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# From diversification premium to diversification discount during institutional transitions

Keonbeom Lee [a,1], Mike W. Peng [b,*], Keun Lee [c,2]

[a] Korea Institute of Finance, Bankers' Building, 4-1 Myong-Dong 1-Ga, Chung-Ku, Seoul 100-021, Republic of Korea
[b] University of Texas at Dallas, School of Management, Box 830688, SM 43, Richardson, TX 75083, United States
[c] Seoul National University, School of Economics, Shillim-dong, Seoul 151-742, Republic of Korea

**Abstract**

Recent development of an institution-based theory of corporate diversification has uncovered a diversification premium in emerging economies, suggesting that some business group-affiliated companies may outperform competing firms not affiliated with business groups. Is the diversification premium found in emerging economies likely to hold over time? This article extends the institution-based theory by arguing that as institutional transitions unfold, diversification premium in emerging economies is likely to dissipate over time and eventually become a diversification discount. We empirically draw on a data set from South Korea between 1984 and 1996 involving 84 business groups and 751 group-affiliated and independent firms to substantiate this claim via a ''chop shop'' method. To the best of our knowledge, this represents the first study that documents the longitudinal process of how a diversification premium becomes a diversification discount during institutional transitions.


A number of studies in developed economies, primarily the United States, have documented a robust diversification discount, which suggests that firms pursuing an unrelated product diversification (conglomeration) strategy are valued less than competing firms not pursuing such a strategy (Berger & Ofek, 1995; Lang & Stulz, 1994; Palich, Cardinal, & Miller, 2000). Yet, a small but expanding literature focusing on emerging economies suggests that affiliation with a diversified business group ''rarely entails such a discount'' (Khanna & Rivkin, 2001: 68). Instead, based on data between the 1970s and the early 1990s, studies in Chile (Khanna & Palepu, 2000b), China (Keister, 2000; Li & Wong, 2003; Ma, Yao, & Xi, 2006; Yiu, Bruton, & Lu, 2005), India (Khanna & Palepu, 2000a; Ramaswamy, Li, & Petitt, 2005), Indonesia (Mursitama, 2006), South Korea (Chang & Choi, 1988; Chang & Hong, 2000, 2002), and a variety of emerging economies (Guillen, 2000; Khanna & Rivkin, 2001; Nachum, 2004) report a diversification premium, with some (although not all) business group-affiliated firms outperforming non-affiliated, independent firms. These findings have led to an institution-based theory of corporate diversification, which is centered on the institutional differences between developed and emerging economies (Peng, Lee, & Wang, 2005; Peng, Wang, & Jiang, 2008). This theory posits that conglomeration may help member firms overcome market imperfections prevalent in emerging economies (Khanna & Palepu, 2000b; Kogut, Walker, & Anand, 2002; Wan, 2005; Wan & Hoskisson, 2003).

* Corresponding author. Tel.: +1 972 883 2714; fax: +1 972 883 6521.
*E-mail addresses:* kblee@kif.re.kr (K. Lee), mikepeng@utdallas.edu (M.W. Peng), kenneth@snu.ac.kr (K. Lee).
[1] Tel.: +82 2 3705 6354; fax: +82 2 3705 6345.
[2] Tel.: +82 2 880 6367; fax: +82 2 877 0688.

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Despite the plausibility of the institution-based theory of corporate diversification, a question that immediately comes to mind is: Is the diversification premium found in emerging economies likely to hold *over time*? (Peng et al., 2005). The answer may be negative (Kim, Hoskisson, Tihanyi, & Hong, 2004; Mayer & Whittington, 2003). Since 2002, studies with more recent data from the mid- to late 1990s from China (Lu & Yao, 2006), India (Bertrand, Mehta, & Mullainathan, 2002; Chacar & Vissa, 2005), South Korea (Bae, Kang, & Kim, 2002; Chang, 2003b, 2006; Ferris, Kim, & Kitsabunnarat, 2003; Joh, 2003), and a variety of emerging economies (Lins & Servaes, 2002) *all* report a diversification discount. These newer findings thus call for a more dynamic extension of this theory to accommodate the change of such a premium and its likely transformation into a discount over time (Peng & Delios, 2006).[3]

In response, this article extends and tests the institution-based theory of diversification premium and discount in emerging economies. Its purposes are twofold—both theoretical and empirical. First, given that the only constant in emerging economies seems to be change (Wright, Filatotchev, Hoskisson, & Peng, 2005), we focus on the impact of institutional transitions, defined as ''fundamental and comprehensive changes introduced to the formal and informal rules of the game that affect organizations as players'' (Peng, 2003: 275). Theoretically, we argue that a diversification premium in emerging economies is likely to dissipate over time, as market-oriented institutional transitions unfold. Second, empirically, we draw on a longitudinal data set from South Korea (thereafter Korea) between 1984 and 1996 to (1) document the existence of a diversification premium initially, (2) plot how the decline of such a premium eventually becomes a discount over time, and (3) identify how institutional transitions in capital, product, and labor markets lead to such transformation.

[3] Although Japan is usually not discussed by the literature on business groups in emerging economies, the literature on Japanese keiretsu over time has evolved in a similar fashion. Earlier studies generally find that keiretsu membership tends to be *beneficial*—keiretsu members firms, relative to non-keiretsu firms, have lower risk and more stable performance (if not consistently higher profitability) (Lincoln et al., 1996). However, more recent studies report that keiretsu membership is *detrimental*, resulting in not only lower profitability but also higher risk (Isobe et al., 2006). Japan scholars argue that these changes may be largely due to the institutional transitions and intensified competition unfolding in Japan since the 1990s (Ahmadjian, 2006; Yoshikawa & McGuire, 2008). This argument is similar to the institution-based theory of corporate diversification that has thus far focused on emerging economies.

This article significantly departs from existing work, which usually takes a static approach (that is, conglomeration either adds or destroys value). Instead, we introduce a dynamic, longitudinal dimension, highlighting how institutional transitions turn a diversification premium into a discount. As a major emerging economy, Korea has attracted significant research attention, with two strands of findings—one documenting a diversification premium and another a diversification discount. This article builds on, connects, and extends these two contrasting strands.

Before proceeding, one note of clarification on our level of analysis is necessary. Much of the diversification literature, based on U.S. samples, focuses on a legally independent firm (a conglomerate) and its constituent units (most of these are not legally independent firms). The Korea literature has treated a business group (chaebol) as the focal conglomerate and its affiliated firms as constituent units. A crucial difference is that the chaebol is legally ''fictitious'' because it does not exist as a legally independent entity. Affiliated firms are legally independent firms, many of which are publicly listed (Chang, 2003a; Ferris et al., 2003). Because the centralized control and resource-sharing at the group level is nevertheless real and tangible (Chang & Hong, 2000), most Korea studies have measured group-level diversification. In this article, we first measure the group-level diversification (using the number of affiliate firms and entropy index) and then analyze the impact of this group-level diversification on affiliate-level performance.

## 1. An institution-based theory of corporate diversification

Most diversification research has taken place in developed economies. The consensus among researchers since Rumelt (1974) has been that on average, unrelated product diversification (conglomeration) may destroy value, whereas related diversification may add value (Palich et al., 2000). Based on the recent Western experience, Western media and advisors often suggest that conglomerates in emerging economies destroy value and therefore should be dismantled.

However, recent studies in a variety of emerging economies report that some units affiliated with conglomerates enjoy higher profitability than independent firms (Chang & Choi, 1988; Chang & Hong, 2000, 2002; Guillen, 2000; Hoskisson, Cannella, Tihanyi, & Faraci, 2004; Kedia, Mukherjee, & Lahiri, 2006; Keister, 2000; Khanna & Palepu, 2000a; Khanna & Palepu, 2000b; Khanna & Rivkin, 2001; Li & Wong, 2003; Ma

et al., 2006; Lu & Yao, 2006; Nachum, 2004; Toulan, 2002). Overall, there seems to be a discernible performance *premium* associated with some (although not all) firms' conglomeration strategy in emerging economies. Such research has led to a new, institution-based theory, suggesting that diversification strategies are, at least in part, driven by the institutional frameworks governing strategic choices (Peng et al., 2005, 2008; Wan & Hoskisson, 2003).

The institution-based theory suggests that the institutional frameworks governing emerging economies are characterized by underdeveloped capital, product, and labor markets (Khanna, Palepu, & Sinha, 2005; Peng & Heath, 1996). Perhaps the most significant differences between developed and emerging economies lie in capital markets, which may have "a positive, first-order relationship" with economic development (Levine, 1997: 688; see also Fauver, Houston, & Naranjo, 2003; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). However, capital markets in developed economies have not always been sophisticated. Researchers have documented "a dramatic reversal in [U.S.] investor sentiment toward diversification—positive in the 1960s, neutral in the 1970s, and negative in the 1980s" (Matsusaka, 1993: 358). Relative to the period since the 1980s, capital markets in developed economies before the 1970s were less sophisticated. As a result, conglomerates at that time were perceived *ex ante* by capital markets to have an advantage in allocating capital internally. Over time, however, as capital markets develop, this conglomerate advantage has become less important in developed economies (Leibeskind, 2000).

This line of reasoning suggests that the level of capital markets development in emerging economies in the 1980s and the 1990s might be similar to that in developed economies in the 1960s (or even before), thus resulting in a conglomerate advantage (Nachum, 2004). While insightful, these static arguments, comparing the 1990s emerging economies and the 1960s developed economies, need to be extended *dynamically*. We will take on this challenge in the next two sections.

