while Japanese firms prefer JVs when engaging in production involving technology transfer in Taiwan (Amsden & Chu, 2003; Desai et al., 2004). If this were the case, US firms might have avoided local firms with high family ownership and a family chair because the family presence could prevent them from gaining whole ownership. While such motivation might exist, we suggest that it may not be the only driver behind US firms' choice of local partners. First, during the period of our study and

for our sample of large business group affiliates, US and Japan exhibited similar patterns of ownership in local firms (Appendices A1 and A2, last column). The vast majority of them did not make controlling investment in local JVs.[19] Second, we estimated the same models in Tables 4 and 5 without the cases involving majority equity from the US and Japan respectively, and we also ran the same models including cases involving none or below 25% US and Japanese investment. Our key results largely remained. This suggests that even at a low level of JV investment, where US firms might not be primarily concerned about maximizing direct ownership control, their decisions to invest were still negatively affected by the extent of family involvement in local firms, and US and Japanese firms still differed in their preferred partners.

Table 5 Hierarchical logistic models with robust standard errors predicting likelihood of receiving joint venture investment from Japanese firms for large group-affiliated firms in Taiwan, 1988–1998

| Variable | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|
| *Control variables* | | | | | | |
| *Group-level characteristics* | | | | | | |
| Industry diversification | 0.911* | (0.409) | 0.998* | (0.411) | 0.996* | (0.413) |
| Net assets as % of total assets | 0.007 | (0.004) | 0.007 | (0.004) | 0.007 | (0.004) |
| | | | | | | |
| *Firm-level characteristics* | | | | | | |
| Firm age | −0.008 | (0.009) | −0.011 | (0.010) | −0.012 | (0.011) |
| Firm size (total sales logged) | 0.126* | (0.061) | 0.028 | (0.073) | 0.025 | (0.072) |
| Return on assets | 0.013* | (0.005) | 0.015** | (0.006) | 0.016** | (0.006) |
| Debt equity ratio (logged) | −0.097 | (0.081) | −0.038 | (0.087) | −0.032 | (0.087) |
| | | | | | | |
| *Traditional industries (omitted category)* | | | | | | |
| Machinery | 1.450*** | (0.274) | 1.555*** | (0.271) | 1.568*** | (0.268) |
| Electrical/electronics | 0.468 | (0.301) | 0.508 | (0.321) | 0.506 | (0.324) |
| Construction | −0.644 | (0.549) | −0.495 | (0.517) | −0.496 | (0.515) |
| Retail | 0.159 | (0.224) | 0.332 | (0.233) | 0.345 | (0.230) |
| Real estate and finance | −0.578 | (0.331) | −0.740* | (0.369) | −0.734* | (0.366) |
| Other services (professional) | −0.804 | (0.474) | −0.675 | (0.457) | −0.692 | (0.453) |
| After 1994 | 0.143 | (0.117) | 0.166 | (0.125) | 0.161 | (0.124) |
| Other foreign investment (other than Japan) | −0.024** | (0.009) | −0.028** | (0.009) | −0.028** | (0.009) |
| Family chair | −0.137 | (0.137) | −0.145 | (0.145) | −0.168 | (0.151) |
| | | | | | | |
| *Independent variables* | | | | | | |
| Family ownership | | | −0.015*** | (0.003) | −0.012** | (0.004) |
| Family chair × Family ownership | | | | | −0.005 | (0.003) |
| | | | | | | |
| Constant | −3.397*** | (0.648) | −2.398** | (0.739) | −3.046*** | (0.682) |

*Notes:* Number of firm/year observations=2,107; number of firms=801; number of business groups affiliated with=175.
Numbers in parentheses are standard errors.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-tailed tests).

Lastly, to address the possibility of reverse causality (i.e., whether FDI could change family governance practices), we used US and Japanese direct investment from 2 years ago to predict family ownership and chair, controlling for the other variables in our models. Neither US nor Japanese investment was significant. This confirms prior research that suggests that family executives and ownership are less subject to changes in firm performance and foreign investment in Taiwan (Gibson, 2003; Sharma & Manikutty, 2005).

