Privately Owned Social Structures: Institutionalization-Network Contingency in the Korean Chaebol

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INTRODUCTION

This is a story about privately owned social structures shaped by, and responding to, institutional environmental forces. The outcome of this interaction is the effects of the latter made contingent on the structural capabilities of the former and vice versa, a result I conceptualize as the institutionalization-network contingency. Neoinstitutional theories of organization suggest that there are at least three different mechanisms – i.e., coercive, mimetic, and normative – through which organizations in a common institutional environment reach isomorphism (DiMaggio and Powell 1991; Scott 1995). However, isomorphism is not a prediction made exclusively by neoinstitutional theory. Transaction cost economics predicts that firms facing similar profiles of transaction costs will adopt similar governance mechanisms (Williamson 1975; 1985). Resource dependence theory suggests that organizations that accumulate high degrees of asymmetric interdependence through their interactions with outside organizations devise similar cooptic solutions (Pfeffer and Salancik 1978). Elaborating the resource dependence insight into the structural constraint measure, network theory submits that organizations that strategically embed themselves in a more favorable environment, conceived as interorganizational networks, are more successful (Burt 1983; 1992). That is to say, similar stories are told by different theories of organization.

The next logical step is to explore the areas in which predictions by different theories overlap. One such area where the dialogue between different organization theories has been most actively explored may be the one between resource dependence and network theories. Its success has been as such that network theory builds on the
insights of resource dependence theory (Burt 1983), while resource dependence theory cites network evidence as a strong support for its claims (Pfeffer 1987). Some authors do not even treat the two theories as distinct (Nohria and Gulati 1994). Highly successful attempts have also been made to incorporate transaction cost ideas into the network theories of organization (Bradach and Eccles 1989; Burt 1992). However, efforts linking neoinstitutionalism and network theory is surprisingly found wanting. This is a curious phenomenon when considering the fact that many of the neoinstitutionalist ideas, such as the concept of organizational fields, can instantly be operationalized with the help of network techniques (DiMaggio 1986). Existing literature in this connection focus on mimetic isomorphism whereby the diffusion of innovations is based on cohesion (Coleman, Katz and Menzel 1966) or structural equivalence (Burt 1987). One important recent development in the neoinstitutionalist tradition is the renewed attention to the strategic responses of organizations to institutional pressures (DiMaggio 1988; Oliver 1991; Goodrick and Salancik 1996). Building on these developments, this paper aims to show how the effects of coercive isomorphism are contingent on the structure of networks linking organizations in the environment. However, the contingent effects are not unilateral. My case seeks to demonstrate that network structure is also contingent on institutional pressures.

The chaebol business groups in South Korea provide an excellent research site for this purpose, since they constitute the clearest example of the network form of organizations, which is neither market nor hierarchy, nor in-between (Eccles 1981; Powell 1990; Thorelli 1986). While network models have been extremely successful in representing social structures in concrete, quantifiable terms (White, Boorman and
Breiger 1976; Wellman and Berkowitz 1988; Cook and Whitmeyer 1992), the Korean
*chaebol* demonstrates a rare case in which a social structure is privately owned.\(^2\) Long
accustomed to the imagery of isolated individual firms interacting with the environment,
which are at best, only a historically specific experience of the Western world (Biggart
and Hamilton 1992), organization theorists have concentrated on firms, while largely
neglecting the possibility of networks responding to environmental forces. Networks, like
firms, are shaped by the environment, but networks, unlike firms, can also take advantage
of the structural capabilities deriving from their connectedness to bend the effects of
environmental forces. The Korean *chaebol* business groups as privately owned social
structures testify to this structural capability as they transform themselves to adapt to the
changing institutional environment in the 1980s.

Although the role of the government in the export-led growth of the East Asian
NICs, including Korea, has been extensively documented (Jones and Sakong 1980; Lim
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\(^2\) I use the term ‘privately owned social structure’ to emphasize two characteristics of the *chaebol*. One is
the strong family control. It is commonplace in Korea that the founding entrepreneur (and his family) can
exercise near-perfect control over the entire business group not only in terms of ownership but with regard
to management. The other is the large number of subsidiaries. Control over \(n\) firms, combined with control
over \(n(n-1)\) relations between these firms, gives the family control over the social structure of these firms.
These two characteristics combine to constitute the private ownership of a social structure in the Korean
*chaebol*. Put in other, perhaps more familiar, terms, the social capital that inheres in the relations (Coleman
1990) between the firms is privately owned by the entrepreneurial family in Korea. Readers may get a
better sense of this private ownership of social structure in Figure 1 in the next section and accompanying
descriptions how the owning family of *Hyundai Group* maintains their family control over the 37
subsidiaries. A quick and interesting aside is a comparison with the Japanese *keiretsu*. In contrast to the
Korean *chaebol* as privately owned social structures, the Japanese *keiretsu* with reciprocal equity
participation among member firms can be viewed as representing a co-ownership of social structures.
Although they can be extremely flexible, privately owned social structures can have problems of low
efficiency because the way the social structure is organized is geared to hierarchical authority, not to
market competition. Co-owned social structures, complemented with the so-called ‘one-set principle’
(Gerlach 1992a), are particularly well equipped for market competition. One-set principle is the
membership rule commonly found in the Japanese *keiretsu* that no more than one firm from one industry
can join the business group. This serves to eliminate competition within the *keiretsu*, thus maximizing the
business group’s competitiveness in the outside markets. In network terms the Japanese *keiretsu* constitutes
non-equivalent cliques characterized by no intragroup competition and high levels of trust (Dore 1983 has
frequently cited anecdotes regarding trust in Japanese business), which is another indication of high
1981; Haggard and Moon 1983; Johnson 1987; Kuznets 1988; Luedde-Neurath 1988; Wade 1990), research postulating active government intervention as analogous to creating a certain kind of institutional environment for organizations is found wanting. An emerging trend in this direction that requires our attention, is the effort to identify intrasocietal isomorphism and intersocietal variation of business organizations in East Asia, and to find explanations from the institutional environment each society has created for its businesses (Hamilton and Biggart 1988; Hamilton, Zeile, and Kim 1990; Kim 1991; Orrù, Biggart, and Hamilton 1991). According to this line of research, corporate patrimonialism, or the strictly hierarchical top-down structure, characterizes the chaebol business groups in Korea. This intrasocietal isomorphism is contrasted to the seemingly similar, but in reality very different patterns of Japan’s ‘community of firms,’ or Taiwan’s ‘family networks,’ which together constitute an intersocietal variation.