## 2. Institutional frameworks and diversification strategies

Although institutions as "the rules of the game in a society" powerfully shape strategic choices (North, 1990; Peng, 2003), institutions also change in character and potency over time. In turn, firms need to adapt to new institutional realities. Otherwise, firms failing to adapt may find their previous fit with old institutional requirements to be unable to ensure continued legitimacy and even survival. This argument is especially likely to be borne out in emerging economies, which in recent years have unleashed a wide variety of institutional transitions calling for strategic changes (Wright et al., 2005).

Recent work suggests that a conglomeration strategy cannot be argued to be either uniformly beneficial or uniformly costly without a specification of the institutional contingencies (Peng et al., 2005; Peng & Delios, 2006). Given that a conglomeration strategy inherently carries both costs and benefits, the key is to identify the institutional contingencies under which costs are likely to outweigh benefits (and vice versa) (Hill, Hitt, & Hoskisson, 1992; Peng et al., 2005). One key contingency is the relative costs and benefits of external versus internal capital markets over time.

A basic proposition of the institution-based theory of corporate diversification is that relative to developed economies, greater imperfections are found in the external capital, product, and labor markets in emerging economies. These imperfections are called "institutional voids" (Khanna & Palepu, 2000b; Lee & Oh, 2007; Ma et al., 2006) and would make internalization through a conglomeration strategy more attractive. In a nutshell, external markets development and conglomeration may substitute each other (Peng et al., 2005). Specifically, internal *capital* markets brought by conglomeration are "most valuable among firms and economies where it is costly to obtain external capital" (Fauver et al., 2003: 136). In addition, Khanna and Palepu (2000b: 269) argue that researchers also need to probe into conglomeration's role in combating *product* and *labor* markets imperfections. Thus:

**Hypothesis 1.** During a period when external capital, product, and labor markets are less transparent, open, and competitive, there is a diversification premium.

While insightful, this theory needs to confront both (1) the *theoretical* possibility that institutional transitions may change the relative costs and benefits of conglomeration (Peng, 2003; Peng et al., 2005) and (2) the *empirical* findings that under certain institutional conditions there may be a diversification discount in emerging economies (Bae et al., 2002; Bertrand et al., 2003; Chang, 2003a, 2003b; Ferris et al., 2003; Joh, 2003). The next section therefore develops this theory further.

## 3. From diversification premium to diversification discount

To the extent that the institution-based theory centers on the impact of institutional frameworks on

corporate strategies (Khanna & Palepu, 2000b; Peng, 2003; Peng et al., 2008; Wan & Hoskisson, 2003), it seems imperative that changes in the institutional frameworks would alter the costs and benefits of conglomeration (Peng et al., 2005). Guillen (2000) argues that it is the protectionist policies maintained by the state that has led to the rise of conglomerates in emerging economies. Conglomerates can leverage their non-industry-specific connections to enter multiple industries by obtaining licenses from the state, arranging financial packages, securing technology, hiring and training labor forces, and establishing supply and distribution channels. Such a generic, non-industry-specific capability embodies an ability to leverage relationships with a variety of crucial institutions (e.g., government agencies, financial institutions). Moreover, this capability is difficult to trade because it is embodied in a conglomerate's knowledge, contacts, and routines. Therefore, such a capability ''encourages those who possess it to diversify across industries rather than become specialists in one industry or product line'' (Guillen, 2000: 365; see also Chung, 2006).

However, when the state embraces market-opening, liberalization policies, the scope and size of conglomerates may become a liability rather than a strength (Chang, 2003a; Guillen, 2000; Hoskisson et al., 2004). In particular, when institutional transitions result in a more open international trade and investment regime, competitive pressures from both foreign multinationals and nondiversified domestic firms may intensify (Toulan, 2002). Capital markets may also become better regulated and more transparent and open, and product and labor markets more competitive. As long as the state no longer provides preferential resources to conglomerates, conglomeration's benefits of overcoming imperfections in capital, product, and labor markets prevalent in emerging economies may decrease (Guillen, 2000; Kim et al., 2004). Overall, diversification premium may decline, as reported by Khanna and Palepu (2000b) in Chile and Chang and Hong (2000) in Korea. Therefore:

**Hypothesis 2.** During a period with generally less transparency, openness, and competition (as featured in Hypothesis 1), when external capital, product, and labor markets gradually become more transparent, open, and competitive, there is a reduction in diversification premium over time.

An implicit assumption underpinning Hypotheses 1 and 2 is that organizational size and complexity remain the same and that the only differences are institutional transitions. If this assumption is relaxed and organizational size and complexity increase, it is likely that institutional transitions may further reduce diversification premium. As the size and complexity of conglomerates increase, previously optimal, internal allocation of capital is likely to be replaced by inefficient allocation of capital (Hill et al., 1992; Lee & Lee, 2002). Increasing organizational size and complexity may be especially problematic for firms going through environmental uncertainty associated with institutional transitions. Jones and Hill (1988: 166) argue that ''Increasing environmental turbulence will increase complexity, instability, and therefore bureaucratic costs.'' As a result, conglomerates, in theory at least, may have an incentive to downsize and/or downscope when confronting rising environmental uncertainty. Conversely, we argue that when facing institutional transitions: (1) conglomerates that are unable or unwilling to reduce their scope and (2) even worse, conglomerates that increase their organizational size and complexity are likely to see their diversification premium dissipate.

If diversification premium is sufficiently reduced, it may turn into a diversification discount. This can be explained by the theory of strategic change, which centers on an organization's *continuous* alignment with its external environment (Peng, 2003; Rajagopalan & Spreitzer, 1996). When the institutional environment facilitating a diversification premium changes to a setting whereby conglomeration is increasingly difficult to add value, a conglomeration strategy may need to be adjusted and product scope may need to be downsized/downscoped. Such downsizing/downscoping calls for a reduction in organizational size and complexity in order to achieve a better fit with the changed environment. However, conglomerates that move against the trend and increase (instead of decrease) their size and complexity are likely to suffer from a misalignment between its strategy and environment (Rajagopalan & Spreitzer, 1996). Because of such a ''mismatch'' between the changing environment and the inertia-laden conglomeration strategy (Chang, 2003a: 37), the previous diversification premium may be gradually replaced by a diversification discount (Kim et al., 2004). Hypothesis 3, therefore, is essentially a *stronger form* of Hypothesis 2 (Chang, 2003b: 241–242), whose assumption on a constant level of organizational size and complexity is relaxed.

**Hypothesis 3.** During a period with generally less transparency, openness, and competition (as featured

in Hypothesis 1), when (1) external capital, product, and labor markets become more transparent, open, and competitive and (2) organizational size and complexity increase, there is a diversification discount over time.

## 4. Methodology

### *4.1. Institutional transitions in a research laboratory*

Institutional transitions in South Korea during the 1980s and the 1990s present an ideal ''research laboratory'' to test our hypotheses. The Korean economy is dominated by conglomerate business groups known as the chaebols, which contributed approximately 40% of its total output as of 1996 (Chang, 2003a; Ungson, Steers, & Park, 1997). A chaebol is defined by the Korean Fair Trade Commission (KFTC) as ''a group of companies of which more than 30% of shares are owned by the group's controlling shareholder and its affiliated companies'' (Bae et al., 2002: 2699).

Since the 1980s, transitions in product and labor markets are significant. First, Korea's eagerness to join the OECD prior to its accession in 1996 resulted in external pressures to open the economy (Lee, Lee, & Lee, 2002a; Lee, Ryu, & Yoon, 2002b). The government gradually removed import restrictions, with the percentage of unrestricted import items rising from less than 85% in 1984 to almost 100% in 1996 (Table 1). As a result, Korean firms have to compete with foreign competitors in previously closed product markets at home, resulting in shrinking profit margins.[4] Second, labor markets experienced strong upward surge for wages, as workers in the democratic era since the late 1980s became (1) more assertive, (2) more qualified (as evidenced, for example, by the rising percentage of secondary school enrollment from 86.7% in 1984 to 98.7% in 1996—Table 1), and (3) hence more costly.

While institutional transitions in product and labor markets are tremendous, nowhere are the transitions more significant than capital markets. The OECD requirement of capital account opening as a condition of membership and the government's eagerness to comply made Korea's post-1993 financial markets opening one of the most rapid and most comprehensive among emerging economies (Lee et al., 2002a; Lee et al., 2002b). Overall, the number of listed companies increased 126% (from 336 in 1984 to 760 in 1996),[5] and the stock market capitalization/GDP ratio experienced a whopping 782% increase (from 3.3% in 1984 to 29.1% in 1996). The number of securities analysis companies increased from 25 in 1986 to 38 in 1996 (a 52% increase). While capital markets were better developed, uncertainty was also heightened. This was evidenced by the increase in the daily stock price fluctuation band[6] from 2.9% in 1984 to 8% in 1996. In addition, foreign investors, not allowed to own Korean equity prior to 1991, were able to rapidly expand the ceiling of their Korean shareholdings, from 10% in 1992 to 20% by the end of 1996, adding new performance pressures on Korea firms.[7]

Both the liberalization of capital markets and transitions of product and labor markets significantly added to the environmental uncertainty that chaebols confront. Yet, instead of downsizing, the chaebols, especially the top 30 groups, continued their expansion, as exemplified by the increasing number of listed and non-listed affiliated firms (from 16.7 per group in 1987 to 22.3 in 1996, a 34% increase). Among these affiliates, the average number of listed affiliates grew from 3.29 per group in 1984 to 5.25 in 1996, representing a 60% increase (Table 1). In particular, chaebols undertook ''an aggressive investment drive'' during 1994–1996 (IMF, 1997: 1; see also Chang, 2003a: 82–83). The upshot is that chaebols' size and complexity expanded significantly during the period under study (1984–1996), peaking during the very last (sub)period of 1994–1996.