## DISCUSSION

Our research is motivated by a lack of understanding about the impact of corporate governance practices on FDI in emerging economies. Our findings first of all confirm that corporate governance practices in local firms indeed affect their likelihood of attracting FDI, after controlling for

the economic baseline. The negative impact of concentrated family ownership and control on foreign investment has been discussed in anecdotes, but has not yet been systematically tested. For example, when the leader of China Trust Group, Liansong Gu, appointed his son-in-law, Junzhe Chen, as the treasurer of the China Trust Bank (a core bank of the group), the announcement triggered such anger in CitiBank that Citibank immediately withdrew its investment. CitiBank viewed Chen's appointment as the family's attempt to gain more control. Looking back, Mr Chen sighed that, despite his professional experience at Goldman Sachs, the only thing CitiBank cared about was his family ties (*Business Weekly*, 2004). In contrast, family ownership in the flagship company of Acer group, Acer Computer, declined from 100% in 1988 to about a third in late 1990s, and the company has often received high praise from foreign investors.

More importantly, our results shed light on the mechanisms through which corporate governance practices in local firms come to bear on foreign investment. Overall, the findings are consistent with the institutional logics mechanism. In accordance with the US model, US firms are likely to shun Taiwanese firms with concentrated family ownership, and they are even more likely to avoid such local firms with a family chair. Consistent with the Japanese model, Japanese firms are likely to avoid Taiwanese firms with concentrated family ownership, but are not more so when the chair is from the founding family. Given that some of these effects are also predicted by the monitoring costs mechanism, our results suggest that US and Japanese firms may also avoid family-dominated local firms to reduce monitoring costs. However, this agency-theory-based account is unlikely to be the whole story. Otherwise, we would not expect to see that firms from the two countries react differently to the lack of separation between family ownership and control, which is a critical factor contributing to high monitoring costs.

Our interview with a former executive of P&G's JV at Taiwan illustrates how both the monitoring costs and institutional logic mechanisms were at work shaping US firms' evaluation of local partners. When asked about P&G's experience with its local partner, this executive said:

> Even a 51% (ownership by the US parent company) won't do it. You got to have a common goal. Otherwise it is like a dysfunctional marriage. They've [the family executives of the local partner] got their family interests in mind. They've got demands from other companies they own, which can dilute funds and limit their efforts in P&G. It's not transparent. They've got their own agenda, which really complicated things, especially when you talk about investment for the future – they do not share your vision and you can't force it on them.

He further commented on the top family executives of the local partner:

> He [the family chair] was good, but his younger brother was not so bright. But then he [the younger brother] has to be brought in and listened to. Our [P&G] competitive advantage is really in our global technology, and we wanted fast exploitation of our technology. But [the younger brother] really slowed things down. It is just not a meritocracy.

When asked whether he believed that these problems would be alleviated if the local partner were a non-family firm, he paused for a while:

> That's a good question. I suppose there will still be conflicts of interests of different sorts. It's probably a problem with joint ventures. But family firms add more complexities. We want our joint venture at Taiwan to be similar and comparable to our businesses in the US and other parts of the world. I don't believe family firms can do better – if they do, it is probably because of their political ties. I hate to be in a family firm.

Our finding that US firms react even more negatively to the combined high family ownership and family involvement in top management than to high family ownership alone is consistent with Villalonga and Amit (2006), who show that various definitions of a family firm (such as family ownership, family participation in the board and top management team, and family leadership succession) affect family firms' value differently. Our study has focused on two core elements of the family governance model: family ownership and family participation in the top leadership position. Here we also briefly consider a broader range of definitions of family firms in the context of affiliated firms in Taiwan, from the relatively less restrictive ones to the more restrictive ones, and examine how family firms defined differently affect the likelihood of US and Japanese investment (Appendix C). The first definition, that family members are either blockowners (equal to or greater than 5% of total shares), chair (equivalent to chair and CEO combined in the US), or manager (equivalent to COO), can be regarded as a baseline definition for family firms. The coefficients in Appendix C are those of a family firm dummy (defined differently) in the same hierarchical models as in Table 4. By and large, family firms were less likely to attract US and Japanese investment than non-family firms.

