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## POWER DEPENDENCE, DIVERSIFICATION STRATEGY, AND PERFORMANCE IN KEIRETSU MEMBER FIRMS

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*Conceptualizing the keiretsu as a power-dependence system, we propose that benefits accruing from keiretsu affiliation differ across member firms, depending on their power in (or dependence on) the keiretsu. By integrating power with governance and internal market perspectives on group affiliation, we develop and find general support for the hypotheses that powerful keiretsu member firms are able to place more emphasis on growth in pursuing product and international diversification, whereas less powerful keiretsu member firms are subject to strong monitoring and emphasize profitability. These findings provide support to the study's proposition that power-dependence relationships in a keiretsu influence member firms' appropriation of group affiliation benefits in pursuing diversification strategies.* Copyright © 2004 John Wiley & Sons, Ltd.

## INTRODUCTION

Both the popular and the scholarly press often provide a portrait of Japanese firms grouping themselves into coherent clusters of affiliated firms extending across a broad spectrum of markets, giving rise to 'a thick and complex skein of relations matched in no other industrial country' (Caves and Uekusa, 1976). This pattern of interfirm relationships is most visible when these clusters become institutionalized into identifiable keiretsu, or business groups. Not only are members of the keiretsu interwoven by various ties including equity, debt, trade, and personnel, but membership has also been remarkably stable over time (McGuire and Dow, 2003; Gerlach, 1992). The prior research suggests keiretsu member firms enjoy

significant benefits over independent firms (i.e., non-keiretsu member firms). From a corporate governance perspective, the keiretsu system serves as an efficient monitoring mechanism that can mitigate the incentive, information, and control problems associated with agency conflicts, thereby reducing agency costs and improving efficiency (e.g., Aoki, 1994; Aoki, Patrick, and Sheard, 1994; Berglof and Perotti, 1994). In addition, as an internal market, the keiretsu provides member firms with access to resources controlled by other members, thereby easing resource constraints and encouraging firm growth (Gerlach, 1992; Hoshi, 1994; Khanna and Rivkin, 2001).

These keiretsu affiliation benefits have been argued to influence the relationship between diversification and performance of keiretsu member firms (e.g., Geringer, Tallman, and Olsen, 2000). Although product and international diversification strategies have the potential to increase firm performance, some managers may expand firm operations with the purpose of increasing managerial benefits (e.g., Denis, Denis, and Sarin, 1997; Henderson and Fredrickson, 1996; Seth, Song, and Pettit, 2000). Insofar

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as the keiretsu system serves as an efficient monitoring mechanism, it may limit inappropriate diversification that may be pursued by keiretsu member firms. On the other hand, diversifying into new product and international markets typically requires significant commitment of new resources. When keiretsu member firms have better access to group resources, their diversification strategies would be less constrained by their own resources. Despite recent studies on diversification strategies of Japanese firms (e.g., Delios and Beamish, 1999; Geringer *et al.*, 2000), how these keiretsu affiliation benefits affect the diversification–performance relationship among keiretsu member firms is relatively unexplored.

Prior studies on keiretsu have been premised upon the implicit assumption that the benefits and costs of keiretsu affiliation are shared equally among group members and have relied on a two-category classification: keiretsu-affiliated member firms and independent firms (e.g., Geringer *et al.*, 2000; Hundley and Jacobson, 1998; Nakatani, 1984). Accordingly, these studies have focused on the value creation potential of keiretsu. However, little emphasis has been focused on how the value created is appropriated by keiretsu member firms. Our research goes beyond this implicit assumption and maintains that keiretsu affiliation benefits may be appropriated differentially among keiretsu member firms. When the value creation and appropriation aspects of the keiretsu are taken into consideration, the relationship between diversification strategies and performance for keiretsu member firms is likely to be more complex than is currently understood.

Drawing on a power-dependence perspective (Emerson, 1962; Pfeffer and Salancik, 1978), our study focuses on the division of value created by the keiretsu member firms in the pursuit of product and international diversification strategies. While recognizing that the keiretsu provides unique potential governance and internal market benefits to member firms that are not available for independent firms, we propose that the appropriation of the benefits may not be evenly accessed by all member firms within the keiretsu (Gomes-Casseres and Leonard-Barton, 1997). More specifically, we suggest that member firms with strong power in a keiretsu appropriate internal market benefits to enhance their own growth through the pursuit of diversification strategies. Because firm growth is widely regarded as a key strategic goal of Japanese firms (e.g., Abegglen and Stalk,

1985; Katz, Werner, and Brouthers, 1999), powerful member firms would pursue diversification to facilitate increased growth. Alternatively, member firms with weak power in a keiretsu would be more subject to the strong governance characteristics of the keiretsu and thereby be required to emphasize profitability when pursuing diversification strategies. Viewed from this perspective, the relationship between diversification strategies and firm performance among keiretsu member firms hinges on the member firm's power-dependence relationships in a keiretsu. As such, the simple comparison between keiretsu member firms and independent firms, as in the prior studies (e.g., Geringer *et al.*, 2000; Hundley and Jacobson, 1998), runs the risk of masking important implications of such differences among keiretsu member firms. Accordingly, we compare keiretsu member firms with dissimilar power-dependent relationships in their keiretsu as well as independent firms in seeking to arrive at a more precise conclusion regarding performance implications of member firm diversification strategies. Thus, we seek to provide a more in-depth understanding of the benefits of keiretsu membership by examining the potential effects of power-dependence on the relationships between product and international diversification strategies relative to both member firm growth and profitability performance indicators. The addition of a power-dependence perspective to examine member firm's value appropriation might also have implications for research among business groups more broadly (e.g., Ghemawat and Khanna, 1998; Guillen, 2000; Khanna and Palepu, 2000a, 2000b; Khanna and Rivkin, 2001), as it is likely that power differentials exist among member firms in most, if not all, business groups.

## KEIRETSU AFFILIATION BENEFITS

Our study focuses on the major bank-centered horizontal keiretsu. Historically, there have been six major bank-centered horizontal keiretsu in Japan: Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi Kangyo.<sup>1</sup> In addition to a commercial bank, each keiretsu usually includes other financial

<sup>1</sup> In addition to bank-centered horizontal keiretsu, there are also vertical keiretsu, which refer to a group of firms maintaining long-term manufacturer–supplier relationships. While vertical keiretsu presents an interesting theoretical and managerial challenge, our study focuses on bank-centered (or horizontal)

institutions, general trading companies, and industrial firms in virtually all the important sectors. Gerlach (1992) reports that about one-half of the 200 largest industrial firms and almost all leading financial institutions maintain clear affiliation with a horizontal keiretsu.<sup>2</sup> Despite the prevalence of keiretsu systems in Japan, there are large firms that are not affiliated with a keiretsu. These independent firms, unlike keiretsu member firms, have a more arm's-length type of relationship with shareholders and business partners. It is not unusual to find keiretsu member firms and independent firms competing with each other as major players in the same industry. Take the consumer electronics industry as an example. Toshiba, Nikon, Sanyo, Canon, Sharp, and Asahi Optical maintain close relations with Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi Kangyo (major horizontal keiretsu systems), respectively. In contrast, Sony and Matsushita remain largely independent and compete fiercely with the keiretsu member firms.

Keiretsu affiliation is maintained and reinforced by a multiplicity of ties (Aoki, 1994; Berglof and Perotti, 1994; Gerlach, 1992; Lincoln, Gerlach, and Ahmadjian, 1996). The presidents' council holds monthly meetings attended by the presidents of core members. Although it is seldom involved in the decision-making process of individual members, the presidents' council symbolizes group identity and provides a forum for sharing information, discussing mutual concerns, and coordinating decisions (Gerlach, 1992). More concretely, a keiretsu serves as a significant source of capital for member firms. Although most members borrow from financial institutions outside the keiretsu, group financial institutions—particularly the commercial bank—are likely to be the largest lenders to keiretsu member firms. Keiretsu financial institutions also maintain significant shareholding of keiretsu members, some of which also hold shares of keiretsu financial institutions in reciprocity. Such interlocking shareholdings are also found among industrial firms in the keiretsu. In addition, keiretsu banks often send their employees

keiretsu. Accordingly, the term keiretsu is used to indicate bank-centered keiretsu in this article.

<sup>2</sup> Recently, there has been a wave of bank mergers including commercial banks of these six major keiretsu. We discuss this recent development and its implications in the implications and conclusions section.

to their member firms as board members and, likewise, member firms also exchange board members with one another.