In summary, the institutional transitions in Korea during the 1980s and the 1990s have all the necessary ingredients to test our hypotheses. In addition, another

[4] Many Korean firms also aggressively export and engage in foreign direct investment (Ungson et al., 1997). However, in general, export sales have been less profitable than domestic sales in Korea, and in some cases not profitable at all. A primary reason is that the historically protectionist policy imposed by the government has resulted in domestic prices to be higher than international prices, effectively subsidizing export sales.

[5] The government pushed many chaebols to list some of their member firms (Chang, 2003a).

[6] This refers to the maximum range of stock price fluctuation, beyond which the securities authorities will intervene on behalf of the government (usually by suspending trading of certain stocks).

[7] The transitions during and after the 1997 financial crisis were even more rapid. The maximum ceiling for foreign equity holding in Korean firms was raised *four times* during 1997. Eventually in 1998, the ceiling was abolished, effectively allowing for direct foreign acquisition of 100% equity of Korean firms. By 2005, foreigners owned 42% equity of listed firms in Korea (Economist, 2005).

Table 1
Institutional transitions in the South Korean economy (1984–1996)

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Panel A: transitions in product and labor markets | | | | | | | | | | | | | |
| GDP growth (%) | 8.2 | 6.5 | 11.0 | 11.0 | 10.5 | 6.1 | 9.0 | 9.2 | 5.4 | 5.5 | 8.3 | 8.9 | 6.8 |
| Import liberalization ratio (%)[a] | 84.8 | 87.7 | 91.5 | 93.6 | 94.7 | 94.7 | 96.3 | 97.2 | 97.7 | 98.1 | 98.6 | 99.0 | 99.3 |
| Secondary school enrollment (%)[b] | 86.7 | 88.8 | 88.7 | 86.8 | 89.0 | 90.8 | 91.4 | 94.0 | 96.0 | 95.3 | 97.5 | 96.5 | 98.7 |
| Panel B: transitions in capital markets | | | | | | | | | | | | | |
| Stock market capitalization/GDP (%) | 3.3 | 3.9 | 6.4 | 12.7 | 28.3 | 39.5 | 30.0 | 25.4 | 27.9 | 35.2 | 43.6 | 37.4 | 29.1 |
| Bond value/GDP (%)[c] | 7.5 | 9.1 | 9.2 | 9.1 | 9.0 | 11.0 | 13.5 | 14.5 | 14.4 | 14.4 | 14.8 | 16.2 | 18.2 |
| Private credit/GDP (%)[d] | 84.7 | 93.1 | 90.2 | 90.3 | 91.2 | 105.8 | 113.6 | 117.3 | 121.9 | 127.2 | 137.2 | 140.2 | 150.2 |
| Number of listed firms | 336 | 342 | 355 | 389 | 502 | 626 | 669 | 686 | 688 | 693 | 699 | 712 | 760 |
| Number of securities firms | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 31 | 32 | 32 | 32 | 33 | 38 |
| Maximum foreign equity (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 12 | 15 | 20 |
| Daily fluctuation band (%)[e] | 2.9 | 2.9 | 3.9 | 3.9 | 3.9 | 39 | 3.9 | 3.9 | 3.9 | 4.6 | 4.6 | 6 | 8 |
| Panel C: changes in the average scope of the top 30 chaebol groups | | | | | | | | | | | | | |
| # of affiliates (listed and non-listed)[f] | – | – | – | 16.7 | 16.8 | 17.1 | 17.9 | 18.7 | 19.1 | 20.1 | 20.5 | 20.8 | 22.3 |
| # of listed affiliates | 3.29 | 3.25 | 3.21 | 3.45 | 3.89 | 4.41 | 4.47 | 4.59 | 4.55 | 4.40 | 4.41 | 4.34 | 5.25 |

*Sources*: Korea Stock Exchange, Financial Supervisory Service, Korean Fair Trade Commission, and Bank of Korea.

[a] Import liberalization ratio is the percentage of import categories not subject to trade restrictions among all import categories (e.g., Guillen, 2000).

[b] Secondary school enrollment is the percentage of elementary school graduates advancing into secondary schools (e.g., Khanna & Palepu, 2000b; Levine, 1997; Wan & Hoskisson, 2003).

[c] Bond value is the value of outstanding corporate bonds.

[d] Private credit is the sum of total credit given to the private sector.

[e] Daily fluctuation band, which is the average value for the different ranges of stock prices, is the maximum range of stock fluctuation, beyond which the securities authorities will intervene on behalf of the government (usually by suspending trading of certain stocks).

[f] The number of affiliated firms (both listed and non-listed) for the top 30 *chaebol*s during 1984–1986 is not available, because only since 1987 has the KFTC started to disclose this information. The information on the number of listed affiliates during 1984–1996 is available from the Korea Stock Exchange.

justification to focus on Korea is that it probably is the most extensively studied emerging economy in terms of diversification premium and discount, thus allowing for comparison with previous findings. Starting with Chang and Choi (1988), several studies document a diversification premium (Chang & Hong, 2000, 2002; Guillen, 2000; Khanna & Rivkin, 2001). In contrast, more recent studies find a diversification discount (Bae et al., 2002; Chang, 2003a, 2003b; Ferris et al., 2003; Joh, 2003; Lins & Servaes, 2002). None of these studies, however, has theorized and reported the existence of *both* diversification premium and discount and plotted their transformation. This will be the challenge we take on in this study.

### 4.2. A modified "chop shop" method

We employ a modified "chop shop" method adjusted to Korean realities. This is a popular approach in finance (Berger & Ofek, 1995; Ferris et al., 2003; Lang & Stulz, 1994). One reason that we adopt this method, which is under-utilized in the strategy literature, is that we want to make our results comparable with the existing literature adopting the same method.[8] Using the "chop shop" method one can estimate the value of the firm by "chopping" it up via an examination of the value of its divisions. The value of conglomerate divisions can be reasonably approximated by the *average* value of stand-alone firms in the same industry in which these divisions compete. The sum of the imputed value of a conglomerate's divisions estimates the value of the conglomerate as if all its divisions were stand-alone firms. The excess value of a conglomerate is defined by the natural log value of the ratio of its actual value to its imputed value. A positive excess value suggests that diversification enhances the value of divisions beyond that of their stand-alone counterparts—in other words, a diversification *premium*. Conversely, a negative excess value implies a diversification *discount*.

The difference between our method and the traditional "chop shop" method lies in the calculation of imputed value. While the traditional "chop shop"

[8] The "chop shop" method, while popular in finance, is not perfect. See recent criticisms by Graham, Lemmon, and Wolf (2002) and Whited (2001).

method treats a conglomerate as a firm and its divisions, we focus on a conglomerate as a group of firms (chaebol or business group) and its legally independent, affiliated member firms. With centralized integration and control, a Korean business group (with member firms) has typically taken on the characteristics of a Western conglomerate firm (with divisions). As indicated earlier, *all* previous Korea studies (cited previously) have treated business groups and their group-affiliated member firms as if they were ''conglomerate firms'' and their ''divisions'' in the West, respectively. We have followed these precedents.

Specifically, our imputed value of a group-affiliated firm is a value of its accounting item (sales or earnings before income taxes [EBIT]) multiplied by the ratio of a value of total capital (sum of the market value of equity and the book value of debt) to this item for the median stand-alone firm in the same industry. It has the following property:

$$\mathrm{IV}_{\mathrm{gr}} = \mathrm{AI}^{*}_{\mathrm{gr}} \left( \frac{V}{\mathrm{AI}} \right)_{\mathrm{sa}} \quad (1)$$

where $\mathrm{IV}_{\mathrm{gr}}$ is the imputed value of a group-affiliated firm in the industry $i$ as a stand-alone firm; $\mathrm{AI}_{\mathrm{gr}}$ is a value of the accounting item of a group-affiliated firm (sales or EBIT); $(V/\mathrm{AI})_{\mathrm{sa}}$ is the ratio of a value of total capital to an accounting item (sales or EBIT) for the median stand-alone firm in industry $i$.

Then, the excess value of a chaebol-affiliated firm is defined by the log value of the ratio of actual to imputed value of the firm as follows:

$$\text{Excess value} = \log \left( \frac{V_{\mathrm{gr}}}{\mathrm{IV}_{\mathrm{gr}}} \right) \quad (2)$$

We apply our method to all publicly listed, non-financial firms during 1984–1996, by drawing on a database amassed by the Korean Listed Companies Association (e.g., Bae et al., 2002).