Two findings from Appendix C are particularly worth noticing. First, for US firms, local family firms with high family ownership and family members in executive positions were the least attractive (e.g., less attractive than those with high family ownership in general $(-0.88 < -0.73)$); whereas for Japanese firms, such family firms were not more unappealing than family firms with large family stakes in general $(-0.42 \text{ vs } -0.79)$.[20] This confirms our argument that foreign firms' evaluation of local governance practices is shaped by their home-based governance models. Second, when the business group founder was succeeded by the second-generation family member, affiliated family firms did not become even less likely to attract foreign investment. Previous research suggests that the involvement of family heirs can invite negative valuation of family firms (Villalonga & Amit, 2006) possibly because familism is viewed as deepened.

However, in the context of emerging economies, second-generation heads of the business groups may have weakened rather than strengthened family control because many of them received US MBA education and were willing to deviate from the family model and reduce family presence in leadership (Chung & Luo, 2008). Therefore the elements of family firms may be evaluated differently in different institutional contexts.

## CONCLUSION

Our study contributes to the research on FDI in emerging economies. In view of the international business research that stresses the dual institutional pressures from home and host countries (Hillman & Wan, 2005; Kostova & Zaheer, 1999; Rosenzweig & Singh, 1991), we did not find empirical support for local adaptation in our case. Neither US nor Japanese firms were attracted to local firms with the locally legitimate model, that is, the family model. Our study suggests that one condition that may affect the strength of the dual pressures on foreign firms is the content of the specific organizational practices. When the organizational practice is highly institutionalized at the national level, foreign firms are likely to be constituted by the shared normative/cognitive frameworks at home to the extent that they are less likely to simply engage in a strategic choice between different models of the practice. This is particularly the case when the local model is generally viewed as of lower prestige than the home-based model. As pointed out by Ingram and Silverman (2002: 20), institutional forces, especially those cognitive forces that are "taken for granted," have not been systematically taken into account in the current theoretical approaches to international and strategic management. Our study has thus filled a crucial gap in understanding FDI behavior by exploring how foreign investors rely on corporate governance models at home to make sense of the foreign world.

In addition, our research is one of the few empirical studies that do not treat foreign investors as monolithic and juxtapose foreign firms from different home countries. Our research is able to discover the shaping force of the home-country corporate governance models on foreign firms only when we separate US firms from Japanese firms. Treating foreign firms from different home countries as a homogeneous category, therefore, might mask important mechanisms shaping FDI decisions.

Our study also contributes to the corporate governance research by extending the neo-institutional perspective of organizations to understand how corporative governance matters, echoing a recent call in Davis (2005). Agency theory emphasizes the functions of corporate governance: improving efficiency and profitability and ensuring appropriation of returns to shareholders (Shleifer & Vishny, 1997). Some local partners with strong family governance may indeed be less likely to protect the interests of foreign investors, and it is thus in the interest of foreign firms to avoid such locals. However, we have found that US and Japanese firms react differently to the lack of separation between family ownership and control. Therefore the impact of family governance practices on FDI cannot be entirely explained by the functions of corporate governance. Our findings thus support our view of governance models as institutional logics. Independent of the efficacy of family governance practices, they are evaluated differently within different logics of corporate governance.