Keiretsu membership reflects historical, institutional, and social factors as much as rational cost/benefit analysis by members. Of the six groups, three emerged from the former zaibatsu that were dismantled by the U.S. occupation force; the other three groups formed around major commercial banks. In this process, prior economic and social relationships played a significant role. After joining the keiretsu, members over time became coupled together by a variety of economic and social ties, creating strong group identity and inter-group rivalry (Miyashita and Russell, 1994). As such, firms cannot simply choose to alter its affiliation to obtain a higher profit or pursue other strategic goals. Indeed, it is rare for firms to switch groups in Japan, as reported by prior studies (Gerlach, 1992; Nakatani, 1984). The influence of keiretsu affiliation is vividly described by Sakai:

If you belong to the Mitsubishi group, for instance, you not only drink Kirin Beer to support a member of a group but you also bank with Mitsubishi Bank, buy securities from Nikko and life insurance from Meiji Life, drive a Mitsubishi car, and insure it through Tokyo Marine & Fire. (Sakai, 1990: 8)

## Governance perspective

Many scholars propose that keiretsu systems represent an effective corporate governance structure that can mitigate incentive, information, and control problems associated with agency conflicts. A keiretsu member firm obtains most of its capital from other members, including the main bank, which is typically the largest lender and holds a substantial equity stake in the firm. The monitoring responsibility in a keiretsu is usually delegated to the main bank; lending firms (other than the main bank) do not monitor the borrowing firms with the same intensity (Aoki, 1994; Berglof and Perotti, 1994). Such delegated monitoring (Diamond, 1984) overcomes incentive or free-riding problems to the extent that the delegated monitor—the main bank—has an incentive to fulfill its responsibility. With significant stakes as both a shareholder and a debt holder, the main bank has a strong incentive to monitor group members closely to safeguard its own interests as both a lender and an equity holder,

hence enforcing internal discipline as well as protecting other financial stakeholders (Berglof and Perotti, 1994).

Although the main bank can maintain a legal maximum of only 5 percent ownership in a firm, extensive cross-ownership within the keiretsu allows the main bank to mobilize shareholdings of other firms in the keiretsu for concerted voting (Aoki *et al.*, 1994), constituting a 'collective enforcement mechanism' (Berglof and Perotti, 1994: 268). Therefore, when a member firm is in financial distress, the main bank along with key shareholder member firms have the ability to compel the managers of the troubled firm to take necessary actions or to lead restructuring efforts, including dispatching new directors to and replacing top managers of the firm (Pascale and Rohlen, 1983; Sheard, 1994). This collective monitoring is especially true for key member firms that hold significant shares of the member firm that is experiencing financial distress. Despite an inactive external market for corporate control in Japan (Kester, 1990), the keiretsu system has an effective internal control mechanism in place to enforce *ex post* punishment of opportunistic or incompetent managers among keiretsu member firms. To the extent that member firms' managers are concerned with the potential consequences of managerial opportunism, the collective enforcement mechanism may also serve as a credible *ex ante* corporate governance mechanism to thwart such behaviors.

Although the keiretsu system provides for improved monitoring of member firms, the governance system also provides a risk-sharing mechanism for member firms (Nakatani, 1990; Sheard, 1994). As such, keiretsu member firms utilize main-bank relationships, interlocking shareholdings, and other stable interfirm linkages to insulate themselves from market forces. This mechanism provides a rationale why member firms remain committed to keiretsu affiliation, in addition to historical or institutional heritage. When a member is in financial distress, for instance, the main bank usually arranges a collective or group-wide rescue operation. A well-documented case is Sumitomo keiretsu's collective effort to rescue Mazda Motor in the 1970s, whereby Sumitomo Bank provided emergency financing and mobilized member firms to offer supply and sales support (Pascale and Rohlen, 1983; for a list of similar cases, see Sheard, 1994). Accordingly, Suzuki and Wright (1985) found that keiretsu member firms have a

much lower bankruptcy risk than do independent firms. In a study on firms in financial distress, Hoshi, Kashyap, and Scharfstein (1990a) found that keiretsu member firms invested more than independent firms did in the period following the onset of financial distress and subsequently demonstrated faster return to improved performance. These findings provide evidence of the risk-sharing property of the keiretsu system: (1) bankruptcy risk is attenuated and (2) recovery from financial distress accelerates.

In short, keiretsu systems resolve incentive, information, and control problems associated with agency conflicts, thereby serving as an effective corporate governance and monitoring mechanism. In the context where boards are heavily dominated by insiders and the market for corporate control is poorly developed (Ahmadjian, 2000; Charkham, 1994; Kester, 1990), the governance function of keiretsu systems would have significant implications for strategy and performance of keiretsu member firms, compared to independent firms. Besides the monitoring function, however, member firms also receive benefits of risk sharing to help them overcome problems that they may encounter. Thus, the keiretsu group, as a governance structure, serves not only as a strong collective monitor but also as a system for overcoming problems discovered collectively.

## Internal market perspective

The keiretsu group, which usually includes a member in every major industrial sector, performs the role of an internal market resource allocator as suggested by Khanna and Palepu (1997, 2000a, 2000b). As reported in Gerlach (1992), a keiretsu member firm is about three times more likely to trade with other members in the keiretsu than with outside firms. Keiretsu member firms prefer to transact with one another on a long-term basis than with outside firms, engaging in extensive internal (to the keiretsu) purchasing and selling of goods and services. Furthermore, internal trade among member firms can be used to engage in cross-subsidization within a keiretsu (Lincoln *et al.*, 1996), which can then be used to help build growth and market share in new product or foreign markets through the extensive and reliable support of other keiretsu member firms.

Also, the keiretsu, as a facilitator of an internal capital market, can improve investment effectiveness. As pointed out by Myers and Majluf (1984), information asymmetries between managers and investors increase cost of external financing, and, therefore, the amount of firm investment is sensitive to the availability of internal funds. However, keiretsu member firms can overcome these problems by raising funds from main banks and other group members inside the keiretsu, thereby financing, to a greater extent, ventures that show signs of potential growth. Indeed, several studies have reported that keiretsu member firms demonstrate a much smaller sensitivity to internal funds than independent firms regarding capital investments (Hoshi, Kashyap, and Scharfstein, 1991), R&D investments (Miyajima, Arikawa, and Kato, 2002), and foreign direct investments (Belderbos and Sleuwaegen, 1996).

Ties between member firms through personnel transfer and social relations serve as a conduit for information flow (Gerlach, 1992). For example, valuable foreign market knowledge obtained by the keiretsu's trading company (*sogo shosha*) and other member firms can help keiretsu member firms compete internationally (Belderbos and Sleuwaegen, 1996; Delios and Beamish, 1999). In addition, association with a keiretsu may enhance a member firm's reputation and status or signify its credibility, contributing to its potential growth over independent firms.

In short, as an internal market that includes members in all the major sectors, the keiretsu can provide a broad scope of benefits in the institutional context where market mechanisms are less developed in comparison to the United States. Therefore, keiretsu member firms can mobilize resources embedded in a web of relationships in the keiretsu as well as those residing in themselves, thereby creating group-based resource allocation advantages over independent firms.

## APPROPRIATION OF KEIRETSU AFFILIATION BENEFITS

Despite the prevalent view that keiretsu affiliation improves member firm performance, the empirical literature has by and large found no significant difference in performance between keiretsu member firms and independent firms. Brown, Soybel, and Stickney's (1994) study showed that there

is no difference in profitability between keiretsu member firms and independent firms, and actually keiretsu member firms' profit margin were significantly lower compared to that of independent firms. Likewise, Geringer and colleagues (2000) found no difference in most performance indicators between keiretsu member firms and independent firms in Japan. Hundley and Jacobson (1998), examining keiretsu effects on the export performance of Japanese firms, found that keiretsu member firms exhibit lower export ratios compared to independent firms, and suggested that keiretsu affiliation may even reduce member firms' competitiveness. Likewise, studies on the performance implications of the Japanese firm's diversification strategies have been mixed. Delios and Beamish (1999) found that international diversification is positively related to firm profitability but there is no relationship between product diversification and firm profitability. However, this study did not control for keiretsu membership. On the other hand, Geringer and colleagues' (2000) study found that international diversification is negatively related to firm profitability but positively related to sales growth during some time periods whereas the relationship between product diversification and performance is weak. However, these authors did not fully examine whether keiretsu membership moderates the relationship between corporate diversification strategies and firm performance. By recognizing member firms' heterogeneous power-dependence relationships embedded in a keiretsu and including such recognition in the empirical testing, our study may provide a conceptual and empirical rationale explaining the mixed findings in the extant literature.