### 4.3. Variables

#### 4.3.1. Dependent variables

We follow Berger and Ofek (1995) to focus on two accounting items: sales and EBIT. We first calculate the industry median (mean) of capital-to-sales and capital-to-EBIT ratios for all stand-alone firms in each industry. Capital is the sum of the market value of equity and the book value of debt. Then, the imputed value of a group-affiliated firm is obtained by multiplying this median (mean) ratio to the actual sales or EBIT. Thus, the imputed value represents the hypothetical value of a group-affiliated firm, as if it operated as an average stand-alone firm. Industry classification is based on the Korean Standard Industrial Classification (KSIC) two-digit code. Each industry is supposed to include at least three stand-alone firms every year, and industry dummies are included to control for industry-specific effects.[9]

#### 4.3.2. Diversification measures

There is some controversy regarding the appropriateness of different measures of diversification (Robins & Wiersema, 2003). As a result, we employ three measures of diversification (one dummy and two continuous), which would provide stronger conclusions if they lead to similar findings. First, a dummy variable is created for firms affiliated with business groups (Ferris et al., 2003; Khanna & Palepu, 2000b). We first examine the 30 largest chaebol groups officially designated by the KFTC in terms of total assets since 1987. Because there are small changes from year-to-year, a total of 38 groups are designated more than once. For all pre-1987 groups and medium and small sized groups (not in the top 30) since 1987, we rely on a report by Daeyu Securities. Companies are considered ''related'' and thus as affiliates of chaebols when the same person or relatives are the controlling shareholders or when one listed firm holds a substantial ownership (usually the largest) stake in other listed firms.

A total of 84 business groups have been identified. Overall, our sample includes a total of 751 firms (305 group-affiliated firms and 446 unaffiliated firms). Then the maximum number of company-years would be 9763 (13 years × 751 firms). Because some firms stopped being listed and some went bankrupt in addition to reporting and data problems in the database, we end up with 6025 company-years of excess values using the sales multiplier and 5281 company-years of excess values using the EBIT multiplier.

Panel A of Table 2 provides basic statistics. Consistent with Ferris et al. (2003), the stand-alone and group-affiliated firms are significantly different. Group-affiliated firms are much bigger, and invest and borrow more. The tax-to-sales ratios of group-affiliated

[9] When there exist less than three stand-alone companies in an industry, we follow Fauver et al. (2003) to use the broader industrial classification based on the input–output tables compiled by the Bank of Korea. To minimize the potential impact of outliers, we follow Berger and Ofek (1995) and Fauver et al. (2003) to exclude 80 and 98 extreme cases for the sales and EBIT multipliers, respectively, whose actual value is more than four times or less than one-fourth of the imputed value.

Table 2
Organizational demographics and excess values for stand-alone and group-affiliated firms

| | (1) Stand-alone firms | | (2) Group-affiliated firms | | Difference (2 − 1) | |
|---|---|---|---|---|---|---|
| | Median | Mean | Median | Mean | Median[e] | Mean[f] |
| Panel A: organizational demographics | | | | | | |
| Capital (billion won)[a] | 67 | 125 | 191 | 400 | 124*** | 275*** |
| Sales (billion won) | 41 | 72 | 99 | 230 | 58*** | 158*** |
| Leverage[b] | 2.035 | 2.871 | 2.624 | 4.024 | 0.589*** | 1.153** |
| Capital expend./sales[c] | 0.019 | 0.052 | 0.029 | 0.076 | 0.010*** | 0.022*** |
| Tax/sales | 0.012 | 0.018 | 0.009 | 0.014 | −0.004*** | −0.004*** |
| Panel B: excess values[d] | | | | | | |
| Using sales multiplier | 0.000 | 0.018 | 0.012 | 0.032 | 0.012 | 0.014 |
| Using EBIT multiplier | 0.000 | 0.010 | 0.051 | 0.066 | 0.051*** | 0.056*** |

[a] Capital is the sum of the book value of debt and the market value of equity.
[b] Leverage is the ratio of debt to equity assets.
[c] Capital expenditure is the increase in tangible assets.
[d] Excess value is the natural log of the ratio of a firm's actual value to its imputed value. A positive excess value of group-affiliated companies indicates that group affiliation (or group-level diversification) enhances the value of a firm beyond that of its stand-alone peers—in other words, a diversification premium. A negative excess value indicates a diversification discount.
[e] The median difference test is the Mann–Whitney test.
[f] The mean difference test is the *t*-test.
** $p < 0.01$.
*** $p < 0.001$.

firms are lower than those of stand-alone firms, which suggest that group-affiliated firms are likely to take advantage of tax-deductible interest payments by taking on more debt.[10]

Given the dichotomous nature of the group affiliation dummy, we also employ two continuous measures of diversification. We first measure the number of listed affiliated firms for each chaebol group. Since each affiliated firm within a chaebol usually specializes in one industry, the number of affiliates is indicative of the scope of group-level diversification. We then calculate the entropy index (Hill et al., 1992; Palepu, 1985) using the sales of all affiliated firms for each chaebol. The entropy measure of total diversification is defined as follows: $DT = \Sigma_i S_i \ln (1/S_i)$ where $S_i$ is the share of an affiliated company ($i$) among total sales of the group. Overall, these two continuous measures attempt to capture (albeit imperfectly) the construct of organizational size and complexity highlighted in Hypothesis 3.

### 4.3.3. Institutional variables

Five previously used, exploratory variables aiming to capture some aspects of institutional transitions in capital, product, and labor markets are selected. For capital markets, we select the stock market capitalization/GDP ratio, which is the most widely used indicator of financial markets development (Levine, 1997) and employed in related previous work (Guillen, 2000; Khanna & Palepu, 2000b). Since capital markets encompass markets other than stock markets, we follow King and Levine (1993) to include the corporate bond value/GDP ratio and private sector credit/GDP ratio as proxies for bond markets and credit markets, respectively. All these three measures of capital markets development showed strong growth during 1984–1996 (see Table 1).

For changes in product markets, in the spirit of Guillen (2000), we use the percentage of import categories not subject to import restrictions, which increased to 99.3% by 1996 (see Table 1). The upshot is that more commodities (especially intermediate products) are now freely available in product markets with little or no import duty distortion, thus reducing the need for chaebols to make them in-house. For labor markets changes, following Khanna and Palepu (2000b: 272), Levine (1997: 707), and Wan and Hoskisson (2003: 34), we measure the percentage of students entering secondary schools among primary school graduates to document the rising levels of qualifications and hence costs of the participants of labor markets (Table 1). The intuition behind these variables is that they add to the environmental uncertainty in product and labor markets.

[10] Chaebol affiliate firms may have an incentive to take on more debt, because a high level of leverage may add value by reducing tax obligations on interest payments.

Overall, given the complexity and multidimensionality of institutional transitions, these previously used exploratory variables obviously represent an incomplete set. However, since all of them have been successfully employed elsewhere, it would be interesting to assess their impact as one ''package'' of institutional transitions on diversification premium/discount in a new setting.

#### 4.3.4. Control variables

Five widely used control variables are included. First, the log of sales controls the firm size effect (Chang, 2003b). Second, the EBIT/sales ratio serves as a proxy for profitability (Berger & Ofek, 1995). Third, the capital expenditure/sales ratio provides a measure of growth opportunities (Berger & Ofek, 1995). Fourth, leverage is measured by the debt/equity ratio (Chang & Hong, 2000). Finally, firm age is controlled (Guillen, 2000).

### 4.4. Analytical procedures

A total of five analyses are undertaken. First, we conduct bivariate tests to compare excess values, using both sales and EBIT multipliers. Second, we run the following regression:

$$\begin{aligned}\text{Excess value at the firm level} &= \alpha + \beta_1 \times \text{diversification measure at the group level} \\ &+ \beta_2 \times \text{controls at the firm level} + \text{error term} \end{aligned} \quad (3)$$

This cross-level specification is driven by the conceptual need to focus on the firm level per the ''chop shop'' method—the total value of any group (conglomerate) is inferred by the aggregate value of its constituent units (affiliate firms in this case) (see Ferris et al., 2003). In addition, this approach is also necessitated by both the well-known fact that each chaebol group closely controls its affiliate firms and the practical difficulty of directly measuring group-level excess value. Note that groups are not listed and legally speaking, groups do not even exist—they are ''fictitious'' (Chang, 2003a).

Third, we follow Khanna and Palepu (2000b: 279) to use time as a general proxy for incremental institutional transitions. In addition, we add an interaction item between the diversification measure and the time variable to regression (3) above.

Fourth, although the general time line may be indicative of institutional transitions, according to Chang and Hong (2000: 444; 2002: 270) and Khanna and Palepu (2000b: 276), there may be distinct differences across different time periods. Therefore, we divide the 13-year period into four *equal* periods (four years in the first period, 1984–1987 and three years each in three later periods, 1988–1990, 1991–1993, and 1994–1996), and run regression (3) above for each period and also for each year to check the sensitivity of the results on how we divide the whole period.

Finally, in order to identify the impact of *particular* institutional transitions, we introduce several specific institutional variables as follows:

$$\begin{aligned}\text{Excess value at the firm level} &= \alpha + \beta_1 \times \text{diversification measure at the group level} \\ &+ \beta_2 \times \text{institutional variables} + \beta_3 \\ &\times \text{institutional variables} \\ &\times \text{diversification measure at the group level} \\ &+ \beta_4 \times \text{controls} + \text{error term} \end{aligned} \quad (4)$$

## 5. Findings

Panel B of Table 2 reports the excess value estimates for the whole sample during the 13-year period (1984–1996). The positive differences in median and mean excess values between group-affiliated and stand-alone firms indicate the existence of diversification premium, thus supporting Hypothesis 1. In both estimations using the sales and EBIT multipliers, group-affiliated firms enjoy higher firm values, although the differences turn out to be significant only in the case of the EBIT multiplier.