Despite their significant departure from the traditional state-or-market paradigm, existing literature leaves more questions to be resolved than they answer. First, there is only scant evidence supporting the hierarchical structure of Korean business organizations. The existing evidence usually comprise of the number of industries each chaebol operates in, rosters of large shareholders in a few selected chaebol subsidiaries, and the aggregate growth rates of the chaebol for a certain period of time. Second, analyses are often limited to the largest business groups in terms of asset size. Third, there has been an exclusive focus on how the institutional environment shaped the structure of the chaebol, leaving the response of these business groups yet to be accounted for.

efficiency. The downside of co-owned social structures is that they may run into collective action problems when interests of different members contradict each other.
This article utilizes a hard-to-come-by top quality data set containing detailed information about equity crossholdings in the 49 largest chaebol business groups in 1989 to produce a more compelling evidence for the foregoing neoinstitutionalist claim for intrasocietal isomorphism in Korea. Containing information on 49 chaebol, their 687 subsidiaries, and the founding entrepreneur’s families, the KIS data set (Korea Investors Services, Inc. 1990) makes for the most detailed and comprehensive source of information on the chaebol. A role-set analysis based on Hummel and Sodeur’s role equivalence algorithm (Hummel and Sodeur 1987; Burt 1990) reveals that the equity holding structure of the chaebol is in fact hierarchically organized without exception. Hierarchies are organized in these business groups by placing their subsidiaries in one of the three structurally distinct role-sets – the controllers, the intermediaries, and the receivers – and arranging the equity ties between the role-sets so that no ties are ever reciprocated. This result strongly supports the existence of not only the intrasocietal isomorphism in Korean business, but, combined with comparable research on the Japanese keiretsu (Gerlach 1992a; 1992b), the intersocietal variation in East Asia.

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3 Much of the scantiness of existing evidences can be attributed to the poor quality of available data. Korea’s corporate auditing law maintains that only the listed companies are obliged to make their financial statement publicly available. Because at least until 1986 less than 20% of the chaebol subsidiaries were listed in the Korea Stock Exchange, what the researchers could get was at best a partial picture of these business groups. The KIS data employed here provide information on the entire set of subsidiaries, whether listed or not, and the founding entrepreneur’s family. This is the most comprehensive data set on the Korean chaebol so far available for research.

4 Although there are a few different ways to measure size, the most common criterion is the asset size. This is also the criterion variable employed by the Korean government when they administer chaebol-related policies. Accordingly, I use the amount of asset when I mention size of chaebol in this article.

5 Role-set analysis is density table analysis based on role-equivalence algorithm. A subset of density table analysis is widely known as blockmodeling technique based on structural equivalence algorithm (White, Boorman, and Breiger 1976; Arabie, Boorman, and Levitt 1978). Throughout this article I use the terms ‘role-set analysis’ and ‘role-sets’ instead of the more familiar ‘blockmodel analysis’ and ‘blocks’ to indicate that my analysis is based on the role equivalence algorithm, not on the usual structural equivalence algorithm. Also, I refer to the actors jointly occupying a role-set as ‘role-mates.’

6 In a blockmodel analysis of forty industrial and twenty financial firms, Gerlach found financial hierarchy in Japanese keiretsu (1992b). But this hierarchy is not used for managing industrial dependencies. Financial firms are the first among the equals in Japan rather than patrimonial leaders. Also, Japanese firms on
The role-set analysis also provides a much deeper understanding of how family control is maintained in the chaebol. Given the average asset size of 2.04 trillion Korean won\textsuperscript{7} in 1989, it is difficult to picture how the founding entrepreneur and his\textsuperscript{8} family can keep the business group under tight family control in terms of both ownership and management. The mechanism of family control lies in a particular pattern of equity holdings that I call the nested hierarchy. The chaebol subsidiaries are placed in one of a few different role-sets where the members of a same role-set have a similar pattern of equity ties with members of the other role-sets. The equity ties between these role-sets are organized hierarchically so that the one at the top of the hierarchy – the controllers – can control all the others directly or indirectly. Hence, there is a ‘larger’ hierarchy among the role-sets. The owning family usually occupies the controller role-set together with a few important subsidiaries in which the equity ties between them are again organized hierarchically. Consequently, there is a ‘smaller’ hierarchy within the controller role-set. Depending upon the equity holding structure of a particular chaebol, the relations within the intermediary role-set are also hierarchically organized if the chaebol has such a role-set. Thus smaller hierarchies are nested in the larger hierarchies. This pattern of nested hierarchy gives the owning family tremendous control because, sitting atop the multi-layered hierarchies, they can amplify their control often one hundred times the original value of their owner’s equity by means of crossholdings.

\textsuperscript{7} Calculation is based on the 49 chaebol in the KIS data. Asset size of 2.04 trillion won roughly corresponds to 2.56 billion U.S. dollars at the exchange rate of 1 to 800.

\textsuperscript{8} Masculine pronouns are used here because there are no women founders among these chaebol business groups.
The existence of intrasocietal isomorphism and the mechanism of family control through nested hierarchy do not exhaust the findings. The results demonstrate that there is a variety of ways hierarchies can be organized. In other words, there are internal variations under the common theme of hierarchy. Upon closer examination, the many ways the chaebol organize their equity holding structure can be categorized in six different subtypes depending upon whether they have the full set of three roles in the equity holding structure, and the owning families use a small number of firms as their agents instead of investing an excess of family capital. Because family control is amplified by equity crossholdings between subsidiaries, and different chaebol maintain different average levels of family control, the equity holding structures summarized by these six subtypes give the family different degrees of control efficiency. By control efficiency, I refer to how much amplification of control the equity holding structure gives the family, when the strength of control is held constant. Also, the business groups pay varying degrees of the cost of growth because of the equity holding structure they have. By cost of growth I refer to how much asset the business group has to have to acquire one unit more equity in the future. The concept of structural capability captures both control efficiency and cost of growth simultaneously.