## Power-dependence perspective

We propose that not all keiretsu member firms enjoy the same benefits over independent firms because embedded power-dependence relationships within a keiretsu represent a potential crucial factor in the relative appropriation of group affiliation benefits. Although the keiretsu system entails governance and internal market benefits, it is unlikely that these benefits accrue to all the member firms on an even basis. Instead, some members may gain more than others. By explicitly recognizing the power-dependence relationships in the keiretsu, we contend that keiretsu member firms possessing stronger power in their keiretsu

would have more influence in benefit appropriation. Consequently, keiretsu member firms, due to differentiated power levels within their keiretsu, are likely to obtain different types and levels of affiliation benefits.

The importance of the concept of power in social exchange relations has been underscored in Emerson's (1962) power-dependence arguments. Power fundamentally resides in the dependence of one actor on another. Although both actors are mutually dependent in an exchange, it does not mean that they are always *equally* dependent on each other. The less dependent actor will maintain a power advantage, resulting in a power imbalance. In essence, asymmetric dependence between two actors in an exchange relation constitutes the essence of the concept of power dependence. The power-dependence logic has been extended to the context of interorganizational relationships (Pfeffer and Salancik, 1978) and a group of organizations (Davis and Powell, 1992) and accordingly, one can predict exchange outcomes on the basis of power-dependence relations. Hence, conceptualizing keiretsu systems as power-dependence systems allows us to understand member relations from a new perspective: one that recognizes inferred power as a significant factor in influencing firm actions and outcomes.

Internal arrangements of the keiretsu demonstrate differential power-dependence relationships among member firms. The presidents' council, as a forum for group-wide information sharing and decision making, symbolizes group identity and membership in the presidents' council often carries significant influence among the keiretsu member firms as well as in the business community and society at large. Thus, president council members are in more powerful positions to voice their opinions on group-wide issues than are other keiretsu member firms. Asymmetries in resource flow as indicated by ownership structure, debt structure, and directorship structure also have clear power-dependence implications, as suggested by power-dependence or resource-dependence theory (e.g., Emerson, 1962; Pfeffer and Salancik, 1978). To illustrate, if a member has its shareholdings largely held by other members, its dependence on the keiretsu becomes substantial and hence its actions are likely to be significantly constrained by the keiretsu. In this regard, the characteristics of relations reflect a member's dependence level (or its

power) in the keiretsu (Finkelstein, 1992; Pfeffer and Salancik, 1974).

Extant theoretical arguments, which are largely premised on governance and internal market perspectives, have suggested that keiretsu member firms enjoy benefits compared to independent firms. By adding a power-dependence perspective to extant research, we seek to advance the argument that different keiretsu member firms enjoy different benefits than independent firms. Below we develop a set of research hypotheses that delineate how power-dependence relationships are manifested in the context of keiretsu member firms' diversification strategies.

### Research hypotheses

The importance of product and international diversification strategies as one of the most fundamental corporate strategies has been widely noted in the strategy literature (e.g., Hitt, Hoskisson, and Kim, 1997; Hoskisson and Hitt, 1990; Palich, Cardinal, and Miller, 2000). By expanding into new product areas, new foreign countries, or both, firms can generate additional profit and growth by exploiting the firm-specific advantages across multiple product and geographical markets. Scholars have studied product and international diversification for many years. For the most part, they have been studied separately. Since Rumelt (1974), strategy scholars have studied how different types of product diversification influence firm performance. At the same time, many studies of international diversification suggest that the efficient use of intangible assets allows multinationals to outperform their less geographically diversified competitors (Caves, 1971; Hymer, 1960). Recent studies of diversification often examine both international and product diversification. For example, Grant (1987), Grant, Jammie, and Thomas (1988), Geringer, Beamish, and daCosta (1989), Hitt and colleagues (1997), Kim, Hwang, and Burgers (1989, 1993), Sambharya (1995), and Wan and Hoskisson (2003) studied the effects of both international diversification and product diversification on firm performance. Likewise, recent studies on Japanese firms' diversification strategies included both product and international diversification strategies and their importance has been shown in large firms in Japan (e.g., Delios and Beamish, 1999; Geringer *et al.*, 2000). Therefore, including both product and international

diversification in a study enhances the overall understanding of firms' diversification strategies and how they may affect performance.

Despite the value-creation potentials, diversification strategies can be manipulated to increase managerial benefits. Product diversification strategy may be driven by managers' desires to reduce their personal employment risks or to increase their compensation and status in the business community, rather than by performance considerations (e.g., Denis *et al.*, 1997; Henderson and Fredrickson, 1996). Likewise, international diversification strategy may be used by managers to pursue similar goals. For example, Seth and colleagues (2000) found evidence that some managers may pursue cross-border acquisitions to attain personal benefits at the expense of shareholder benefits. Although Japan lacks an active external market for corporate control and the boards of directors of most Japanese firms usually do not have many outsider members (Charkham, 1994; Kester, 1990), the keiretsu system represents an efficient corporate governance mechanism for monitoring managerial actions (Berglof and Perotti, 1994). Because of their positions as major shareholders and debt holders, the financial institutions in the keiretsu, especially the main banks, are able to better evaluate the viability of potential diversification projects, monitor performance of ongoing projects, verify their results and exercise control over firms if necessary (Kang, Shivdasani, and Yamada, 2000). This stream of literature therefore suggests that the keiretsu system would mitigate agency problems associated with inappropriate diversification strategies, thereby improving performance in relation to diversification.

While previous literature characterizes the keiretsu as an efficient monitoring mechanism (Aoki, 1994; Berglof and Perotti, 1994), it assumes all keiretsu member firms are equally monitored within the keiretsu. With high dependence on the keiretsu, keiretsu member firms with weak power are likely to be more susceptible to monitoring and influence of the main bank and other core members linked through a variety of ties such as ownership, debt holding, and directorship. If these member firms encounter financial distress resulting from inadequate management, such as from pursuing inappropriate product or international diversification, the main banks and other core members in the keiretsu would initiate restructuring (Kang and

Shivdasani, 1997). Viewed from such a power-dependence perspective, the diversification strategies of keiretsu firms with weak power would be closely monitored and controlled and hence agency costs are likely to be reduced. Therefore, unlike independent firms that may lack strong monitoring, keiretsu member firms with weak power would place greater emphasis on profitability in pursuing diversification strategies. In this regard, they are likely to produce higher levels of profitability from diversification, compared to independent firms.

*Hypothesis 1a: Compared to independent firms, keiretsu member firms with weak power will show a positive relationship between product diversification and profitability.*

*Hypothesis 1b: Compared to independent firms, keiretsu member firms with weak power will show a positive relationship between international diversification and profitability.*

On the other hand, although keiretsu member firms with strong power may act as keen monitors in the keiretsu, they themselves may not be as susceptible to strong monitoring regarding profitability. As Hoskisson and Turk (1990) contend, corporate managers can reduce agency problems at the divisional level by monitoring division managers, but agency conflicts still exist at the corporate level if corporate managers are not monitored properly. In this regard, keiretsu member firms with strong power may have latitude to pursue diversification strategies with less emphasis on profitability. In many respects, this characteristic of keiretsu governance structure may place keiretsu member firms with strong power and independent firms in a comparable position from a corporate governance perspective. Keiretsu member firms with strong power may be able to block attempts by other member firms and the main bank to force efficiency on them. Similarly, with boards dominated by inside managers (typical of most Japanese firms), some independent firms may be able to focus on diversification without an accompanying emphasis on profitability. For example, Matsushita, a leading electronic company, has presence in a significant number of product areas; however, its profitability has been low (Kunii, 2002). Furthermore, its major international foray into the entertainment business, the acquisition of MCA in the United

States in 1990, was unsuccessful and had to be divested in 1995 (Hamilton, 1995). Despite its low profitability, Matsushita has been reluctant to take major restructuring efforts to increase its profits until recently when the situation became more severe (Landers, 2000). To a certain extent, this example may indicate that independent firms in Japan, often unrestrained by strong corporate governance monitoring, may not always place great emphasis on profitability in their diversification strategy. Therefore, when examining the relationship between diversification and profitability, we have no reason to expect differences in such a relationship between keiretsu member firms with strong power and independent firms.