Having found an overall diversification premium, we proceed to explore its determinants based on descriptive statistics reported in Table 3. The results from pooled regression models in Table 4 demonstrate the positive value premium of group-affiliated firms based on the group affiliation dummy as the diversification measure, as shown by the significantly positive coefficients in Models 2 and 6. The premium for the sales multiplier is approximately 4.7% ($p < 0.001$) and that for the EBIT multiplier is about 5.3% ($p < 0.001$). These results again support Hypothesis 1.[11]

Then we move on to investigate whether such premium changes over time. In Table 4, this is done by first adding the time variable in Models 3 and 7 and then adding an interaction item between the group affiliation dummy and the time variable in Models 4 and 8. The significantly negative interaction item suggests that the

[11] These results are checked for, and found to be free from, the possible impact of serial correlation associated with using the pooled data and also of the heteroskedasticity (results are available upon request).

Table 3
Basic statistics and correlations matrix[a]

| | 1. Excess value (sales) | 2. Excess value (EBIT) | 3. Group affiliation dummy | 4. Number of affiliates | 5. Entropy index | 6. Firm size: sales log | 7. Profitability: EBIT/sales | 8. Growth: capital/ sales | 9 Leverage: debt/equity | 10 Firm age | 11. Stock market capitalization/ GDP | 12. Bond value/ GDP | 13. Private credit/ GDP | 14. Import liberalization | 15. Secondary enrollment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 0.02 | 0.04 | 0.41 | 1.95 | 0.28 | 17.89 | 0.10 | 0.06 | 3.37 | 24.07 | 0.25 | 0.12 | 1.13 | 94.86 | 92.32 |
| S.D. | 0.43 | 0.42 | 0.49 | 2.17 | 0.52 | 1.31 | 0.10 | 0.16 | 18.36 | 12.28 | 0.13 | 0.03 | 0.21 | 4.32 | 4.04 |
| 1 | | | | | | | | | | | | | | | |
| 2 | 0.4142*** | | | | | | | | | | | | | | |
| 3 | 0.0159 | 0.0666*** | | | | | | | | | | | | | |
| 4 | 0.0024 | 0.0786*** | 0.5273*** | | | | | | | | | | | | |
| 5 | 0.0076 | 0.0818*** | 0.6384*** | 0.9285*** | | | | | | | | | | | |
| 6 | −0.1499*** | −0.0056 | 0.3382*** | 0.3376*** | 0.3736*** | | | | | | | | | | |
| 7 | 0.2245*** | −0.3492*** | −0.0127 | −0.0495*** | −0.0410*** | −0.0669*** | | | | | | | | | |
| 8 | 0.2441*** | 0.1666*** | 0.0724*** | 0.0452*** | 0.0420*** | 0.0141 | −0.0480*** | | | | | | | | |
| 9 | 0.0463*** | 0.0304* | 0.0311** | 0.0225* | 0.0225* | 0.0195 | 0.0004 | −0.0305 * | | | | | | | |
| 10 | −0.0340** | −0.0540*** | 0.0660*** | 0.1367*** | 0.1704*** | 0.2656*** | 0.0223 | −0.0142 | −0.0013 | | | | | | |
| 11 | −0.0091 | −0.0117 | 1.001E-16 | 0.1024*** | 0.1378*** | 0.1440*** | 0.0158 | 0.0329** | −0.0364*** | 0.2318*** | | | | | |
| 12 | −0.0468*** | −0.0312* | −0.0001 | 0.1217*** | 0.1528*** | 0.0128 | −0.0049 | 0.0158 | −0.0138 | 0.2803*** | 0.7008*** | | | | |
| 13 | −0.0472*** | −0.0312* | −0.0001 | 0.1162*** | 0.1479*** | 0.0256* | −0.0099 | 0.0090 | −0.0137 | 0.2846*** | 0.7372*** | 0.9787*** | | | |
| 14 | −0.0204 | −0.0140 | 8.236E-17 | 0.1136*** | 0.1466*** | 0.0695*** | 0.0074 | 0.0181 | −0.0248* | 0.2643*** | 0.8505*** | 0.8644*** | 0.8353*** | | |
| 15 | −0.0461*** | −0.0265 | −0.0001 | 0.1122 *** | 0.1457*** | 0.0489*** | −0.0041 | 0.0114 | −0.0101 | 0.2793*** | 0.7327*** | 0.9601*** | 0.9755*** | 0.8354*** | |

[a] Sample sizes vary from 5117 to 7871.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

premium captured by Models 2 and 4 declines approximately 1.8% ($p < 0.001$) per year for the sales multiplier and 1.6% ($p < 0.001$) per year for the EBIT multiplier, thus supporting Hypothesis 2. These results are consistent with Khanna and Palepu's (2000b: 279) findings in Chile.

Next, we move on to divide the 13 years into four *equal* periods, and run regression (3) as done for Models 2 and 6 in Table 4. Table 5 reports the period-by-period trend of the diversification effect using the group affiliation dummy. In both Panels A and B using the sales and EBIT multipliers, respectively, the decline of the group affiliation effect during the first three periods is clear. Then during the last, 1994–1996 period, the previously significantly positive coefficient for the group affiliation dummy on the sales multiplier has changed to a significantly negative one (Model 4: $\beta = -0.055$, $p < 0.05$). This finding demonstrates the existence of a diversification discount and again supports Hypothesis 2. During the same period, the same effect on the EBIT multiplier has also changed from a positive to a negative sign (Model 8: $\beta = -0.024$). Although this negative coefficient is statistically insignificant from zero, it is no longer significantly above zero as found in Models 5–7, thus pointing out the disappearance of the diversification premium. Ferris et al. (2003) also find the similar value loss (or discount) for chaebol firms but do not deal with the possibility that there might have been a premium during an earlier period such as the 1980s.

In Tables 6–8, we repeat the same procedures, using two continuous measures of diversification which are also proxies for organizational complexity to test Hypothesis 3. Table 6 replicates Table 4, and the results are similar. For the pooled sample using both sales and EBIT multipliers, the number of affiliates in Models 1 and 4 suggest a 0.8–1.2% premium (smaller than the magnitude reported in Table 4), and the entropy index in Models 7 and 10 indicates a 4–5% premium (about the same as in Table 4). These findings again support Hypothesis 1. Further, the significantly negative interaction between the diversification measures and the time variable is supportive of Hypotheses 2 and 3, indicating an annual decline of the premium of 0.4% using the number of affiliates (Models 3 and 6) and 1.6–1.8% using the entropy measure (Models 9 and 12). Tables 7 and 8 replicate Table 5. The results are corroborative, not only indicating a decline of the diversification premium over time, but also the emergence of a diversification *discount* during the last

Table 4
The determinants of excess value based on the group affiliation dummy[a]

| Dependent variables | Excess value based on the sales multiplier ($N = 5213$) | | | | Excess value based on the EBIT multiplier ($N = 5107$) | | | |
|---|---|---|---|---|---|---|---|---|
| Model | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Group affiliation dummy | | 0.047*** (4.171) | 0.046*** (4.099) | 0.193*** (7.587) | | 0.053*** (4.577) | 0.053*** (4.533) | 0.179*** (6.860) |
| Time | | | −0.004** (−2.629) | 0.0005* (2.481) | | | −0.002 (−1.551) | 0.005** (2.571) |
| Time × dummy | | | | −0.018*** (−6.430) | | | | −0.016*** (−5.402) |
| Firm size: log (sales) | −0.062*** (−13.940) | −0.070*** (−14.871) | −0.071*** (−15.035) | −0.071*** (−15.050) | −0.029*** (−6.396) | −0.038*** (−7.810) | −0.039*** (−7.899) | −0.039*** (−7.886) |
| Profitability: EBIT/sales | 2.071*** (23.622) | 2.061*** (23.582) | 2.054*** (23.505) | 2.040*** (23.434) | −2.712*** (−29.827) | −2.718*** (−29.978) | −2.720*** (−30.002) | −2.728*** (−30.168) |
| Growth: capital/sales | 0.787*** (19.707) | 0.779*** (19.540) | 0.778*** (19.527) | 0.786*** (19.795) | 0.525*** (13.164) | 0.519*** (13.003) | 0.518*** (12.999) | 0.523*** (13.162) |
| Leverage: debt/equity | 0.002*** (6.009) | 0.002*** (5.871) | 0.002*** (5.845) | 0.002*** (5.980) | 0.002*** (4.804) | 0.002*** (4.692) | 0.002*** (4.669) | 0.002*** (4.756) |
| Firm age | −0.001* (−2.012) | −0.001 (−0.988) | −0.000 (−0.532) | −0.000 (−0.445) | −0.002*** (−3.914) | −0.002** (−3.207) | −0.001** (−2.910) | −0.001** (−2.838) |
| $R^2$ | 0.2276 | 0.2326 | 0.2336 | 0.2397 | 0.2009 | 0.2057 | 0.2060 | 0.2106 |
| *Adjusted* $R^2$ | 0.2221 | 0.2269 | 0.2278 | 0.2338 | 0.1950 | 0.1997 | 0.1999 | 0.2043 |
| $F$ | 41.173*** | 41.139*** | 40.308*** | 40.641*** | 34.396*** | 34.420*** | 33.609*** | 33.681*** |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 5
Period-by-period estimation based on the group affiliation dummy[a]