Nevertheless, our study has some limitations. First, we did not systematically examine JV investment from the side of foreign firms. While most studies in foreign investment look at international JVs from the perspective of investors from the developed world, our empirical analysis is among the few that examine JV investment from the point of view of local firms, and thus it enriches our understanding about FDI (see also Pan, 1997, 2002). The trade-off is that we were not able to consider how variations in characteristics of US and Japanese firms can affect their investment in local firms. Future studies can investigate their side of the story more systematically. Second, our study did not consider whether foreign firms could become less likely to avoid local firms with different governance practices from home as they gain more experience in the host country (Guillén, 2002; Henisz & Delios, 2001). We looked at whether the effect of family ownership and control declined over time, and did not find this to be the case. However, given that we did not examine foreign investment from the side of foreign firms, we do not know whether such a learning process was going on for individual foreign firms. Future studies can test such a possibility.

In conclusion, our study provides some evidence that foreign firms rely on their distinct home-based corporate governance models to select local partners in emerging economies. While foreign firms do intend to maximize returns from their investment in host countries, the means that they

perceive to be conducive to that goal can be shaped by the prevailing corporate governance models in their home countries.

## ACKNOWLEDGEMENTS

## NOTES

[1]We focus on JVs rather than other entry modes such as alliances, and mergers and acquisitions, because joint ventures typically entail strong commitment such as partial ownership and close relationship between partners. Foreign firms engaging in joint ventures may be more motivated to examine the corporate governance practices in local firms (Hoskisson, Johnson, Tihanyi, & White, 2005).

[2] There is no functional separation between chair of the board and CEO in the Taiwanese governance model (Yeh & Woidtke, 2005). In fact, there is no such a position or term as CEO in Taiwan's company law. The highest position within the firm is chair of the board. The other high-level position, "manager," is concerned with daily administration and is similar to the role of chief operating officer in the US. Field studies on overseas Chinese firms also find that the major decision-maker typically holds the position of board chair (Bruton, Ahlstrom, & Wan, 2003).

[3]One well-known example is Acer Computer, the flagship firm of the business group Acer, which established a joint venture with Texas Instruments of the US in 1991 to produce DRAMs in Taiwan.

[4]Institutional theories have been described as varying along the continuum from the more realist to the more phenomenological versions (DiMaggio & Powell, 1991; Meyer, 2008). The institutional economics and sociological institutionalism associated with the local adaptation mechanism are the more realist versions, which emphasize that organizations can choose among different institutions to optimize or to achieve legitimacy. The more phenomenological version stresses the constitutive force of institutions on organizations.

[5] While there are also family-controlled firms in the US, we emphasize that in the US the prevailing normative frameworks treat concentrated family ownership and control as a corrupt form of corporate governance, especially for large firms. The dominance of such normative frameworks is reflected in Villalonga and Amit (2006), which presents as a surprise the findings that not a few US firms are run by family owners and that these firms do not necessarily have low value, because such findings are contrary to the prevailing beliefs in the US.

[6] While family participation in top management is not the prevailing practice in Japan, family-based CEOs and chairs may be relatively more common in Japan than in the US. Based on a sample of Fortune 500 firms, Villalonga and Amit (2006) report that there are 26% of US firms that have at least one family officer and one family director. With a sample of 1240 publicly listed firms, Claessens et al. (2000) report that in 37.2% of Japanese firms, the CEO, board chair or vice-chair are from the controlling family. In contrast, Claessens et al. (2000) find that 79.8% of Taiwanese firms have CEO, chair, or vice-chair from the controlling family (based on a sample of 380 publicly listed firms).

[7]We conducted separate analyses for the small member firms (1088 firms, 2065 firm/year observations: that is, the member firms of the top 100 business groups that were not included in the top 500 firms collected by the CCIS). Without controlling for their financial performance (such information is not available for these firms), our preliminary results from three-level hierarchical models suggested that family ownership in these local firms was negatively related to both US and Japanese investment ($p < 0.05$), and that the interaction effect between family ownership and family chair was not significant for both countries. Such results suggest that foreign firms might not hold exactly the same criteria when they examine large and small local firms for investment potential.

[8] To gain a better understanding of the foreign JVs in our sample, we read detailed cases recorded by the Investment Commission of the Taiwanese government (http://www.moeaic.gov.tw/). From this source we located 132 JVs that were also included in our sample. All of them, except for eight cases, involved partners in the same industry, and the partners of the eight cases were in related industries. These records also confirm the findings from case studies that US and Japanese JVs in Taiwan during this period typically involved technology transfer (Hobday, 1995a, b).