*Hypothesis 2a: Compared to independent firms, keiretsu member firms with strong power will show no difference in the relationship between product diversification and profitability.*

*Hypothesis 2b: Compared to independent firms, keiretsu member firms with strong power will show no difference in the relationship between international diversification and profitability.*

Many authors have suggested that growth is a key strategic goal of Japanese firms (e.g., Abeglen and Stalk, 1985; Kagano *et al.*, 1985; Katz *et al.*, 1999). Japanese firms are often described as seeking firm growth, even sacrificing profitability, to attain economies of scale for global competition (Brown *et al.*, 1994) or to maintain prestige in Japan (Aoki, 1984). Furthermore, Japanese firms may pursue high levels of growth to increase job security or promotion opportunities for management and employees, and to provide business opportunities to banks and business partners, maximizing the joint utilities of their constituents (Aoki, 1984, 1988).

As discussed above, although keiretsu member firms with strong power may act as keen monitors, they themselves may not be as susceptible to monitoring that emphasizes profitability. Dharwadkar, George, and Brandes (2000) suggest that, in economies with weaker corporate governance mechanisms, dominant shareholders with large equity stakes can benefit at the expense of weak shareholders. In a similar vein, we suggest that while powerful keiretsu member firms provide corporate governance monitoring to induce weak member firms to focus on profitability, they may

mobilize resources in the keiretsu to pursue their own growth objectives. As such, keiretsu member firms with strong power are likely to capture a larger portion of the group's internal market benefits that allows greater opportunities for firm growth.

Expanding into new product and international markets typically entails significant commitments of new resources. To the extent that the keiretsu mitigates resource constraints of individual member firms by performing the roles of internal markets, keiretsu affiliation would improve performance in connection with diversification strategies. In explaining successful diversification into memory chip markets by Japanese firms, Rappa (1985) highlights the advantages of the keiretsu in regard to availability of low-cost capital and ease of collaborations with key suppliers and customers. Kubota, a heavy machinery manufacturing company in the Fuyo group, apparently benefiting from patient capital from its keiretsu, could afford to adopt a long-term strategy of up to 20 years in its equity investments in Silicon Valley's technology companies (Teece, 1992). The presence of sogo shosha (large Japanese general trading companies) in the keiretsu also enhances firms' international diversification. For example, Mitsubishi Corporation, a sogo shosha in the Mitsubishi keiretsu, currently maintains presence in more than 100 countries and provides various kinds of business services, such as financing, marketing, consulting services, and foreign market information, to aid member firms in the group to expand internationally. To the extent that keiretsu member firms with strong power can muster substantial resources in the keiretsu, internal market benefits would allow these firms to achieve higher levels of firm growth from product and international diversification, compared to independent firms. In their study about diversification strategies of Japanese multinational firms, Geringer and colleagues (2000) found that international diversification is negatively related to firm profitability, but positively related to sales growth. Although these findings might reflect Japanese firms' strategy of 'buying market share' in foreign market expansion at the expense of short-term profitability, the effects of keiretsu affiliation were not fully examined. Therefore, we suggest that although the keiretsu offers resources necessary to pursue sales growth beyond what profitability makes possible, we argue that it is powerful member firms rather than less powerful ones that can

actually pursue such an action. Thus, we expect keiretsu member firms with strong power to obtain high levels of sales growth from diversification, relative to independent firms.

*Hypothesis 3a: Compared to independent firms, keiretsu member firms with strong power will show a positive relationship between product diversification and sales growth.*

*Hypothesis 3b: Compared to independent firms, keiretsu member firms with strong power will show a positive relationship between international diversification and sales growth.*

Although keiretsu member firms with weak power are part of the keiretsu's internal market system, they would be subject to intense monitoring by powerful member firms to emphasize profitability in pursuing diversification, as suggested above, and thus they are less likely to enjoy all of the internal market benefits available in the keiretsu. In all likelihood, they would be expected to contribute resources to help the sales growth objective of the powerful member firms in exchange for improved survival benefits associated with keiretsu risk sharing (Nakatani, 1984; Weinstein and Yafeh, 1998). In cases where they capture some internal market performance benefits, these benefits are likely to be tilted more towards enhancing profitability than increasing firm growth. Accordingly, keiretsu member firms with weak power would find it difficult to mobilize resources available in the keiretsu to pursue firm growth. Likewise, although independent firms may have a tendency to pursue sales growth as well, they are often hampered by the difficulty in obtaining bank credits and other crucial foreign market information such as those available for keiretsu member firms with strong power. A recent study by Klein, Peek, and Rosengren (2002) found evidence that easy access to bank credit is a crucial factor in affecting Japanese firms' foreign expansion. In this regard, independent firms, often lacking close ties with major banks, are more likely to be constrained in the availability of external funding to pursue business growth. With less ardent support from the major keiretsu financial institutions, independent firms are likely to find it more difficult to obtain necessary capital to achieve high growth through diversification strategies. Thus, we expect the relationship between product diversification and sales growth as well as that between international diversification and sales

growth would not differ between keiretsu member firms with weak power and independent firms.

*Hypothesis 4a: Compared to independent firms, keiretsu member firms with weak power will show no difference in the relationship between product diversification and sales growth.*

*Hypothesis 4b: Compared to independent firms, keiretsu member firms with weak power will show no difference in the relationship between international diversification and sales growth.*

## METHODS

### Sample

The sample of this study was drawn from the Worldscope database. To be included, a firm had to be a manufacturing firm and its stock had to be traded in the first section of the Tokyo Stock Exchange with a sales volume that exceeded U.S. \$1 billion in 1991. Non-manufacturing firms were excluded to avoid possible distortions caused by government regulations. The final sample included 295 firms.

### Dependent variables

Return on assets (ROA) was employed as a measure of firm profitability. ROA is considered an accounting-based indicator and superior to ROE, which is affected by capital structure as well as operational efficiency. ROA was also highly correlated with ROS (correlation = 0.88) and both generated similar findings. Sales growth was measured as annual percentage change in sales. To smooth out annual fluctuations in accounting data, 3-year averages from the 1990–92 period were used for both ROA and sales growth.

### Keiretsu classification

Identifying keiretsu membership is challenging because there are no membership dues or other formalities delineating its membership. Prior research has relied on two methods. One commonly used method is to determine whether the firm in question has a seat on the presidents' council that brings together presidents of core group members (e.g., Caves and Uekusa, 1976; Gerlach, 1992). The presidents' council symbolizes group identity and its membership signifies identity of core members

to the business community and society at large. Indeed, the presidents' council members are more likely to use the group name and logo (e.g., Mitsubishi's three diamonds). While the presidents' council membership may be the easiest and most unambiguous criterion for keiretsu membership, a keiretsu group's influence extends far beyond this circle of firms (Gerlach, 1992; Lincoln *et al.*, 1996). Numerous firms lacking presidents' council seats are tied to the keiretsu through a multiplicity of ties. To capture a broader scope of keiretsu influence, other studies have relied on reference sources which identify keiretsu membership more broadly based on considerations such as ownership, lending relationships, director memberships, and historical relationships (e.g., Nakatani, 1984; Hundley and Jacobson, 1998).

Despite differing presupposed boundaries of keiretsu membership, classifications by the reference sources as well as by presidents' council membership have resulted in the firm being assigned into one of two categories: keiretsu member firms vs. independent firms (e.g., Hoshi *et al.*, 1990a, 1990b, 1991; Nakatani, 1984; Prowse, 1992). Such binary measures, however, are not rich enough to capture the complex power-dependence relationships in the keiretsu. To capture different power-dependence positions embedded in the keiretsu, we employed cluster analysis. First, we identified keiretsu members relying on the 1992 issue of Dodwell's *Industrial Groupings in Japan*, which documented keiretsu membership on the basis of ownership structure, debt structure, and historical affiliation for the prior year. This publication, which has been frequently used by prior studies (e.g., Hundley and Jacobson, 1998), defines keiretsu membership more broadly than mere presidents' council membership. We then cluster analyzed keiretsu member firms using Ward's method (SAS, 1990) with four variables (standardized) characterizing keiretsu ties: presidents' council membership, ownership structure (measured by percentage of intragroup shareholdings among the top 10 shareholders), debt structure (measured by percentage of intragroup debt holdings among the top 10 debt holders), and directorship structure (measured by number of directors serving on the firm of interest from the group members).<sup>3</sup> Among

these variables, debt holding structure did not distinguish among clusters, confirming the decline in significance of debt holding relationships as an indicator of keiretsu affiliation due to high performance of Japanese firms during that period (Gerlach, 1992; Johnston and McAlevey, 1998; Kester, 1990). Since the inclusion of attributes that do not differentiate among clusters tends to cause a serious deterioration to the performance of clustering methods, debt holding structure was dropped from further analyses (Punj and Stewart, 1983). Like Ketchen, Thomas, and Snow (1993), we used visual inspection of dendograms, the most commonly employed technique, to define the number of clusters. Dendograms depict the sequencing of convergence among clusters as the level of similarity within clusters decreases (Aldenderfer and Blashfield, 1984). Accordingly, three clusters were obtained.