If the isomorphic feature of hierarchical equity holding reflects how the processes of institutionalization have shaped these business groups, the reverse influence should be observed in how the different structural capabilities of the chaebol interact with the institutional forces to bend the anticipated effects of the institutional environment in a systematic way. An examination of the chaebol’s growth patterns in a five-year period between 1989 and 1994 returned two significant results. A regression analysis of the
equity growth during this five-year period suggests that the Korean antitrust law, first introduced in 1981 and strengthened in 1986, has made the growth of chaebol a simple function of their remaining asset, the latter fundamentally determined by the structural capability of the chaebol. Another regression analysis reveals an interesting relationship between control efficiency and growth efficiency. Business groups that amplify control more efficiently grow more efficiently to a certain extent. However, more amplification is not always favorable. The results demonstrate that those business groups that amplified the owner’s equity beyond a certain degree in 1989 have had difficulties in terms of growth efficiency until 1994. This is probably because they had to use greater proportion of the amplified equity to consolidating control rather than to acquiring more equity than those with close-to-optimal mix in 1989.

Institutional environments shape the structure of network (institutionalization-to-network contingency). In the case of Korea, this process can be found in the intrasocietal isomorphism of hierarchical equity holding commonly observed in the top 49 chaebol business groups in 1989. However, organizations do not always passively adopt institutional prescriptions. Networks demonstrate a much better ability at responding to institutional pressures because of their connectedness (network-to-institutionalization contingency). Privately owned social structures, a special class of the network form of organizations where not only the organizations but also the relations between them are privately owned, boast even stronger such ability. Two evidences confirm the significance of this reverse process. First, further growth of the chaebol is determined by the size of available asset. The difference in size of the available asset is in turn determined by the different structural capability of each chaebol. Second, the chaebol
business groups have achieved further growth with different levels of efficiency. The
different growth efficiency has an ambivalent relationship with control efficiency that can
be well fitted with a quadratic function. Combined, these two results suggest that the
changing institutional environment in Korea in the 1980s has had different impacts on
each chaebol in a predictable way, depending upon each chaebol’s structure of equity
holding network. In other words, there is a mutual influence between institutionalization
and the network structure of organizations, a result I conceptualize as the
institutionalization-network contingency.

In the next section I briefly overview the institutional environment of the Korean
business during the so-called developmental phase (from 1961 to 1980) and the
significant changes in the 1980s. The third section reports the role-set analysis results
showing the intrasocietal isomorphism in Korea. The mechanism of family control by
means of nested hierarchy and the internal variations are laid out in detail in this section.
Section four gives the reverse process with results from two regression analyses.
Conclusion and discussions follow.

THE INSTITUTIONAL ENVIRONMENT OF KOREAN BUSINESS, 1961-90

The Developmental Phase, 1961-80

Perhaps the best account for the raison d’être of the active state intervention and
the consequent rise of large business groups can be found in the words of a renowned
Korean economist:
In many cases, efficiency of export industries required adoption of increasing returns technologies. This constraint conflicted with Korea’s limited availability of domestic and foreign resources and forced policymakers to support a small number of large producers in each of the industries promoted for exports. There is no market mechanism for concentrating resources in this way, so perhaps it was natural for the government to assume the task (Park 1994, p.162, emphasis added).

The best way to see just how this ‘concentration of resources’ worked is by tracing the longitudinal changes in the real interest rates in Korea. For the 1960s and the 1970s, real interest rates for three different kinds of loans can be calculated (see Appendix 1). The first is the export-loan, or the policy loan, that has attracted many developmental state theorists’ attention. This is a part of the general bank loan specifically earmarked for export industries. Subtracting inflation deflators from the nominal interest rates, it turns out that the real interest rates for this type of loan were negative for 19 out of 23 year period (1963 - 1985). The second is the general bank loan available from the NCBs (nationwide commercial banks) and the local banks. The real interest rates for this kind of loan were also negative for 8 years during this period. In contrast, the real interest rates for the curb market loan were about 20% higher than the general bank loan, and about 30% higher than the export loan for the same period (Bank of Korea). It is obvious that no banks would lend money at these rates because they would lose money simply by lending. Such low real interests rates were made possible in Korea only by the transfer of bank ownership to the government during the developmental state phase.

Another important component of the institutional environment of Korean business during the 1960s and 1970s, is what I call the reversed bank-business relations. Studies of bank-business relations in advanced capitalist economies unanimously point out the
central role that banks play in the business network (Mintz and Schwartz 1985; Soref and Zeitlin 1987; Gerlach 1992a). This relationship is reversed in Korea because, since loan decisions were made by the government during the developmental phase, banks could not have leverage in the business no matter how much credit they granted to the latter. On the contrary, large chaebol began to build influence within banks for two reasons. First, since the chaebol have been the sole beneficiary of bank credit for such a long time, the viability and business of the banks relied upon the chaebol. Second, and more importantly, when financial liberalization was finally initiated in the early 1980s, there was no financial capitalist class to act on behalf of the finance capital being liberalized. Twenty years of state-led growth yielded super-powered industrial capitalists but no financial capitalists. There was simply no room for the financial capitalist class to grow because the state had usurped their role during the developmental phase. This reversed bank-business relation became more visible as banks were privatized in the 1980s. An analysis of the 3,882 equity ties representing three strongest incoming and three strongest outgoing equity investments of the 647 firms and banks listed in the Korea Stock Exchange in 1990 reveals two findings (see Appendix 2). First, no banks sent any strong equity ties to the chaebol. Second, fourteen of the eighteen listed banks received one or more strong equity ties from the chaebol.