[9]Among those with JV investment from US firms, on average US firms owned about 27% of the total shares

(with a standard deviation of 19%). Among those with JV investment from Japanese firms, on average Japanese firms owned about 26% of the total shares (with a standard deviation of 19%).

[10]Given that HLM 6 currently does not produce statistics to compare models with dichotomous outcomes (for under the PQI estimation, deviance statistics – which are used for model contrast for linear outcomes – are not considered to be appropriate), we cannot compare the overall fit levels of these nested models (Raudenbush et al., 2004).

[11]Since investment from US firms cannot be assumed to be independent of that from Japanese firms, we cannot compare the coefficients of the interaction term in Models 3 and 6 directly. The control variable of other foreign investment for this multinomial analysis is foreign investment other than US and Japanese investment.

[12]This interaction coefficient is $-1.33$ (SD$=0.65$, $p < 0.05$) for US investment and $-0.001$ (SD$=0.39$) for Japanese investment in the hierarchical multinomial model.

[13]We tried different cut points and categories, and our main results regarding family ownership and control remained.

[14]Tobin's Q is calculated as (market value of equity $+$ book value of preferred stock $+$ book value of debt)/ (book value of assets), where the market value of equity is calculated using closing stock prices on the last trading day of the year. Tobin's Q has been widely used in the business group literature to indicate the value of the business, because of its advantages over accounting measures (see Khanna & Palepu, 2000b). It timely reflects the market value of the firm based on the evaluation of firm capabilities due to its inherently dynamic nature. Moreover, Tobin's Q is independent of the scale of operation.

[15]We collected this information from the database of *Taiwan Economic Journal*, which is the most comprehensive and reliable database for firms listed on the Taiwan Stock Exchange.

[16]We controlled for the variables in Table 4, earnings per share, R&D costs, labor costs, and foreign investment (in lieu of other foreign investment in Table 4).

[17]This analysis was conducted over a subsample of 521 firm-year cases (174 firms from 106 business groups) where information on the four additional control variables was available. Family ownership of these firms ranged from 0% to 80%. In this subsample, 4.6% received US direct investment and 11.3% received Japanese direct investment. The percentages of US and Japanese investment were similar to those in our full sample. We conducted pooled cross-sectional logit models (using STATA) instead of three-level hierarchical modeling, because of the reduced sample size at the second (firm) level. The main variable of family ownership turned insignificant, possibly because of the much smaller sample size. The interaction between family ownership and Chair remained negative ($p < 0.1$) for US investment as the dependent variable, while the interaction turned positive (not significant) for Japanese investment as the dependent variable.

[18]While the JVs with US and Japanese firms were present in all 13 industries (using the two-digit SIC code), they were more likely to be in non-traditional industries. It is possible that traditional industries, having matured over more than two decades, are relatively less in need of foreign technology than emerging industries.

[19]Out of the local firms with US investment, only 8% of them had more than 50% of the equities from US firms, and 6% of the local firms with Japanese investment had more than 50% of the equities from Japanese firms.

[20]Given that the coefficients for US and Japan are based on regressions using different dependent variables (likelihood of receiving US investment vs likelihood of receiving Japanese investment), the size of the coefficients can be meaningfully compared within the column, but not across the columns.

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# APPENDIX A

See Tables A1 and A2.