Of the three clusters, one cluster included firms with tenuous ties to groups. They demonstrated little group dependence along ownership, debt holding, and directorship relationships, and none of them belonged to the presidents' council. Although they were identified as affiliated with a keiretsu by the Dodwell's publication, their affiliations were likely to be nominal. Recall that the keiretsu is not a formal structure with clearly defined boundary. In our empirical analyses, therefore, we consolidated these firms with independent firms.<sup>4</sup>

Of the two clusters whose characteristics are summarized in Table 1, Cluster 1 consists of keiretsu member firms with presidents' council membership and low levels of dependence on keiretsu (in equity and directors). Their presidents' council membership signifies their core status in the group (Gerlach, 1992) and their potential influence within the keiretsu. On the other hand, they seem to be less subject to influence of main banks because they rely to a lesser degree on main banks and other group members for equity. The fewer number of directors on their boards from other group members likely indicates their relative independence from influence of other group members. Thus, they appear in a more powerful position relative to other group members. We will refer to this group as 'keiretsu member firms with strong power.'

<sup>3</sup> The data on these variables come from the 1992 issue of Dodwell's *Industrial Groupings in Japan*, which supplies data as of 1991.

<sup>4</sup> We also performed analyses while keeping these firms with tenuous group ties as a separate cluster and the empirical results are qualitatively the same. These findings are available upon request from the first author.

Table 1. Two clusters of keiretsu member firms

	Cluster 1 ( <i>n</i> = 57) Keiretsu member firms with strong power	Cluster 2 ( <i>n</i> = 31) Keiretsu member firms with weak power	<i>R</i> <sup>2</sup>	<i>F</i>
Percentage of presidents' council members	1.000	0.516	0.378	52.22**
Percentage of intragroup shareholdings among the top 10 shareholders	14.768	31.445	0.368	50.00**
# of directors from other group members	1.000	6.032	0.727	228.99**

\*\* *p* < 0.01

Cluster 2 consists of firms with indications of strong dependence on their keiretsu in terms of ownership structure and directors from other members. Approximately half of them are also presidents' council members. However, considering that a large portion of their equity comes from other group members, they are likely to be under more intensive monitoring by other firms and main banks, which would like to ensure that borrowing firms maintain satisfactory levels of profitability to secure their loans and equity. The greater number of directors on their board from other group members likely reflects their weak positions in the group. Thus, they will be referred to as 'keiretsu member firms with weak power.' Cluster 1 (keiretsu member firms with strong power) and Cluster 2 (keiretsu member firms with weak power) appear to capture potential asymmetry in power-dependence relationships within the keiretsu.

Following Aldenderfer and Blashfield (1984) and Ketchen and Shook (1996), we validated the resultant clusters. We ran an analysis of variance procedure with the 'inclination to the group' scores provided by Dodwell's *Industrial Groupings in Japan*. The scores, which indicate Dodwell's subjective evaluation of how closely a particular firm is linked to a keiretsu, range from one (a very weak link) to four (a very strong link). We found significant differences across three clusters, indicated by *F*- and Duncan's multiple range tests. Average scores measured on the four-point scale were 4.00 for keiretsu member firms with strong power and 3.29 for keiretsu member firms with weak power. The lowest score of 1.87 was found for the firms that demonstrated tenuous ties with keiretsu and were subsequently merged with independent firms

in our analysis. These findings lend further support to the cluster outcomes.

### Product diversification

Product count measures were employed to capture the scope of product diversification (e.g., Finkelstein, 1992; Shan and Hamilton, 1991). Following Wood (1971), both narrow spectrum diversification and broad spectrum diversification were used: narrow spectrum diversification is the number of 4-digit SIC segments in which a firm operates; broad spectrum diversification is the number of 2-digit SIC segments in which a firm operates. Narrow spectrum diversification approximates an aggregate level of diversification without making a distinction between one closely related to the firm's core business and one less related to it. Instead, broad spectrum diversification is viewed as an indicator of diversification unrelated to the firm's core business. Although product count measures are not without criticism (Reed and Sharp, 1987), a study by Lubatkin, Merchant, and Srinivasan (1993) found support for the construct validity of product count measures and recommend them as adequate substitutes for entropy measures (Hoskisson *et al.*, 1993). This is especially true when it is not possible to construct an entropy indicator which can distinguish between related and unrelated components of total diversification. Narrow spectrum diversification and broad-spectrum diversification were calculated with the 1991 data from the Worldscope database.

### International diversification

As Sullivan (1994) points out, previous work often used the ratio of foreign sales to total sales

(e.g., Daniels and Bracker, 1989; Geringer *et al.*, 1989) as a measure of international diversification. Although the data are readily available and the calculation is simple, this type of aggregate ratio measures fails to capture the extent of diversification across different countries or regions. Accordingly, we employ two measures to capture the extent of dispersion of the firm's activities into different countries and regions: the number of countries in which a firm has foreign subsidiaries and the number of regions in which a firm has foreign subsidiaries. These two measures were calculated with 1991 data from *Kaigai Shinshutsu Kigyo Soran*.

To calculate the number of regions, foreign countries were categorized into the following regions on the basis of geographic proximity: Asia, the Middle East, Europe, North America, South America, Africa, and the Pacific. The number of countries estimates an aggregate level of international diversification without making a distinction between one within relatively homogeneous geographic regions and one across heterogeneous geographic regions. On the other hand, the number of regions is an indicator of international diversification across heterogeneous regions or 'unrelated international geographic diversification' (Vachani, 1991).

### Control variables

A number of control variables were used. First, to control for industry effects (Dess, Ireland, and Hitt, 1990), 18 dummy variables representing each firm's primary 2-digit industry were used. This provides assurance that the results are not dependent on industry membership. Second, firm size, as measured by the natural log of firm sales, was used to control for economies and diseconomies of scale. Third, we included the ratio of total liabilities to total sales to control for financial structure. In the post World War II period, Japanese firms in general and keiretsu member firms in particular have relied heavily on debt financing. By controlling for financial structure, we separate the effects of debt reliance from those of keiretsu affiliation. Thus, our analysis constitutes a stronger test of the effects of keiretsu affiliation. All the data on industry membership, firm size, and financial structure came from the *Worldscope* database. To smooth out annual fluctuations in accounting data, 3-year averages from the 1990–92 period

were used for both firm size and financial structure. Finally, following Demsetz and Lehn (1985) and Hill and Snell (1989), ownership concentration was calculated using the logarithmic transformation of a Herfindahl measure of stock concentration among a firm's top 10 shareholders based on the 1991 data in *Keiretsu Soran*:  $\sum_1^{10} S_i^2$ , where  $S_i$  is the share of the  $i$ th largest shareholder. This variable is needed because ownership concentration may represent a substitute monitoring mechanism for independent firms, akin to the main bank's monitoring of keiretsu member firms.

### Statistical analysis

To examine the moderating effect of keiretsu affiliation (Clusters 1 and 2 described above) (Venkatraman, 1989), we relied on regression analysis with dummy variables (Hardy, 1993; Neter, Wasserman, and Kutner, 1985), which is consistent with the approach employed in prior studies examining the effects of keiretsu affiliation (e.g., Gerlach, 1992; Hoshi *et al.*, 1990a, 1991; Hundley and Jacobson, 1998). By using this approach, our results can be compared to previous research. Dummy variables were defined as follows:

$$D_1 = 1 \text{ for keiretsu member firms}$$

with strong power (Cluster 1 in Table 1)

$$0 \text{ otherwise}$$

$$D_2 = 1 \text{ for keiretsu member firms}$$

with weak power (Cluster 2 in Table 1)

$$0 \text{ otherwise}$$

To illustrate how to interpret findings, consider a regression model with only one independent variable, for instance product diversification:

$$E(Y) = b_0 + b_1 D_1 + b_2 D_2 + b_3 X \\ + b_4 X D_1 + b_5 X D_2$$

where  $X$  = product diversification.