The low real interest rates and the reversed bank-business relations gave the owning families of the chaebol incentives to rely as much as possible on indirect financing from the banks. They had the incentives to do so not only because the bank credits were cheap but also because, unlike stock issuance, these did not threaten family control. As long as bank credits were available, they had incentives not to go public and
raise capital from the stock market. There was a clean division of labor between bank
credits and family capital. The former was used for normal day-to-day business
operations, while the latter was used for maintaining family control over the business
groups. When the family needed more equity capital to start a new firm, they could
simply have one of their subsidiaries make equity investments in the new start-up firm.
Figure 1 shows the end-result of twenty years of such practices.

The Changing Institutional Environment of the 1980s

However, the developmental state system embodies factors that hinder its long-
term operation. One such factor is the accumulation of non-performing loans at banks.
Since what drives loan decisions in developmental systems is not the profit incentives of the banks but the government’s – sometimes wishful – evaluation of future prospects, the possibility of bad decisions is bound to be higher. When external economic environments are unfavorable, or major development projects falter, non-performing loans can easily grow at exponential rates. This is exactly what happened in Korea since the late 1970s. The faltering HCI (Heavy and Chemical Industrialization) drive started in 1973 and the two oil crises in the 1970s made the non-performing loans skyrocket to a level close to, or maybe beyond, dangerous. The percentage of non-performing loans in the total bank loans began to rise mildly in the mid-1970s, and then more drastically around 1980, hitting a record of 11% in 1984 (see Appendix 3). Non-performing loans of this amount would normally mean a bank-run, which leads to the collapse of the entire financial system. This did not occur in Korea only because of the bailout loans from the Bank of Korea, Korea’s central bank. However, this solution proved to be only temporary, because bailout loans simply mean printing more money, which will eventually cause hyperinflation.

What had to be done was obvious: to stop pumping bank credit to the chaebol. However, when the government finally gave up its predominant role and set out to ‘liberalize’ the economy (Economic Planning Board 1982), it found itself and, in fact, the whole economy, held hostage by the chaebol. Table 1 has various measures of financial characteristics of the chaebol across a few different segmentations. Perhaps the most alarming index is the revenue divided by the GNP (item H). The pooled revenue of the top 5, 10, 30, and 49 business groups account for 42.90%, 51.64%, 68.10%, and 73.35% respectively of the total GNP. Item D in Table 1 shows that these same businesses have
### Table 1: The Relative Importance of the Chaebol Business Groups in Korean Economy, 1989

<table>
<thead>
<tr>
<th></th>
<th>Top 5</th>
<th>6th-10th</th>
<th>Top 10</th>
<th>11th-30th</th>
<th>Top 30</th>
<th>31st-49th</th>
<th>Top 49</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> No. of Subsidiaries (average no. of firms)</td>
<td>190 (38.00)</td>
<td>113 (22.60)</td>
<td>303 (11.80)</td>
<td>236 (17.97)</td>
<td>539 (11.05)</td>
<td>210 (15.29)</td>
<td>749 (17.97)</td>
</tr>
<tr>
<td><strong>B.</strong> No. of Subsidiaries (average no. of firms)</td>
<td>187 (37.4)</td>
<td>87 (17.4)</td>
<td>274 (12.8)</td>
<td>256 (12.8)</td>
<td>530 (12.8)</td>
<td>157 (8.26)</td>
<td>687 (14.02)</td>
</tr>
<tr>
<td><strong>C.</strong> Asset as % of all firms subject to outside auditing</td>
<td>27.07</td>
<td>9.15</td>
<td>36.23</td>
<td>13.56</td>
<td>49.79</td>
<td>4.67</td>
<td>54.47</td>
</tr>
<tr>
<td><strong>D.</strong> Debt as % of all firms subject to outside auditing</td>
<td>24.57</td>
<td>5.88</td>
<td>30.45</td>
<td>13.80</td>
<td>44.25</td>
<td>2.19</td>
<td>46.45</td>
</tr>
<tr>
<td><strong>E.</strong> Equity as % of all firms subject to outside auditing</td>
<td>34.89</td>
<td>7.11</td>
<td>42.00</td>
<td>13.39</td>
<td>55.39</td>
<td>4.27</td>
<td>59.66</td>
</tr>
<tr>
<td><strong>F.</strong> Revenue as % of all firms subject to outside auditing</td>
<td>24.76</td>
<td>6.05</td>
<td>30.81</td>
<td>4.99</td>
<td>35.80</td>
<td>-8.56</td>
<td>27.23</td>
</tr>
<tr>
<td><strong>G.</strong> Current term net profit as % of all firms subject to outside auditing</td>
<td>42.90</td>
<td>8.74</td>
<td>51.64</td>
<td>16.46</td>
<td>68.10</td>
<td>5.25</td>
<td>73.35</td>
</tr>
<tr>
<td><strong>H.</strong> Revenue/GNP</td>
<td>8.33</td>
<td>2.16</td>
<td>10.49</td>
<td>4.20</td>
<td>14.70</td>
<td>1.26</td>
<td>15.96</td>
</tr>
<tr>
<td><strong>I.</strong> Value Added/GNP</td>
<td>25.12</td>
<td>17.76</td>
<td>23.26</td>
<td>28.16</td>
<td>24.60</td>
<td>12.99</td>
<td>23.60</td>
</tr>
<tr>
<td><strong>J.</strong> (Capital Outsourcing/Asset)*100</td>
<td>43.22</td>
<td>42.86</td>
<td>43.13</td>
<td>55.36</td>
<td>46.46</td>
<td>58.54</td>
<td>47.50</td>
</tr>
<tr>
<td><strong>L.</strong> Operational Profit – Financial Cost</td>
<td>2044.60</td>
<td>272.20</td>
<td>1158.40</td>
<td>135.15</td>
<td>476.23</td>
<td>-44.26</td>
<td>274.41</td>
</tr>
<tr>
<td><strong>N.</strong> (Financial Cost/Revenue)*100</td>
<td>2.75</td>
<td>3.51</td>
<td>2.88</td>
<td>3.94</td>
<td>3.14</td>
<td>6.37</td>
<td>3.37</td>
</tr>
<tr>
<td><strong>O.</strong> % Internal Transactions</td>
<td>29.76</td>
<td>12.81</td>
<td>26.89</td>
<td>13.56</td>
<td>23.67</td>
<td>7.25</td>
<td>22.49</td>
</tr>
<tr>
<td><strong>P.</strong> % External Debt</td>
<td>93.48</td>
<td>96.96</td>
<td>94.32</td>
<td>94.71</td>
<td>95.28</td>
<td>94.52</td>
<td></td>
</tr>
<tr>
<td><strong>Q.</strong> % Internal Equity Holding</td>
<td>22.15</td>
<td>15.32</td>
<td>20.83</td>
<td>13.34</td>
<td>18.50</td>
<td>18.74</td>
<td>18.51</td>
</tr>
</tbody>
</table>