**Table A1**   Frequency distribution of US shares in large group-affiliated firms in Taiwan

| US shares as % of total shares | Assigned value | Frequency | Percent | Percentage of local firms with US investment |
|---|---|---|---|---|
| 0 | 0.00 | 2024 | 96.1 | |
| 0–25 | 1.00 | 42 | 2.0 | 51 |
| 25–50 | 2.00 | 34 | 1.6 | 41 |
| >50 | 3.00 | 7 | 0.3 | 8 |
| | Total | 2107 | 100.0 | 100 |

**Table A2**   Frequency distribution of Japanese shares in large group-affiliated firms in Taiwan

| Japanese shares as % of total shares | Assigned value | Frequency | Percent | Percentage of local firms with Japanese investment |
|---|---|---|---|---|
| 0 | 0.00 | 1866 | 88.6 | |
| 0–25 | 1.00 | 131 | 6.2 | 54 |
| 25–50 | 2.00 | 95 | 4.5 | 40 |
| >50 | 3.00 | 15 | 0.7 | 6 |
| | Total | 2107 | 100.0 | 100 |

# APPENDIX B: DEPENDENT VARIABLES MEASURING LEVELS OF JV INVESTMENT

See Tables B1 and B2.

**Table B1**   Results of hierarchical Poisson models with robust standard errors predicting levels of joint venture investment from US firms for large group-affiliated firms in Taiwan, 1988–1998

| Variable | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| *Control variables* | | | | | | |
| *Group-level characteristics* | | | | | | |
| Industry diversification | −0.506 | (0.593) | −0.141 | (0.574) | −0.032 | (0.548) |
| Net assets as % of total assets | −0.002 | (0.006) | 0.000 | (0.006) | 0.001 | (0.006) |
| | | | | | | |
| *Firm-level characteristics* | | | | | | |
| Firm age | −0.068*** | (0.013) | −0.073*** | (0.013) | −0.074*** | (0.013) |
| Firm size (total sales logged) | 0.349*** | (0.073) | 0.222** | (0.072) | 0.229** | (0.073) |
| Return on assets | 0.011 | (0.008) | 0.017* | (0.009) | 0.018* | (0.009) |
| Debt equity ratio (logged) | −0.340*** | (0.085) | −0.253*** | (0.070) | −0.238*** | (0.071) |
| | | | | | | |
| *Traditional industries (omitted category)* | | | | | | |
| Machinery | −0.224 | (0.585) | 0.132 | (0.576) | 0.187 | (0.584) |
| Electrical/electronics | 0.166 | (0.434) | 0.231 | (0.422) | 0.248 | (0.426) |
| Construction | −0.203 | (0.322) | 0.011 | (0.332) | 0.019 | (0.325) |
| Retail | −0.737* | (0.346) | −0.505 | (0.337) | −0.480 | (0.332) |
| Real estate and finance | −0.297 | (0.311) | −0.511 | (0.347) | −0.499 | (0.338) |
| Other services (professional) | −0.706 | (0.451) | −0.541 | (0.446) | −0.562 | (0.453) |

**Table B1**  Continued

| Variable | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| After 1994 | 0.040 | (0.108) | 0.109 | (0.105) | 0.102 | (0.111) |
| Other foreign investment (other than US) | −0.017* | (0.008) | −0.022** | (0.008) | −0.023** | (0.008) |
| Family chair | −0.145 | (0.159) | −0.164 | (0.177) | −0.293 | (0.184) |
| *Independent variables* | | | | | | |
| Family ownership | | | −0.018*** | (0.003) | −0.013** | (0.004) |
| Family chair × Family ownership | | | | | −0.011** | (0.003) |
| Constant | −2.311** | (0.725) | −1.299 | (0.899) | −2.245** | (0.764) |

*Notes:* Number of firm/year observations=2,107; number of firms=801; number of business groups affiliated with=175.
Numbers in parentheses are standard errors.
*p<0.05, **p<0.01, ***p<0.001 (two-tailed tests).