The response function for independent firms for which  $D_1 = 0$  and  $D_2 = 0$  is

$$E(Y) = b_0 + b_3 X$$

The response function for keiretsu member firms with strong power for which  $D_1 = 1$  and  $D_2 = 0$  is

$$E(Y) = b_0 + b_1 + (b_3 + b_4) X$$

Similarly, the response function for keiretsu member firms with weak power for which  $D_1 = 0$  and  $D_2 = 1$  is

$$E(Y) = b_0 + b_2 + (b_3 + b_5)X$$

The coefficients  $b_4$  and  $b_5$  indicate, respectively, how much higher (lower) the  $X-Y$  relationships for the keiretsu member firms with strong power and those with weak power are than ones for independent firms. Thus, the hypotheses on  $b_4$  and  $b_5$  test if the  $X-Y$  relationships differ significantly between two groups of keiretsu member firms and independent firms. In effect, this is equivalent to the Chow test (where slope differences are tested). The advantage of regression analysis with dummy variables over subgroup analysis is that by working with one regression model, rather than separate regression models for each subgroup, we have more degrees of freedom associated with error terms, resulting in more precise estimates of error terms and higher statistical power (Hardy, 1993; Neter *et al.*, 1985).

### Testing null hypotheses

As for Hypotheses 2a, 2b, 4a, and 4b, null hypotheses of no effects serve as research hypotheses. Although the null hypothesis must always be false in the strictest sense because no two real-world measures have zero correlations between them (Lane, Cannella, and Lubatkin, 1998), Cohen and Cohen (1983) suggest that the null hypothesis can be accepted when the relationship of interest is found to be trivial with a high level of statistical power ( $1-\beta$ ). If the sample size is large enough to set the risk of Type II error ( $\beta$ ) at a low level (high statistical power), failing to reject the null hypothesis can be taken as a strong indication that no nontrivial effects exist (Cohen, 1990). In particular, Cohen (1990) recommends setting the risk of Type II error ( $\beta$ ) equal to that of Type I error ( $\alpha$ ), which is commonly 0.05. Thus, power analysis can be utilized to determine the sample size necessary to detect a nontrivial effect at  $\alpha = 0.05$  and power = 0.95 (which translated to  $\beta = 0.05$ ). In conducting power analysis, it is important to determine how large an effect should be to be considered nontrivial in testing the null hypothesis. However, the precise estimates of effect sizes are generally difficult to obtain, which is a major

obstacle to implementing power analysis. Following Lane and colleagues (1998), we rely on general approximations of small, medium, and large effect size as suggested by Cohen (1992). With the medium-size effect assumed, 26 independent variables (including 18 industry dummy variables),  $\alpha = 0.05$ , and power = 0.95, the minimum sample size necessary to test the null hypothesis is 251, which is below our sample size of 295. If the medium-size effect exists in the population, our probability of rejecting the null hypothesis is higher than 0.95. Thus, we are confident that our sample size is large enough to make valid conclusions about null hypotheses of no nontrivial effects.

## RESULTS

Table 2 presents means, standard deviations, ranges, medians, and intercorrelations of the variables included in this study. There is a high correlation between the two indicators of product diversification (narrow-spectrum and broad-spectrum diversification). This is also the case for the two indicators of international diversification (number of countries and number of regions). To prevent multicollinearity problems, these two sets of indicators were tested in separate analyses. Although the sales variable showed high correlations with the number of countries and the number of regions, the examination of variance inflation factors indicated no evidence of multicollinearity.

### Effects on profitability

Table 3 presents regression results about the effects of product and international diversification on profitability. Models 1 and 2 test Hypothesis 1a, which asserts that, compared to independent firms, keiretsu member firms with weak power will show a positive relationship between product diversification and profitability. The findings in both models report the statistically significant, positive interactions between keiretsu member firms with weak power and product diversification: weak power keiretsu firms  $\times$  narrow spectrum diversification (Model 1) and weak power keiretsu firms  $\times$  broad spectrum diversification (Model 2). Thus, there is strong support for Hypothesis 1a.

Similarly, Models 3 and 4 test Hypothesis 1b, which expects that keiretsu member firms with weak power show a positive relationship

Table 2. Descriptive statistics

Variables	Means	S.D.	Min.	Median	Max.	Intercorrelations				
						2	3	4	5	6
1. ROA	2.382	1.817	-4.696	2.135	14.877	0.178**	-0.121*	-0.625**	0.111†	-0.249**
2. Sales growth	8.984	6.761	-4.457	7.753	62.537	0.058	-0.050	0.041	-0.056	-0.074
3. Sales	19.680	0.888	18.462	19.411	22.999	0.213**	-0.176**	-0.213**	0.128*	0.030
4. Financial structure	0.643	0.147	0.124	0.657	0.994		-0.094	0.209**	0.135*	-0.004
5. Ownership concentration	5.547	0.963	4.204	5.209	8.116			-0.282**	-0.130*	-0.238**
6. Narrow spectrum div.	3.739	1.162	1.000	4.000	5.000				0.513**	-0.292**
7. Broad spectrum div.	2.119	0.970	1.000	2.000	5.000					0.227**
8. Number of countries	7.861	6.502	0.000	7.000	45.000					0.142*
9. Number of regions	3.258	1.615	0.000	3.000	7.000					0.193**
										0.801**

†  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 3. Effects of product and international diversification on ROA<sup>a</sup>

	Dependent variable = ROA (n = 295)			
	Model 1	Model 2	Model 3	Model 4
Intercept	7.654** (2.277)	8.462** (2.309)	3.815 (2.682)	5.958* (2.395)
Strong-power keiretsu firms	-1.584† (0.815)	-0.670 (0.537)	0.167 (0.409)	0.068 (0.594)
Weak-power keiretsu firms	-1.648† (0.994)	-0.808 (0.626)	0.046 (0.438)	-0.373 (0.581)
Sales	0.138 (0.104)	0.066 (0.102)	0.329* (0.135)	0.236* (0.114)
Financial structure	-7.717** (0.611)	-7.783** (0.608)	-8.115** (0.608)	-7.912** (0.602)
Ownership concentration	0.058 (0.102)	0.085 (0.103)	0.043 (0.105)	0.018 (0.106)
Narrow spectrum div.	-0.320** (0.088)			
Strong power keiretsu firms × Narrow spectrum div.	0.400* (0.190)			
Weak power keiretsu firms × Narrow spectrum div.	0.563* (0.267)			
Broad spectrum div.		-0.224* (0.109)		
Strong power keiretsu firms × Broad spectrum div.		0.314† (0.210)		
Weak power keiretsu firms × Broad spectrum div.		0.570* (0.277)		
Number of countries			-0.060** (0.020)	
Strong power keiretsu firms × # of countries			-0.011 (0.035)	
Weak power keiretsu firms × # of countries			0.045 (0.050)	
Number of regions				-0.244** (0.074)
Strong power keiretsu firms × # of regions				0.018 (0.139)
Weak power keiretsu firms × # of regions				0.247† (0.180)
R <sup>2</sup>	0.515	0.500	0.507	0.511
F	10.92**	10.32**	10.60**	10.75**

<sup>a</sup> Values are unstandardized coefficients, with standard errors in parentheses.

Coefficients for industry dummy variables are not reported.

Significance levels are two-tailed for control variables and one-tailed for hypothesized effects.

† p &lt; 0.10; \* p &lt; 0.05; \*\* p &lt; 0.01

between international diversification and profitability compared to independent firms. Although the interaction between weak power keiretsu firms and the number of countries is not significant, the interaction between weak power keiretsu firms and the number of regions reaches statistical significance, lending moderate support for Hypothesis 1b.

Hypothesis 2a expects that, compared to independent firms, keiretsu member firms with strong power will show no difference in the relationship between product diversification and profitability. Contrary to our expectation, both interactions between keiretsu member firms with strong power

and product diversification—strong power keiretsu firms × narrow spectrum diversification (Model 1) and strong power keiretsu firms × broad spectrum diversification (Model 2)—are statistically significant and positive. The positive signs indicate that, relative to independent firms, keiretsu member firms with strong power pursue product diversification in a more profit-maximizing way. Thus, we find no support for Hypothesis 2a.