A: Calculation based on “large business groups” defined in the Monopoly Regulation and Fair Trade Act and announced annually by the Fair Trade Commission, April 1990. Figures represent business groups as of the end of 1989. Only forty nine out of fifty three business groups announced are shown in this table for consistency with B. B: Calculation based on “large business groups” defined in the Financial Institutions Credit Management Guide. Figures represent business groups as of the end of 1989. C: Does not include assets of chaebol subsidiaries in financial industry. Firms are subject to outside auditing if the total asset of the firm exceeds 3 billion won. As of 1989 there were approximately 3,500 firms subject to outside auditing. D: Internal debt, i.e., debt from other subsidiaries of a same chaebol, is included. E: Cross-holdings in a same chaebol are included. F, G, H, & N: Internal transactions are included. Because revenues and profits generated from internal transactions can sometimes fail to materialize, the realized revenues and profits may be smaller roughly in proportion to O. J: Internal cross-holdings are included in the calculation of equity. Assets of chaebol subsidiaries in financial industry are not included in the calculation of asset. L: Calculated by the formula \( (L=100-(J+K)) \). M: Operational profit is profit generated from the firm’s main line of business. Extra-operational profits, such as increased real asset values, are not included. M measures the degree to which the profit generated from the firm’s main line of business offsets cost of financing. In 1989 there were 17 among 49 chaebol groups that marked negative M. O: Transactions are measured by revenue. P: External debt = total debt – internal debt. Q: Equity used for holding subsidiaries of a same chaebol as a percent of total equity. Source: Calculation based on Korea Investors Service, Inc. 1990

<Table 1: The Relative Importance of the Chaebol Business Groups in Korean Economy, 1989>

27.46%, 36.14%, 51.73%, and 57.54% of the debt that all of the firms subject to outside auditing have in 1989. Item J shows that their equity capital can explain only 25.12%, 23.26%, 24.60%, and 23.60% of their total asset. Note that these numbers include crossholdings in calculating the equity. Taking into consideration the dense web of crossholdings shown in Figure 1, the actual owner’s equity stands much below these
levels. These were business empires constructed on bank credit. Cutting the supply of bank credit would easily destroy them. However, given the figures in Table 1, no one would be able to manage the chaos resulting from the consequent unemployment, reduced foreign exchange earnings, huge amount of bank credit that cannot be repaid, and so on. The government could not stop granting bank credit to the chaebol, but at the same time the non-performing loans at the banks strongly suggested it had to. Neither was a feasible alternative. A third alternative was to reduce the relative importance of these business groups before financial liberalization could proceed further. This was the rationale behind the sudden enactment of the Korean antitrust law, the MRFTA (Monopoly Regulation and Fair Trade Act) in 1981.

At first, the MRFTA attempted to achieve its goal by regulating the product markets. However, since the key to the problem lay in finance, only a measure that directly touched upon chaebol financing stood as a feasible solution. The 1986 revision of the MRFTA saw two such measures. The first was the prohibition of symmetric equity holding between subsidiaries of the same chaebol. Of the many possible patterns of equity crossholding, this particular pattern had been especially problematic because the chaebol could easily make non-existing capital exist simply by sending an equity tie from subsidiary A to subsidiary B and then sending it back to subsidiary A. The second regulation was to put a ceiling on the amount of asset that could be used for crossholdings within a chaebol. The revised MRFTA required that no more than 40% of the net asset of a chaebol subsidiary could be used for holding equity shares of its other subsidiaries. The basic idea was as follows: if the owning family starts with a firm with asset size of $100,

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9 According to my own calculation based on the KIS data, the percentage of owner’s equity in the total asset can be anywhere between less than 1% and 17%, with a strong skewedness toward the lower
the amount they could use for maintaining their family control will quickly decrease to $40, $16, and $6.40 as it crosses each additional firm.

The message was clear. With symmetric crossholdings prohibited and the 40% ceiling present, the owning families of the chaebol would no longer be able to maintain their strong hold on the business groups. They would have no other choice but to go public and sell their shares in the stock market, which will eventually lead to the separation of ownership and control. Separation of ownership and control would invite professional management and competition in the market for corporate management, resulting in higher efficiency. Once they go public, these business groups would have less need for bank credit, which would lessen the burdens at the banks and let medium- and small- sized independent firms have access to banks. However, the chaebol are not simply collections of isolated individual firms but privately owned social structures. The owning families have at their command the relations between subsidiaries as well as the corporate resources of each subsidiary. The next section shows the chaebol’s strategic use of their private ownership of social structures together with other solutions they devised in their responses to the changing institutional environment.

PRIVATELY OWNED SOCIAL STRUCTURES AND THEIR RESPONSE TO INSTITUTIONAL PRESSURES

In their response to the increasingly hostile institutional environment, the chaebol devised at least three solutions. I briefly discuss the first two and move to the central boundary.
argument of this paper, the strategic use of privately owned social structures and the resulting institutionalization-network contingency.