| | Model | | | |
|---|---|---|---|---|
| | (1) 1984–1987 | (2) 1988–1990 | (3) 1991–1993 | (4) 1994–1996 |
| Panel A: using the sales-based excess value as the dependent variable | | | | |
| Group affiliation dummy | 0.107*** (3.85) | 0.084*** (4.152) | 0.059** (2.915) | −0.055** (−2.496) |
| Firm size: log (sales) | −0.027* (−2.075) | −0.065*** (−6.892) | −0.042*** (−4.624) | −0.063*** (−8.635) |
| Profitability: EBIT/sales | 2.875*** (9.955) | 1.827*** (11.047) | 1.444*** (11.795) | 2.546*** (14.230) |
| Growth: capital expenditure/sales | 0.712*** (6.206) | 1.026*** (12.986) | 0.890*** (14.045) | 0.520*** (6.504) |
| Leverage: debt/equity ratio | 0.005*** (3.610) | 0.017*** (5.118) | 0.001*** (4.479) | 0.008*** (3.712) |
| Firm age | −0.000 (−0.056) | −0.000 (−0.462) | −0.000 (−0.965) | −0.000 (−0.233) |
| $R^2$ | 0.1604 | 0.2394 | 0.2216 | 0.2059 |
| Adjusted $R^2$ | 0.1553 | 0.2360 | 0.2182 | 0.2026 |
| $F$ | 30.896*** | 70.104*** | 67.026*** | 62.658*** |
| $N$ | 977 | 1343 | 1420 | 1457 |
| | Model | | | |
| | (5) 1984–1987 | (6) 1988–1990 | (7) 1991–1993 | (8) 1994–1996 |
| Panel B: using the EBIT-based excess value as the dependent variable | | | | |
| Group affiliation dummy | 0.106*** (3.972) | 0.095*** (4.166) | 0.056** (2.808) | −0.024 (−1.108) |
| Firm size: log (sales) | −0.022 (−1.748) | −0.039*** (−3.692) | −0.038*** (−4.257) | −0.039*** (−5.346) |
| Profitability: EBIT/sales | −3.614*** (−12.948) | −1.230*** (−9.453) | −3.726*** (−23.137) | −3.518*** (−16.133) |
| Growth: capital expenditure/Sales | 0.683*** (5.959) | 0.586*** (7.295) | 0.798*** (12.938) | 0.453*** (5.649) |
| Leverage: debt/equity ratio | 0.005*** (3.689) | 0.014*** (3.896) | 0.005*** (3.857) | −0.003 (−1.034) |
| Firm age | 0.000 (0.664) | −0.001 (−1.453) | −0.001 (−0.631) | 0.000 (0.006) |
| $R^2$ | 0.1913 | 0.1441 | 0.3242 | 0.1692 |
| Adjusted $R^2$ | 0.1863 | 0.1402 | 0.3213 | 0.1656 |
| $F$ | 37.900*** | 37.180*** | 109.476*** | 47.776*** |
| $N$ | 968 | 1332 | 1376 | 1415 |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

period (1994–1996). Similar to the findings on chaebols' value loss during 1992–1995 by Ferris et al. (2003: 270), our findings again support Hypothesis 3. Overall, despite some relatively minor differences, taken together (shown in Fig. 1 based on the coefficients of the three diversification measures in Tables 5, 7 and 8), the findings converge to strongly support Hypotheses 2 and 3.

Finally, in Table 9, we replace the time trend used in Table 4 with a time series of *each* of the five exploratory institutional variables. Following Khanna and Palepu (2000b: 279), this procedure enables us to identify what *particular* institutional transitions drives support for Hypotheses 2 and 3. With finer-grained details, the findings corroborate those reported earlier, in that the diversification premium associated with the group affiliation dummy declines significantly as institutional transitions in capital, product, and labor markets unfold. Overall, these results, again, strongly support Hypotheses 2 and 3.[12]

In addition, we have conducted a series of robustness checks (not reported in the tables to save space, but are available upon request). First, we follow Khanna and Palepu (2000b: 276) to run year-by-year regressions. Second, we employ year dummies. Third, we follow Chang and Hong (2000), who suggest an alternative scheme of dividing the entire period into three (sub)periods (1985–1988, 1989–1992, and 1993–1996) based on their empirical exploration. The results from all these robustness checks are all qualitatively

[12] The interactions between the two continuous measures of diversification and the institutional variables are similar. Due to space constraints, we do not report these findings, which are available upon request.

Table 6
The determinants of excess value based on continuous measures of diversification[a]

| Model | Excess value based on the sales multiplier ($N = 5207$) (1) | (2) | (3) | Excess value based on the EBIT multiplier ($N = 5101$) (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Panel A: using the number of affiliated companies as the measure of diversification | | | | | | |
| Number of affiliates | 0.008*** (3.46) | 0.008*** (3.60) | 0.038*** (7.29) | 0.012*** (5.00) | 0.012*** (5.09) | 0.046*** (8.72) |
| Time | | −0.004** (−2.66) | 0.005* (2.39) | | −0.003 (−1.82) | 0.007*** (3.58) |
| Time × number of affiliates | | | −0.004*** (−6.35) | | | −0.004*** (−7.19) |
| Firm size: log (sales) | −0.068*** (−14.28) | −0.069*** (−14.49) | −0.070*** (−14.71) | −0.038*** (−7.76) | −0.039*** (−7.89) | −0.040*** (−8.12) |
| Profitability: EBIT/sales | 2.087*** (23.80) | 2.082*** (23.74) | 2.074*** (23.74) | −2.699*** (−29.75) | −2.70*** (−29.78) | −2.709*** (−30.01) |
| Growth: capital expenditure/sales | 0.775*** (19.37) | 0.774*** (19.34) | 0.776*** (19.48) | 0.514*** (12.88) | 0.513*** (12.87) | 0.514*** (12.95) |
| Leverage: debt/equity ratio | 0.002*** (5.94) | 0.002*** (5.91) | 0.002*** (6.01) | 0.002** (4.73) | 0.002*** (4.71) | 0.002*** (4.78) |
| Firm age | −0.001 (−1.82) | −0.001 (−1.34) | −0.001 (−1.08) | −0.002*** (−3.63) | −0.002*** (−3.28) | −0.001** (−3.01) |
| $R^2$ | 0.2294 | 0.2305 | 0.2364 | 0.2048 | 0.2053 | 0.2134 |
| Adjusted $R^2$ | 0.2238 | 0.2247 | 0.2305 | 0.1988 | 0.1992 | 0.2071 |
| $F$ | 40.490*** | 39.680*** | 39.988*** | 34.307*** | 33.527*** | 34.310*** |

| Model | Excess value based on the sales multiplier ($N = 5207$) (7) | (8) | (9) | Excess value based on the EBIT multiplier ($N = 5101$) (10) | (11) | (12) |
|---|---|---|---|---|---|---|
| Panel B: Using the entropy index as the measure of diversification | | | | | | |
| Entropy index | 0.040*** (4.11) | 0.042*** (4.31) | 0.170*** (7.53) | 0.054*** (5.46) | 0.056*** (5.59) | 0.198*** (8.61) |
| Time | | −0.004** (−2.79) | 0.002 (1.32) | | −0.003* (−1.96) | 0.004* (2.35) |
| Time × entropy index | | | −0.016*** (−6.29) | | | −0.018*** (−6.85) |
| Firm size: log (sales) | −0.069*** (−14.48) | −0.071*** (−14.71) | −0.071*** (−14.89) | −0.039*** (−8.00) | −0.040*** (−8.16) | −0.041*** (−8.32) |
| Profitability: EBIT/sales | 2.087*** (23.82) | 2.081*** (23.75) | 2.072*** (23.75) | −2.702*** (−29.81) | −2.705*** (−29.84) | −2.711*** (−30.04) |
| Growth: capital expenditure/sales | 0.775*** (19.38) | 0.773*** (19.36) | 0.777*** (19.52) | 0.512*** (12.86) | 0.512*** (12.84) | 0.514*** (12.97) |
| Leverage: debt/equity ratio | 0.002*** (5.90) | 0.002*** (5.86) | 0.002*** (5.98) | 0.002*** (4.68) | 0.002*** (4.65) | 0.002*** (4.74) |
| Firm age | −0.001 (−1.74) | −0.001 (−1.24) | −0.000 (−1.01) | −0.002*** (−3.56) | −0.002*** (−3.19) | −0.001** (−2.96) |
| $R^2$ | 0.2302 | 0.2313 | 0.2371 | 0.2056 | 0.2062 | 0.2135 |
| Adjusted $R^2$ | 0.2245 | 0.2255 | 0.2312 | 0.1996 | 0.2000 | 0.2072 |
| $F$ | 40.659*** | 39.868*** | 40.149*** | 34.466*** | 33.700*** | 34.331*** |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 7
Period-by-period estimation based on the number of affiliated companies[a]