Hypothesis 2b expects that, compared to independent firms, keiretsu member firms with strong power will show no difference in the relationship between international diversification

Table 4. Effects of product and international diversification on sales growth<sup>a</sup>

	Dependent variable = sales growth (n = 295)			
	Model 1	Model 2	Model 3	Model 4
Intercept	30.657** (10.760)	30.309** (10.726)	22.217† (12.482)	29.752** (11.043)
Strong-power keiretsu firms	-6.803† (3.851)	-4.097 (2.493)	-3.852* (1.903)	-9.001** (2.738)
Weak-power keiretsu firms	-0.664 (4.699)	2.260 (2.907)	0.163 (2.038)	-1.984 (2.680)
Sales	0.095 (0.489)	0.014 (0.475)	0.624 (0.628)	0.321 (0.528)
Financial structure	-2.903 (2.889)	-3.158 (2.823)	-3.532 (2.829)	-3.156 (2.774)
Ownership concentration	-0.576 (0.483)	-0.467 (0.480)	-0.736 (0.487)	-0.837† (0.487)
Narrow spectrum div.	-0.354 (0.418)			
Strong power keiretsu firms × Narrow spectrum div.	1.589* (0.896)			
Weak power keiretsu firms × Narrow spectrum div.	0.338 (1.263)			
Broad spectrum div.		0.170 (0.506)		
Strong power keiretsu firms × Broad spectrum div.		1.615* (0.975)		
Weak power keiretsu firms × Broad spectrum div.		-0.862 (1.287)		
Number of countries			-0.187* (0.094)	
Strong power keiretsu firms × # of countries			0.369* (0.161)	
Weak power keiretsu firms × # of countries			0.059 (0.231)	
Number of regions				-0.864* (0.339)
Strong power keiretsu firms × # of regions				2.267** (0.642)
Weak power keiretsu firms × # of regions				0.877 (0.832)
R <sup>2</sup>	0.216	0.221	0.229	0.248
F	2.85**	2.92**	3.06**	3.40**

<sup>a</sup> Values are unstandardized coefficients, with standard errors in parentheses.

Coefficients for industry dummy variables are not reported.

Significance levels are two-tailed for control variables and one-tailed for hypothesized effects.

† p < 0.10; \* p < 0.05; \*\* p < 0.01

and profitability. None of the interactions between strong power keiretsu firms and two respective measures of international diversification in Models 3 and 4 reach statistical significance, offering support for Hypothesis 2b.

### Effects on growth

Table 4 presents the regression results concerning the effects of product and international diversification on sales growth. Hypothesis 3a expects that, compared to independent firms, keiretsu member firms with strong power show a positive

relationship between product diversification and sales growth. Model 1 examines the relationship between narrow spectrum diversification and sales growth. The interaction term associated with strong power keiretsu firms and narrow spectrum diversification is statistically significant. Likewise, Model 2 also reports a statistically significant, positive coefficient for the interaction between strong power keiretsu firms and broad spectrum diversification. These results suggest that there is a positive difference in sales growth for keiretsu member firms with strong power pursuing both

narrow spectrum and broad spectrum diversification strategy in comparison with independent firms, offering strong support for Hypothesis 3a.

Hypothesis 3b asserts that keiretsu member firms with strong power demonstrate a positive relationship between international diversification and sales growth compared to independent firms. The findings in Models 3 and 4 provide strong support for the hypothesis. The interaction between strong-power keiretsu firms and the number of countries reaches statistical significance, as does the interaction between strong power keiretsu firms and the number of regions. Collectively, these findings lend strong support for Hypothesis 3b.

Hypotheses 4a and 4b expect that, compared to independent firms, keiretsu member firms with weak power show no difference in the relationship between diversification and sales growth. Consistent with our expectations, both interactions between weak power keiretsu firms and product diversification (narrow spectrum diversification and broad spectrum diversification) in Models 1 and 2 do not show any statistical significance; neither do the two interactions between weak power keiretsu firms and international diversification (number of countries and number of regions). These findings suggest that keiretsu member firms with weak power do not achieve significantly different levels of sales growth compared to independent firms pursuing the same strategy, lending support for Hypotheses 4a and 4b.

## DISCUSSION

The results provide general support for the proposition that the keiretsu can be conceptualized as a power dependence system, hence the effects of keiretsu member affiliation differ across individual members according to their power dependence relationships within their keiretsu. As we expected, keiretsu affiliation appears to have dissimilar implications for keiretsu member firms with strong power and for those with weak power.

We expected that keiretsu member firms with weak power may be under pressure to emphasize profitability when pursuing diversification strategies. Consistent with our hypotheses, the relationships between narrow spectrum diversification, broad spectrum diversification or the number of regions and ROA are significantly more positive

than those of independent firms. However, the relationship between the number of countries and ROA is not significantly different from those of independent firms. A possible, albeit speculative, reason for failing to find support with the number of countries (*vis-à-vis* the number of regions) is that there are potential negative consequences of pursuing 'unrelated' dimensions of international diversification. Unrelated expansions are less likely to extract synergies across geographic markets and entail new skills, resources, and capabilities. Furthermore, it is not always easy to manage the resulting diversity (Hitt, Hoskisson, and Ireland, 1994). Indeed, the literature generally suggests that unrelated international expansion would lead to lower performance (Hitt *et al.*, 1997). Thus, monitoring effects of keiretsu affiliation for keiretsu member firms with weak power may be particularly salient in regard to unrelated dimensions of international diversification, which are measured by the number of regions.

We expect that keiretsu member firms with strong power can utilize resources available in the keiretsu so as to pursue diversification strategies with an emphasis on increasing growth. Both findings on product and international diversification confirm our expectations. Keiretsu member firms with strong power show significantly more positive relationships between product diversification (narrow spectrum diversification and broad-spectrum diversification) and sales growth, compared to those of independent firms. Likewise, similar results are obtained for measures of international diversification (number of countries and the number of regions). Together, these findings suggest that keiretsu member firms with strong power can take advantage of their positions within the keiretsu to pursue product and international diversification with an emphasis on increasing sales growth.

The more surprising results are found in the relationship between product diversification and profitability for keiretsu member firms with strong power. Contrary to our expectations, both interaction terms, strong power keiretsu firms  $\times$  narrow spectrum diversification and strong power keiretsu firms  $\times$  broad spectrum diversification, are positive and statistically significant. The positive signs indicate that keiretsu member firms with strong power also obtain the profitability benefit when pursuing product diversification. We conjecture that power-dependence relationships

within the keiretsu may have somewhat different implications for product diversification than for international diversification. A keiretsu may encourage member firms to follow one another into specific foreign countries to sustain their business relationships overseas or to empower overall competitiveness in host markets. Nevertheless, in the realm of product diversification, a unique practice by the keiretsu, i.e., the 'one-set' principle, may represent a key to understanding product diversification among keiretsu member firms.

The one-set principle indicates that a keiretsu strives to have one member firm for each major industry, but only one firm (Gerlach, 1992). Having presence in each major industry might be necessary to maintain the keiretsu's prestige in Japanese society and helps reduce risk at the group level. This practice, in turn, reflects the keiretsu's efforts to avoid disruptive competition among member firms. In this regard, although there is little competition among keiretsu members in the product market, there may be fierce competition among keiretsu members in deciding who receives the opportunity to enter new product market areas. Because only one keiretsu member firm is allowed in a specific product market, when there is a new attractive product market opportunity, keiretsu member firms with strong power may desire to undertake such opportunities and have power within the groups to exercise such a prerogative. This suggests that, in the case of product diversification, strong power positions may be translated into both profitability and growth benefits. Although this speculation cannot be confirmed by our analysis, it is hoped that future research can address this question to shed more light on our interpretation.

Another interesting observation from our results is that there are statistically significant, negative relationships between diversification and ROA or sales growth for independent firms (except the relationships between product diversification and sales growth). Our results show that not only do keiretsu member firms in general obtain more benefits compared to independent firms in pursuing diversification, but independent firms also suffer from pursuing diversification. It is possible that because other governance mechanisms, such as the market for corporate control, are relatively underdeveloped in Japan, independent firms—without

keiretsu monitoring and controlling—are hampered by agency problems and are more likely to pursue inappropriate diversification. Without support from keiretsu members, independent firms also may find it difficult to obtain information or muster resources to make optimal decisions in expanding into the global arena or unfamiliar product markets. In spite of the high visibility of such successful independent firms as Sony and Honda, our results indicate that independent firms are more likely to be subject to the downsides of product or international diversification. Indeed, research on restructuring buyouts in Japan indicates that independent firms are engaging in such restructuring activities to a greater extent than keiretsu member firms (Wright, Kitamura, and Hoskisson, 2003).