**Direct Financing**

The first solution is a straightforward one. The *chaebol* increased the proportion of direct financing in their total capital mobilization. Figure 2 shows the increasing use of direct financing by the listed companies in Korea between 1980 and 1992. Because the *chaebol* constitute a majority in the Korean business (see Table 1), I suppose that this reflects the behavior of these business groups. These firms increased direct financing from stock issuance from virtually nothing to 15 trillion Korean won over a 4 year period between 1985 and 1989. Recall from my discussion on the MRFTA that the compliance deadline was 1990. They also increased the use of bonds. What is interesting is that the stock issuance suddenly drops dramatically in 1990 and stays there while the use of
bonds continuously increase. I interpret this behavior as suggesting that the chaebol preferred bonds to stocks because by selling bonds what they accumulate is the debt, not threats to their family control.

The Use of NBFIs

The second solution is more creative: borrowing from their own subsidiary financial intermediaries. Since the government introduced the NBFIs to absorb curb market transactions in the mid 1970s (Choi 1993), these NBFIs have become an indispensable source of corporate financing for the chaebol. The government placed much less regulation on the NBFIs than banks because they were from the beginning meant to be competitive against the informal curb market. The chaebol business groups were allowed to own NBFIs, which they enthusiastically did. Interest rates at the NBFIs
were much higher than those at the banks. The growth of NBFIs was so fast that by the early 1980s more than half the total deposits were made at these private financial intermediaries.

Figure 3 has changing proportion of loans and investments made by three types of financial institutions in Korea between 1970 and 1990. Of the three types of institutions, the development institutions are most strongly controlled by the government. Despite the bank privatization and financial liberalization in the 1980s, the so-called ‘window guidance’ still remains at DMBs (deposit money banks). Private sector financial institutions are mostly NBFIs many of which are chaebol subsidiaries. It is clear from Figure 3 that the chaebol business groups have made a significant shift in their source of borrowings and, as a consequence, gained more freedom from the government influence.

The Strategic Use of Privately Owned Social Structures

The third solution is the strategic use of privately owned social structures. Since it is made possible only by controlling not only individual firms but also relations between them, I argue that this solution is unique to the network form of organizations of which the Korean chaebol is a prime example. I begin with discussions on the data and algorithm, and then show the results.

Data and Algorithm
The KIS data set (Korea Investor Service 1990) I use for analysis in this section contains equity holding matrices for the top 49 chaebol business groups as of 1989.10 Each of these is a matrix of size $n+1$ where $n$ is the number of subsidiaries and the cell $Z_{ij}$ represents the value of firm $j$’s equity held by firm $i$.11 The size of the matrix is not $n$ but $n+1$ because it has the owning family’s shares in subsidiaries.12 Hummel and Sodeur’s role equivalence algorithm is applied to each of the 49 matrices to find equivalent roles in the social structure of equity holding (Hummel and Sodeur 1987; Burt 1990). Among the many alternative algorithms proposed for detecting positions in social structures (Lorrain and White 1971; Burt 1976; White and Reitz 1983; Everett 1985), the role equivalence algorithm is particularly well suited for the purpose of this analysis. Algorithmically, the role equivalence measure is not exposed to constraints such as structural equivalence’s local-ness (Borgatti and Everett 1992) or automorphic equivalence’s symmetric graph assumption13 (Everett and Borgatti 1988). Theoretically, the logic of the role equivalence

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10 There are a few different ways to set the boundary of the chaebol. The FTC’s original criterion was to draw a boundary where the total asset of a business group reaches 400 billion Korean won. With this absolute criterion, the number of business groups subject to the MRFTA regulations was bound to increase. Thus in 1992 the number of business groups in the FTC list increased to 78, a steep increase from 33 in 1987. This was a problem because relatively small business groups with just a couple of subsidiaries were treated in the same way as were those large ones with more than 40 subsidiaries. The FTC criterion had to be revised in 1993 to include only the top 30 business groups in the list no matter how much asset the other business groups have. In 1989 the FTC list had 53 business groups. Still another way to set the boundary is to employ the FICMG (Financial Institutions Credit Management Guideline). The KIS data analyzed in this section are based on this FICMG. The FICMG list also employs the asset size as the criterion variable but excludes business groups under bankruptcy filing or with asset size of less than 15 billion Korean won. In 1989 there were 51 business groups in the FICMG list. Forty two business groups appear on both the FTC and FICMG lists in 1989.

11 One possible concern is the existence of equity ties between subsidiaries of different chaebol groups. However, it is commonly believed among observers of the Korean economy that such ties do not exist. Using another data set containing three strongest incoming- and three strongest outgoing equity ties of all firms listed in the KSE (see the description for Figure 3) in 1990, I found that no strong ties exist across the boundaries of the chaebol, setting path distance at 2. Given these, I suggest that such ties can safely be ignored in the analysis in this section.

12 Lucky-Goldstar Group is the only exception to this rule. For Lucky-Goldstar the matrix size is $n$ because the family’s share is not reported.

13 This does not lead to the conclusion that the local character of structural equivalence algorithm is always problematic. When the identity of an actor’s direct ties is of great importance as is often the case in
algorithm very well captures the sociological tradition of status/role-sets (Merton 1968) as expressed in the words of Linton (1961[1936]).

A status, in the abstract, is a position in a particular pattern. … It represents [an individual’s] position with relation to the total society. … A role represents the dynamic aspect of a status. The individual is socially assigned to a status and occupies it with relation to other statuses. … [A role] determines what he does for his society and what he can expect from it. … Status and role serve to reduce the ideal patterns for social life to individual terms. They become models for organizing the attitudes and behavior of the individual so that these will be congruous with those of the other individuals participating in the expression of the pattern.