| | Model | | | |
|---|---|---|---|---|
| | (1) 1984–1987 | (2) 1988–1990 | (3) 1991–1993 | (4) 1994–1996 |
| Panel A: using the sales-based excess value as the dependent variable | | | | |
| Number of affiliates | 0.011 (1.84) | 0.023*** (5.73) | 0.020*** (4.76) | −0.014** (−3.15) |
| Firm size: log (sales) | −0.015 (−1.18) | −0.071*** (−7.55) | −0.049*** (−5.34) | −0.062*** (−8.49) |
| Profitability: EBIT/sales | 3.002*** (10.35) | 1.898*** (11.60) | 1.473*** (12.09) | 2.515*** (14.03) |
| Growth: capital expenditure/sales | 0.719*** (6.18) | 1.017*** (12.96) | 0.873*** (13.80) | 0.521*** (6.54) |
| Leverage: debt/equity ratio | 0.005*** (3.43) | 0.017*** (4.99) | 0.002*** (4.64) | 0.009*** (3.89) |
| Firm age | −0.001 (−0.70) | −0.000 (−0.33) | −0.001 (−1.04) | −0.000 (−0.34) |
| $R^2$ | 0.1526 | 0.2489 | 0.2297 | 0.2076 |
| Adjusted $R^2$ | 0.1474 | 0.2455 | 0.2264 | 0.2044 |
| $F$ | 29.210*** | 73.948*** | 70.355*** | 63.369*** |
| $N$ | 980 | 1346 | 1423 | 1458 |
| | Model | | | |
| | (5) 1984–1987 | (6) 1988–1990 | (7) 1991–1993 | (8) 1994–1996 |
| Panel B: using the EBIT-based excess value as the dependent variable | | | | |
| Number of affiliates | 0.021*** (3.77) | 0.028*** (6.18) | 0.017*** (3.96) | −0.011** (−2.70) |
| Firm size: log (sales) | −0.019 (−1.52) | −0.050*** (−4.71) | −0.042*** (−4.65) | −0.036*** (−4.93) |
| Profitability: EBIT/sales | −3.475*** (−12.48) | −1.208*** (−9.52) | −3.697*** (−23.01) | −3.571*** (−16.30) |
| Growth: capital expenditure/sales | 0.667*** (5.79) | 0.597*** (7.48) | 0.793*** (12.90) | 0.456*** (5.71) |
| Leverage: debt/equity ratio | 0.005*** (3.47) | 0.013*** (3.58) | 0.001*** (4.00) | −0.002 (−0.75) |
| Firm age | 0.000 (0.39) | −0.001 (−0.59) | −0.001 (−0.87) | −0.000 (−0.21) |
| $R^2$ | 0.1881 | 0.1553 | 0.3272 | 0.1718 |
| Adjusted $R^2$ | 0.1831 | 0.1515 | 0.3242 | 0.1682 |
| $F$ | 37.228*** | 40.690*** | 111.182*** | 48.698*** |
| $N$ | 971 | 1335 | 1379 | 1416 |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
** $p < 0.01$.
*** $p < 0.001$.

similar to those reported in the main tables and Fig. 1, thus strengthening our confidence in the main findings.

## 6. Discussion

### 6.1. Contributions

Theoretically, this article extends and supports the institution-based theory of corporate diversification, by adding a dynamic, longitudinal, and temporal component. In contrast, previous work tended to be relatively static, suggesting that conglomeration either adds or reduces value. During Korea's rapidly evolving institutional transitions, we posit and find that there is indeed a discernible diversification premium during the period of 1984–1996. This strengthens the arguments on the institutional voids in emerging economies in which conglomerates may fill and add value (Khanna & Palepu, 2000b; Peng et al., 2005). Yet, we have gone beyond these arguments by suggesting and demonstrating that such a diversification premium does *not* hold over time; instead, as institutional transitions unfold, it is eventually replaced by a diversification discount.

Empirically, this article makes two important contributions. First, it takes a longitudinal perspective, in response to the criticism that conclusions reached by different diversification studies are ''heavily influenced by their sample period'' (Lang & Stulz, 1994: 1252; Peng et al., 2005). We believe that a primary reason that most studies in emerging economies either find a diversification premium or discount is because of their relatively short sample period (in some cases only one year—see Lins & Servaes, 2002), which may not capture enough institutional transitions. By using the *longest* sample period among studies in emerging economies, we are able to track how diversification premium becomes discount over time. Second, we employ three different measures of diversification, in contrast to the usual one measure which often leads to the criticism that the results are driven by the

Table 8
Period-by-period estimation based on the entropy index[a]

| | Model | | | |
|---|---|---|---|---|
| | (1) 1984–1987 | (2) 1988–1990 | (3) 1991–1993 | (4) 1994–1996 |
| Panel A: using the sales-based excess value as the dependent variable | | | | |
| Entropy index | 0.070** (2.70) | 0.088*** (5.11) | 0.072*** (4.34) | −0.044* (−2.38) |
| Firm size: log (sales) | −0.020 (−1.57) | −0.069*** (−7.33) | −0.048*** (−5.23) | −0.063*** (−8.48) |
| Profitability: EBIT/sales | 2.997*** (10.35) | 1.879*** (11.46) | 1.465*** (12.02) | 2.536*** (14.15) |
| Growth: capital expenditure/sales | 0.718*** (6.20) | 1.020*** (12.97) | 0.880*** (13.91) | 0.515*** (6.46) |
| Leverage: debt/equity ratio | 0.005*** (3.45) | 0.017*** (4.98) | 0.001*** (4.55) | 0.008*** (3.81) |
| Firm age | −0.001 (−0.54) | −0.000 (−0.35) | −0.001 (−1.03) | 0.000 (−0.36) |
| $R^2$ | 0.1560 | 0.2452 | 0.2276 | 0.2053 |
| Adjusted $R^2$ | 0.1508 | 0.2418 | 0.2243 | 0.2020 |
| $F$ | 29.973*** | 70.502*** | 69.528*** | 62.480*** |
| $N$ | 980 | 1346 | 1423 | 1458 |
| | Model | | | |
| | (5) 1984–1987 | (6) 1988–1990 | (7) 1991–1993 | (8) 1994–1996 |
| Panel B: using the EBIT-based excess value as the dependent variable | | | | |
| Entropy index | 0.102*** (4.19) | 0.111*** (5.75) | 0.058*** (3.49) | −0.027 (−1.46) |
| Firm size: log (sales) | −0.022 (−1.76) | −0.049*** (−4.61) | −0.041*** (−4.50) | −0.038*** (−5.12) |
| Profitability: EBIT/sales | −3.489*** (−12.55) | −1.212*** (−9.54) | −3.705*** (−23.04) | −3.528*** (−16.13) |
| Growth: capital expenditure/sales | 0.675*** (5.88) | 0.590*** (7.38) | 0.796*** (12.93) | 0.446*** (5.58) |
| Leverage: debt/equity ratio | 0.005*** (3.51) | 0.013*** (3.57) | 0.001*** (3.92) | −0.003 (−0.89) |
| Firm age | 0.001 (0.47) | −0.001 (−0.60) | −0.001 (−0.87) | −0.000 (−0.20) |
| $R^2$ | 0.1908 | 0.1521 | 0.3254 | 0.1687 |
| Adjusted $R^2$ | 0.1858 | 0.1483 | 0.3224 | 0.1652 |
| $F$ | 37.895*** | 39.717*** | 110.319*** | 47.667*** |
| $N$ | 971 | 1335 | 1379 | 1415 |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

idiosyncratic measure (Robins & Wiersema, 2003). Our results, thus, are stronger than those from single-measure studies. While previous work has documented the reduction of diversification premium (Chang & Hong, 2000, 2002; Khanna & Palepu, 2000b), to the best of our knowledge, our work represents the first empirical study that documents the longitudinal process of how a diversification premium becomes a diversification discount during institutional transitions. This is not only the first study using Korea data to have documented this transformation, but also the first such study in all emerging economies.

### 6.2. Limitations and future research directions

Although we have sought to link the emergence of diversification discount with variables associated with institutional transitions, these are relatively simple measures that barely scratch the surface of institutional transitions. The actual mechanisms of how these changes impact firm strategies remain to be explored (Dieleman & Sachs, 2006; Peng & Zhou, 2005). Further, while we focus on the overall diversification premium/discount here, future work may want to explore the impact of institutional transitions on related versus unrelated diversification (Li, Ramaswamy, & Petitt, 2006). How *product* diversification interacts with *international* diversification (Peng & Delios, 2006) represents another fruitful avenue for future research.

Methodologically, the "chop shop" method has recently been criticized based on U.S. data. The contention centers on (1) the fact that U.S. conglomerates tend to acquire new units which are already discounted (Graham et al., 2002) and (2) the idiosyncratic nature of some widely used techniques (Whited, 2001). Since acquisitions are relatively rare in Korea (Bae et al., 2002), the first contention is probably less relevant in Korea (as well as other emerging economies). The second contention calls for more experimentation with new data and techniques. At the same

Table 9
How institutional transitions impact diversification premium/discount based on the group affiliation dummy[a]