**Table B2**  Hierarchical Poisson models with robust standard errors predicting levels of joint venture investment from Japanese firms for large group-affiliated firms in Taiwan, 1988–1998

| Variable | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|
| *Control variables* | | | | | | |
| *Group-level characteristics* | | | | | | |
| Industry diversification | 0.852** | (0.290) | 0.899** | (0.285) | 0.882** | (0.287) |
| Net assets as % of total assets | 0.005* | (0.002) | 0.005* | (0.003) | 0.006* | (0.003) |
| *Firm-level characteristics* | | | | | | |
| Firm age | −0.014* | (0.007) | −0.017 | (0.009) | −0.017 | (0.009) |
| Firm size (total sales logged) | 0.047 | (0.045) | −0.049 | (0.060) | −0.052 | (0.060) |
| Return on assets | 0.009* | (0.004) | 0.012** | (0.004) | 0.012** | (0.004) |
| Debt equity ratio (logged) | −0.090 | (0.054) | −0.023 | (0.066) | −0.018 | (0.066) |
| *Traditional industries (omitted category)* | | | | | | |
| Machinery | 1.044*** | (0.303) | 1.062** | (0.345) | 1.062** | (0.344) |
| Electrical/electronics | 0.431 | (0.239) | 0.494 | (0.268) | 0.494 | (0.270) |
| Construction | −1.105* | (0.477) | −0.946* | (0.463) | −0.952* | (0.466) |
| Retail | 0.151 | (0.146) | 0.309 | (0.164) | 0.316* | (0.161) |
| Real estate and finance | −0.976*** | (0.237) | −1.168*** | (0.283) | −1.167*** | (0.281) |
| Other services (professional) | −0.808* | (0.397) | −0.656 | (0.381) | −0.677 | (0.380) |
| After 1994 | 0.104 | (0.072) | 0.136 | (0.085) | 0.131 | (0.084) |
| Other foreign investment (other than Japan) | −0.032*** | (0.008) | −0.036*** | (0.008) | −0.037*** | (0.008) |
| Family chair | −0.163 | (0.094) | −0.162 | (0.111) | −0.176 | (0.118) |
| *Independent variables* | | | | | | |
| Family ownership | | | −0.015*** | (0.002) | −0.013*** | (0.003) |
| Family chair × Family ownership | | | | | −0.004 | (0.003) |
| Constant | −2.097*** | (0.491) | −1.204* | (0.600) | −1.869*** | (0.557) |

*Notes:* Number of firm/year observations=2,107; Number of firms=801; Number of business groups affiliated with=175.
Numbers in parentheses are standard errors. *p<0.05, **p<0.01, ***p<0.001 (two-tailed tests).

# APPENDIX C

See Table C1.

**Table C1**     Effect of the definition of family firm on family firms' relative prevalence and likelihood of receiving JV investment from US and Japan

| Definition of family firm | Percentage of family firms in sample | Hierarchical model coefficients for US investment | Hierarchical model coefficients for Japanese investment |
|---|---|---|---|
| 1. Family members are either blockholders, chair, or manager | 97.1 | −0.59+ | −0.03 |
| 2. The family is the largest shareholder | 77.2 | −0.73** | −0.79*** |
| 3. Family members are the largest shareholder and chair and manager | 18.6 | −0.88** | −0.42* |
| 4. The head of the business group (with which the family firm is affiliated) is from the second generation | 28.6 | 0.3+ | −0.1 |
| 5. Family members are the largest shareholder and also chair, and the head of the business group is from second generation | 13.8 | −0.178 | −0.23 |
| 6. Family members are the largest shareholder and also chair and manager, and the head of the business group is from second generation | 6.4 | −0.22 | 0.02 |

*Notes*: Family members include those from both immediate and extended family.
Family shareholders and blockholders are owners of the firm's equity, either individually or through other group member firms under their control. Blockholders are owners of 5% or more of the firm's equity.
The coefficients are those of a family firm dummy variable (defined differently as in this table) in hierarchical models predicting US or Japanese investment with the family firm dummy and the following control variables: industry diversification of the business group with which the family firm is affiliated; asset/liability ratio of the group, firm age; total sales of firm (logged); ROA of firm; debt/equity ratio of firm (logged); industry of firm (see categories in Table 4); post-1994 period; and other foreign investment (other than US or other than Japan).
+$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.
Estimation was based on a total number of 2,107 firm/year observations, 801 firms, and 175 business groups.

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