The role equivalence algorithm starts with the idea that equivalent roles can be detected through a comprehensive comparison of triadic relationships in the research population. In a network of size $n$, every individual is involved in $(n-1)(n-2)/2$ triads. For example, in my data set, the size of the matrix for Hyundai Group is 38 including the owning family. Each of these 38 actors is involved in $(38-1)(38-2)/2=666$ triads. However, each of these 666 triads is of one of the 36 theoretically possible triad types. The frequency with which each of the 36 triad types is found in the 666 triads involving actor $i$, can be expressed in a vector of size 36, which constitutes a triad pattern profile of actor $i$, which determines actor $i$’s role in Hyundai Group’s equity holding structure conceived as a role structure. Then, the role similarity or difference between two actors $i$ and $j$ can be

\[ \text{supplier-buyer relations, structural equivalence captures the structure of the market better than the other algorithms. This has provided a powerful criticism in the field of new economic sociology of the neoclassical imagery of market competition, of which Baker’s analysis of securities market (1984) is a good example. The automorphic equivalence algorithm seems to have a strong inclination toward the assumption of symmetric graph as expressed in its use of ‘orbit’ concept (Everett and Borgatti 1988). Because the chaebol equity holding structures do not necessarily have symmetric graph representations, this algorithm turned out less well suited for this analysis than role equivalence.}
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\[ \text{14 See Burt (1990) for a roster of these 36 triad types.} \]
calculated as a continuous measure of Euclidean distance, $d_{ij}$, by the following formula (Burt 1990: 91).

$$d_{ij} = \left[ \sum_q (t_{jq} - t_{iq})^2 \right]^{1/2}$$

where $t_{jq}$ is the frequency with which actor $j$ is involved in triads of type $q$ with $q$ varying from 1 to 36, representing 36 different types of triads. Now that the role distance between any pair of actors is expressed in a continuous measure, it is possible to tell how much different subsidiary $i$’s role is from subsidiary $j$’s role in the equity holding structure of *Hyundai Group*.

Going back to Linton’s phrase, individual subsidiaries can be considered as ‘individuals’ in his description. Although the *chaebol* subsidiaries are embedded in the structure of Korean markets at the meso-level and in the overall Korean social structure at the macro-level, more immediately they are embedded at the micro-structural level in the social structure of ownership within the *chaebol* (cf. Granovetter 1985; 1992). Every *chaebol* subsidiary occupies a more or less unique ‘position’ in the equity holding space of the *chaebol* and therefore is assigned an ‘equity holding status.’ Each subsidiary’s position or status is represented with relation to the total society, i.e., in the overall equity holding structure of the *chaebol* to which it belongs. The individual subsidiary occupies its status ‘with relation to other statuses.’ Conceptualized as the dynamic aspect of a status, the ‘role’ of each subsidiary determines what it can do for the *chaebol* in terms of maintaining or modifying the overall equity holding structure and what it can expect from the *chaebol* to which it belongs. The particular ‘pattern’ that these status/role-sets of the
subsidiaries jointly express is exactly the structure of equity holding that is being sought in my analysis.

Results

Intrasocietal Isomorphism from Role Set Analysis

The equivalence data generated with the role equivalence algorithm are submitted to a hierarchical cluster analysis routine based on Ward algorithm and then summarized by constructing density tables. A density table is a matrix of average relations between equivalence sets where the cell \( Z_{ij} \) represents the average relations from equivalence set \( i \) to equivalence set \( j \).\(^{15} \) As implied in the definition of a density table, it is necessary to partition the actors in the network into a specified number of equivalence sets before constructing a density table. This partition is, of course, based on the equivalence of roles played by different actors. At one extreme every actor in the network can be treated as different from others under a very strong equivalence criterion so that \( n-1 \) partitions are possible. At the other extreme all the actors in the network can be considered equivalent under a very loose equivalence criterion so that there is no partition. Because I want to compare the role structure of equity holdings across 49 different networks, it is necessary to have a prespecified common criterion before further proceeding with the role-set analysis. Also, the common criterion has to be robust goodness-of-fit-wise. The network

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\(^{15} \) One subcategory of this density table analysis is widely known as the blockmodeling technique first suggest by Harrison White and his colleagues (White, Boorman, and Breiger 1976; Arabie, Boorman, and Levitt 1978). I use the terms ‘role-sets’ instead of ‘blocks,’ and ‘role-set analysis’ instead of ‘blockmodel
analysis software STRUCTURE provides two adequacy measures: an aggregate measure of covariances among distances to equivalent actors shows the adequacy of the role-set as a whole; and the reliability measure shows the adequacy of each actor included in the analysis, to indicate that my analysis is based on the role equivalence algorithm, not on the usual structural equivalence algorithm. In addition, I refer to the actors jointly occupying a role-set as ‘role-mates.’
same role-set. The first measure varies from 0% to 100% and the second from 0 to 1. With these adequacy measures available, my criterion is to seek the simplest partition possible while at the same time maintaining both adequacy measures greater than or equal to 80% of the range of variation. Figure 4 summarizes the role-set analysis results in a thumbnail view. Figure 5 and Figure 6 show the values of the validity measure and reliability measure, respectively. As shown in Figure 5, the validity measure performs extremely well. Of the 111 role-sets detected from the 49 networks in the data set, I was forced to let only three role-sets validity below 80%. In Figure 6, reliability measures for 613 actors assigned in one of the 111 role-sets are plotted. These also show a very good performance, adding more confidence to the reliability of the role-set analysis summarized in Figure 4. There were only 12 occasions out of 613 in which a reliability measure below .80 had to be allowed.

The role-set analysis result shown in Figure 4 summarizes the equity holding structures of the 49 chaebol business groups as role structures. In each chaebol, actors – i.e., the owning family or the subsidiaries – playing a similar role are clustered together in the same role-set. These actors are so similar in terms of the role they play in their social structure that they do not need to be distinguished from each other. Because of the redundancy in the role they play, treating them as a single role-set makes it possible to summarize the social structure as a set of relations between roles. For example, the complex web of equity ties among 38 actors in Hyundai Group, shown in Figure 1, is now reduced to much simpler relations between 5 role-sets in Figure 4. Relations

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16 See Schott (1991) for more detail about these measures.
17 The vertical lines in Figure 8 and Figure 9 represent the boundaries between different role-sets to which the data points belong. Explanation of these three role-sets follow shortly when I discuss the internal variations found in Figure 7.
between role-sets are treated as present only when they are stronger than the average volume of relations in the entire social structure. As conventionally used in social network analysis for graphical representations of density table analysis results, in Figure 4 circles, dots, and arrow-headed lines represent role-sets, individual actors not assigned to any role-set, and stronger-than-average equity-holding ties. Arrow-headed loops indicate that actors in the role-set send stronger-than-average equity ties to other members jointly occupying the role-set. Shaded circles are used to indicate the role-sets containing the owning families. In case such a shaded circle is absent, the dot located at the top is the owning family of the chaebol.¹⁸