| | Model | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Panel A: using the sales-based excess value as dependent variable ($N = 5213$) | | | | | | | | | | |
| Group affiliation dummy | 0.048*** (4.18) | 0.130*** (4.83) | 0.047*** (4.156) | 0.337*** (7.57) | 0.047*** (4.14) | 0.469*** (7.86) | 0.046*** (4.08) | 1.096*** (4.14) | 0.046*** (4.11) | 1.685*** (6.86) |
| Institutional development[b] | 0.015 (0.33) | 0.159** (2.60) | −0.588*** (−3.50) | 0.459* (2.01) | −0.077** (−3.00) | 0.092** (2.66) | −0.002 (−1.38) | 0.004 (1.83) | −0.004** (−2.74) | 0.005* (2.52) |
| Stock capitalization/GDP × group dummy | | −0.294*** (−3.38) | | | | | | | | |
| Bond value/GDP × group dummy | | | | −2.211*** (−6.74) | | | | | | |
| Private credit/GDP × group dummy | | | | | | −0.360*** (−7.20) | | | | |
| Import liberalization × group dummy | | | | | | | | −0.011*** (−3.97) | | |
| Secondary enrollment × group dummy | | | | | | | | | | −0.018*** (−6.68) |
| Firm size: log (sales) | −0.071*** (−14.83) | −0.071*** (−14.90) | −0.072*** (−15.20) | −0.072*** (−15.17) | −0.072*** (−15.12) | −0.072*** (−15.12) | −0.070*** (−14.88) | −0.070*** (−14.91) | −0.071*** (−15.04) | −0.071*** (−15.06) |
| Profitability: EBIT/sales | 2.061*** (23.58) | 2.056*** (23.55) | 2.049*** (23.45) | 2.037*** (23.41) | 2.052*** (23.46) | 2.036*** (23.41) | 2.060*** (23.58) | 2.052*** (23.51) | 2.054*** (23.50) | 2.041*** (23.45) |
| Growth: capital expenditure/sales | 0.779*** (19.54) | 0.780*** (19.59) | 0.779*** (19.56) | 0.788*** (19.87) | 0.778*** (19.52) | 0.786*** (19.82) | 0.779*** (19.54) | 0.784*** (19.67) | 0.778*** (19.52) | 0.786*** (19.79) |
| Leverage: debt/equity ratio | 0.002*** (5.88) | 0.002*** (5.91) | 0.002*** (5.86) | 0.002*** (6.02) | 0.002*** (5.858) | 0.002*** (6.00) | 0.002*** (5.85) | 0.002*** (5.92) | 0.002*** (5.86) | 0.002*** (6.05) |
| Firm age | −0.000 (−1.01) | −0.000 (−0.94) | −0.000 (−0.399) | −0.000 (−0.28) | −0.000 (−0.458) | −0.000 (−0.34) | −0.000 (0.81) | −0.000 (−0.76) | −0.000 (−0.52) | −0.000 (−0.43) |
| $R^2$ | 0.2326 | 0.2343 | 0.2344 | 0.2411 | 0.2339 | 0.2416 | 0.2329 | 0.2352 | 0.2337 | 0.2403 |
| Adjusted $R^2$ | 0.2268 | 0.2284 | 0.2286 | 0.2351 | 0.2281 | 0.2357 | 0.2271 | 0.2292 | 0.2279 | 0.2343 |
| $F$ | 40.081*** | 39.442*** | 40.486*** | 40.948*** | 40.377*** | 41.054*** | 40.140*** | 39.642*** | 40.327*** | 40.766*** |

| | Model | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| Panel B: using the EBIT-based excess value as dependent variable ($N = 5107$) | | | | | | | | | | |
| Group affiliation dummy | 0.055*** (4.68) | 0.122*** (4.42) | 0.053*** (4.56) | 0.311*** (6.83) | 0.053*** (4.55) | 0.426*** (6.96) | 0.054*** (4.59) | 0.899*** (3.32) | 0.053*** (4.54) | 1.500*** (5.95) |
| Institutional development | 0.056 (1.25) | 0.174** (2.77) | −0.428* (−2.49) | 0.508* (2.17) | −0.059* (−2.25) | 0.091* (2.55) | 0.001 (0.43) | 0.005* (2.52) | −0.002 (−1.48) | 0.005** (2.82) |
| Stock capitalization/GDP × group dummy | | −0.240** (−2.69) | | | | | | | | |
| Bond value/GDP × group dummy | | | | −1.973*** (−5.86) | | | | | | |
| Private credit/GDP × group dummy | | | | | | −0.319*** (−6.21) | | | | |
| Import liberalization × group dummy | | | | | | | | −0.009** (−3.12) | | |
| Secondary enrollment × group dummy | | | | | | | | | | −0.016*** (−5.74) |
| Firm size: log (sales) | −0.039*** (−7.90) | −0.039*** (−7.94) | −0.040*** (−8.05) | −0.039*** (−7.99) | −0.040*** (−8.00) | −0.039*** (−7.97) | −0.038*** (−7.81) | −0.038*** (−7.82) | −0.039*** (−7.89) | −0.039*** (−7.88) |
| Profitability: EBIT/sales | −2.722*** (−30.00) | −2.725*** (−30.06) | −2.724*** (−30.05) | −2.733*** (−30.24) | −2.724*** (−30.04) | −2.731*** (−30.23) | −2.719*** (−29.98) | −2.725*** (−30.01) | −2.721*** (−30.00) | −2.727*** (−30.17) |
| Growth: capital expenditure/sales | 0.518*** (12.99) | 0.519*** (13.02) | 0.519*** (13.02) | 0.526*** (13.23) | 0.518*** (12.99) | 0.524*** (13.19) | 0.518*** (13.00) | 0.521*** (13.08) | 0.518*** (13.00) | 0.523*** (13.17) |
| Leverage: debt/equity ratio | 0.002*** (4.73) | 0.002*** (4.76) | 0.002*** (4.67) | 0.002*** (4.78) | 0.002*** (4.66) | 0.002*** (4.76) | 0.002*** (4.70) | 0.002*** (4.75) | 0.002*** (4.68) | 0.002*** (4.82) |
| Firm age | −0.002*** (−3.27) | −0.002*** (−3.23) | −0.001** (−2.76) | −0.001** (−2.66) | −0.001** (−2.78) | −0.001** (−2.68) | −0.002*** (−3.24) | −0.002*** (−3.20) | −0.001** (−2.93) | −0.001** (−2.84) |
| $R^2$ | 0.2059 | 0.2070 | 0.2066 | 0.2120 | 0.2065 | 0.2125 | 0.2057 | 0.2072 | 0.2060 | 0.2112 |
| Adjusted $R^2$ | 0.1998 | 0.2008 | 0.2005 | 0.2057 | 0.2003 | 0.2062 | 0.1996 | 0.2009 | 0.1999 | 0.2049 |
| $F$ | 33.581*** | 32.964*** | 33.731*** | 33.964*** | 33.694*** | 34.060*** | 33.537*** | 33.000*** | 33.602*** | 33.794*** |

[a] $t$-Values are in the parentheses, 32 industry dummies are included.
[b] Five institutional development measures are used: (a) stock market development for Models 1 and 2, (b) bond market development for Models 3 and 4, (c) credit market development for Models 5 and 6, (d) import market liberalization for Models 7 and 8, and (e) labor market development (secondary school enrollment) for Models 9 and 10.

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

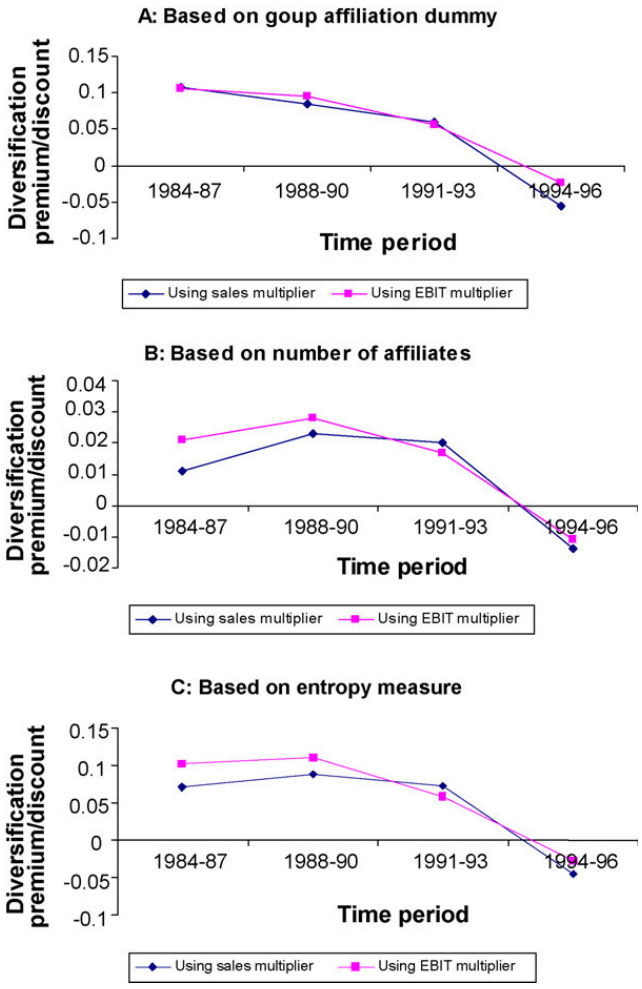


Fig. 1. From diversification premium to diversification discount over time.

time, it is important to ensure that new results are comparable with the earlier findings.

## 7. Conclusion

Changes in diversification premium and discount are complex. We have attempted to capture some of this complexity by leveraging the context of institutional transitions. If findings on how diversification premium becomes diversification discount from Korea converge with those from other emerging and developed economies—albeit with different institutional nuances—our confidence in these findings may be stronger and our advice to practitioners and policymakers more assertive. In Korea, chaebols' conglomeration strategy, "which was optimal for their rapid growth, later inhibited their adaptation and for all practical purposes became nearly dysfunctional [prior to 1997]" (Chang, 2003a: preface). Unfortunately, from a practical and policy standpoint, our findings are at least 10 years too late to be of any practical value to assist chaebols' necessary strategic change at that time. However, the practical and policy value of this research lies in the fundamental insight it reveals that an enviable diversification premium can indeed turn into a devastating diversification discount, if managers fail to make the necessary strategic changes in response to institutional and environmental transitions and if policymakers fail to push managers to initiate such changes. Chang (2003a) blames managers' and policymakers' *inertia* for Korea's 1997 crisis. Looking into the future, our findings can serve as a strong wake-up call to guard against such inertia that may rise again. In conclusion, if this article could contain only one message, then we would like it to be a sense of the staggering impact of institutional transitions on diversification strategies and performance outcomes.

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