In our *post hoc* analysis to test for potential curvilinearity, we found such a relationship between narrow spectrum diversification and ROA. Although there was no indication of curvilinearity among keiretsu member firms with strong power, an inverted-U shaped relationship among keiretsu member firms with weak power was discovered. In contrast, we found a U-shaped relationship among independent firms. The U-shaped relationship is not consistent with the results of the prior studies based on U.S. and U.K. firms (Palich *et al.*, 2000), but is in line with Khanna and Palepu's (2000a, 2000b) findings at the group level using samples on Chile and India. In exploring the importance of group structural characteristics, Khanna and Palepu (2000a, 2000b) claimed and found evidence that business groups should be diversified to a certain threshold level before they provide affiliation benefits greater than the concomitant costs of building evaluation and coordination mechanisms necessary to manage diversified business portfolios. In other words, they argued for threshold effects for group-level diversification in emerging countries. We also found a U-shaped relationship for independent firms, suggesting that such threshold may apply to the firm (as opposed to the group) level. We conjecture that a similar threshold effect may exist for independent firms—not keiretsu member firms—because they compete in less developed institutional contexts without access to interfirm benefits due to association with a keiretsu. Although our research design and data cannot test for this possibility, future research might profitably explore this relationship more fully.

## IMPLICATIONS AND CONCLUSIONS

This study offers a fresh approach to studying the strategic goals of keiretsu member firms in Japan. This perspective implies that within a web of relationships, power-dependence relationships influence the appropriation of benefits created by the keiretsu group. Keiretsu member firms that have stronger power in their keiretsu are likely to use their power in their favor and focus more on the growth benefits, while those that have weaker power are constrained by the keiretsu in focusing more on the profitability benefits so as to support the competitiveness of the keiretsu. Because the firms that make up a keiretsu are likely to be differentially dependent on the keiretsu, treating them all as equally benefited or constrained by the keiretsu can at best only partially reveal the effects of keiretsu affiliation. By recognizing the presence of power-dependence relationships within keiretsu, our approach allows a more fine-grained perspective in unmasking the various effects of keiretsu affiliation. As for independent firms in Japan, the lack of keiretsu affiliation implies that, while these firms cannot enjoy the unique benefits of keiretsu affiliation, their strategic goals are not constrained by the keiretsu. However, the benefits of diversification strategies are not easily achieved and appear susceptible to agency and coordination problems as in the United States (Bergh and Lawless, 1998; Hoskisson and Hitt, 1990; Nayyar, 1993; Nayyar and Kazanjian, 1993). Potentially hampered by an inferior corporate governance system, inadequate knowledge or resource supports, or limited managerial talents, independent firms would benefit more from maintaining a tight focus on their core businesses. Although our study does not explicitly examine relative competitiveness, it appears that independent firms should apply extreme care when considering diversifying into other product or geographic markets.

Furthermore, our approach considers both the profitability and growth benefits for keiretsu member firms pursuing product or international diversification. As suggested earlier, owing to the unique industrial system in Japan, the growth benefits are likely to occupy more attention among large Japanese firms, especially those powerful keiretsu member firms that can count on their less powerful members to generate the profitability benefits to sustain the overall competitiveness of the keiretsu. By detailing

the different strategic goals between powerful and less powerful keiretsu member firms, our study illustrates the inappropriateness of a blanket conclusion of whether keiretsu systems have a positive or negative impact on firm performance. As such, it is important to realize that keiretsu are essentially group systems, with a variety of roles expected to be filled by different types of group members.

Our study also contributes to the growing literature on business groups in emerging markets (Hoskisson *et al.*, 2000), which focuses on performance implications of group affiliation. The line of research, pioneered by Leff (1976, 1978) and extended by Khanna and Palepu (1997, 1999, 2000a, 2000b), emphasizes market failures and high transaction costs in emerging markets, conceiving of business groups as an organizational response to overcome imperfections in capital markets, labor markets, product markets, and cross-border markets for technology. Prior studies tend to corroborate the performance-enhancing effects of group affiliation—e.g., Khanna and Palepu (2000a, 2000b) in India and Chile, Chang and Choi (1988) and Chang and Hong (2000) in Korea, Keister (1998) in China, and Perotti and Gelfer (2001) in Russia. While these prior studies rest upon the premise that benefits and costs of group affiliation are shared equally among members (Khanna and Rivkin, 2001), our study challenges such a premise. The findings of our research indicate that, depending on power-dependence positions in the keiretsu, some members enjoy more and different benefits than others. Such heterogeneity among members in appropriating benefits of group affiliation has not been addressed in the prior research and awaits further conceptualization and empirical analysis.

Our study follows past studies on power-dependence relationships (e.g., Finkelstein, 1992; Pfeffer and Salancik, 1974) and uses archival data to capture the power-dependence relationships among keiretsu member firms. Pfeffer and Salancik (1974) suggested that measures of power-dependence relationships can be inferred from archival data. Moreover, it would be difficult to obtain perceptual data about power dependence relationships through interviews or surveys given the context of our study. However, future studies that examine power-dependence relationships in a different setting may use perceptual data as another way to measure power-dependence relationships.

### Limitations and future research

Given that our analysis is an exploratory study using archival data, future research might also address our research questions using a more fine-grained measurement and approach. We have sought to build on and extend prior studies to suggest and test whether the power-dependence relationship in keiretsu is a significant factor affecting the performance implications of diversification strategy when comparing between keiretsu member firms and independent firms. Towards this end, we divided keiretsu member firms into those with strong power and those with weak power and compared with independent firms, as commonly specified in prior studies in the literature. Future studies in this area will find it useful to use more detailed measures or alternative methods to capture the power-dependence relationships in keiretsu. For example, recent application of network analysis (Scott, 1991; Wasserman, Faust, and Iacobucci, 1994) in the field of management holds significant promise. Future researchers with rich data on keiretsu relationships may find network analysis particularly useful in capturing the relationships between pairs of keiretsu member firms.

Furthermore, because our study is primarily interested in exploring whether power-dependence relationships, which do not change significantly over time, would affect value appropriation in keiretsu, we used a cross-sectional design for our study. Future studies may generate additional insights by tracking changes in keiretsu power-dependence relationships over a long period of time to examine further how such changes would affect firm strategy and performance. Following prior studies in the diversification literature (Geringer *et al.*, 2000; Hitt *et al.*, 1997), we sampled large firms that are likely to engage in product or international diversification strategies. However, the results may not be generalizable to smaller firms. Future studies including or focusing on smaller keiretsu member firms may examine whether and how those firms' diversification strategies and performance are influenced by power-dependence relationships in keiretsu.

The topics of product and international diversification have captured significant attention in strategic management and international business research. Despite the large number of studies conducted on these topics, our knowledge about the performance implications of firms in different

countries pursuing product or international diversification strategies is still limited, as indicated by the findings in this study. Recent advances in the business group literature strongly suggest that institutional environments affect firm strategy and performance in emerging economies, such as India and Chile (e.g., Ghemawat and Khanna, 1998; Guillen, 2000; Khanna and Palepu, 2000a, 2000b). In a related vein, Wan and Hoskisson (2003) found that even among institutionally more developed countries like the Western European countries, country environmental differences, including institutional environments, still have a significant impact on the relationships between product and international diversification strategies and firm performance. Our findings on keiretsu firms in Japan can also be viewed as additional evidence that country institutional environment is an important factor in firm strategy and performance. As such, more research needs to be done to illuminate our understanding of diversification strategies in different countries. Furthermore, although our study examined the implications of power-dependence relationships in the context of diversification strategy, our findings indicated that there is still much to be learned about the complex nature of keiretsu systems in Japan and how this kind of industrial structure affects firms' other important strategies and hence performance.

Recently, the prolonged recession and banking crisis have affected the keiretsu system in many ways. For instance, there has been a wave of mergers among banks. In 1999, Sakura Bank (main bank of the Mitsui group) announced a merger with Sumitomo Bank (main bank of the Sumitomo group). In the same year, Dai-Ichi Kangyo Bank (main bank of the Dai-Ichi Kangyo Group), Fuji Bank (main bank of the Fuyo group), and the Industrial Bank of Japan announced a comprehensive consolidation of three banks. These bank mergers blur the boundaries of the bank-centered (horizontal) keiretsu. With shifting environments, the keiretsu may fall victim to their own success of the past and become extinct, as suggested by Christensen, Craig, and Hart (2001). Alternatively, it is conceivable that the keiretsu, with different membership due to the bank merger, continue to play a major role in corporate governance. Recall that, after the official break-up of the zaibatsu by the U.S. occupation force, the keiretsu emerged around economic and social ties existing in the old zaibatsu. Recent research suggests that the

keiretsu systems were quite stable in the 1990s (McGuire and Dow, 2003). Thus, it remains to be seen whether such bank mergers will be translated into the demise of the entire keiretsu system. The future of the keiretsu system and its implications for keiretsu member firms and Japanese economy in general offer fruitful areas for future research.

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