One remarkable finding in Figure 4 is hierarchical control. Note that equity ties are seldom, if ever, reciprocated whether directly or indirectly. Unreciprocated ties usually imply a strong tendency toward hierarchy as this pattern can most often be found in a bureaucracy where hierarchy is clearly defined and order-taking relations prevail such as the military. Of the 49 business groups, only three chaebol – Hanil, Jinro, and Bumyang – have reciprocated ties in their equity holding structures. Of these three chaebol, Hanil and Jinro require further explanation.¹⁹ Besides the existence of reciprocated ties, a second characteristic these two chaebol share is that the owning family’s role is not exactly that of a controller. The role-set to which the owning families of these two business groups belong sends and receives at the same time one or two equity ties. This ambiguity is also found in Ssangyong where the owning family is

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¹⁸ The only exception is Kia Group where the family of the founding entrepreneur has very little equity in the business group.
¹⁹ The equity holding structure of Bumyang can be readily understood because the founding entrepreneur committed suicide in 1987 and the business group was under bank management at the time of data collection. While the family control through hierarchy is the driving motif in the other business groups, that such motif was absent in Bumyang explains why hierarchy is absent in this business group.
located in the intermediary role-set. However, an examination of the raw data reveals that
these business groups are not of a significant deviation from the pattern of hierarchical
control. Consider Figure 7, where the within-role-set ties for all roles, the owning
family’s equity ties with its role-mates, and the family’s ties with members of the top
role-set are shown for these three business groups. In addition to the circles, dots, and
arrow-headed lines explained above, hollow dots represent the owning families and the
dotted lines with arrowheads equity ties between individual actors in Figure 7. Role-sets
and firms not belonging to any role-set are named alphabetically for explanatory purposes.
Although the summarized images in Figure 4 delivers an impression that the owning
family’s role in these three chaebol is ambiguous, the richer information contained in
Figure 7 suggests otherwise.

I begin with Ssangyong Group. Note that the equity ties between the two solid
dots in the controller role-set (A) and the five solid dots in the intermediary role-set (B)
are hierarchically organized in the sense that no ties are ever reciprocated. These two
role-sets are those that jointly control the other two role-sets (C and D). Turning to the
owning family (the hollow dot in $B$), it does not have any ties with its role-mates while it sends two ties to $A$, maintaining the family control over the controllers. The family is located in $B$ not because it receives ties – which is impossible – from $A$, but because it sends many strong ties to $C$ and none to $B$.

In *Hanil Group*, the equity ties between the three subsidiaries in role-set $E$ are organized in a strictly hierarchical pattern. This suggests that these three firms, jointly controlling hierarchically the other three role-sets, are themselves hierarchically controlled within role-set $E$. Note that the owning family of *Hanil Group* sends equity ties to these three firms. By sending equity ties to these three important subsidiaries in addition to organizing them hierarchically, the family ensures their control over the thirteen subsidiaries of *Hanil Group*. The owning family is located within $F$ because it does not send ties to $H$. The pattern suggests that the family either did not have enough capital, or did not want to use their family capital, to hold subsidiaries in $H$. Instead, the family chose to have the three firms in $E$ play the controller role. These three subsidiaries are agents of the owning family, and these agents can never act against the interest of their principal, the family, because of the direct equity ties they receive from the family.

In *Jinro Group*, the owning family sends equity ties to only two of the eighteen subsidiaries. However, at least one recipient of these two ties is very carefully chosen: the one at the top within $I$. Once again, the four subsidiaries in $I$ are the agents of the owning family in the sense that they jointly control the remaining firms in the business group. Consequently, it is extremely important for the family to exert firm control over these four subsidiaries. Control is achieved by the family’s equity tie to the firm at the top and the strictly hierarchical arrangement of equity ties within $I$. The difference between
Ssangyong and Hanil is that the family did not choose to control all four, but only the one at the top, within I. However, this is not the only way family control is consolidated within Jinro Group. Once the family’s control over I is established, the four firms in I are jointly used to control the twelve subsidiaries in J, and the two subsidiaries not assigned to any role-set, K and L. Relying on indirect control over J via I, the twelve firms in J are, in turn, used to control K. Control over K is again consolidated not only by direct ties from I and J but also by the indirect tie from I via L to K. Figure 7 makes it clear that Ssangyong, Hanil and Jinro are not deviations from the isomorphic pattern of hierarchical control. The relations between role-sets seem ambiguous because the owning families of these business groups use agents to play the controller role on behalf of the family. But a closer examination of the relations between individual actors reveals that those agents are strongly controlled by the family. Hierarchical control, in this case, is only masked.

Additionally, transitivity\(^{20}\) is observed in many of the equity holding structures depicted in Figure 4. Transitivity perfects the hierarchy by defining hierarchy among the subordinates. Unreciprocated ties without transitivity defines a simple hierarchy where only the direct relations between the superordinate and the subordinates can exist. Transitivity brings in intermediates that are lower in the hierarchy than the superordinates but higher than the subordinates, allowing the superordinate to indirectly control the subordinates through its direct control over intermediates. This offers the superordinate more control efficiency than a simple hierarchy where transitivity is absent. Put in graph-

\(^{20}\) Transitivity in this context can be defined by the following condition. The relationship between A, B, and C is transitive if A sends equity tie to B, B to C, and A to C.
theoretic terms, whenever transitivity holds, perfect hierarchy also holds (Holland and Leinhardt 1977).

This finding provides a strong evidence elucidating the Korean case of the neoinstitutionalist claim for the intrasocietal isomorphism of business organizations (Hamilton and Biggart 1988; Hamilton, Zeile, and Kim 1990; Orrù, Biggart, and Hamilton 1991). This finding, taken together with comparable research identifying horizontal intercorporate relations in Japanese *keiretsu* (Gerlach 1992b), also strongly supports the claim for intersocietal variation of the business organizations in East Asia. In fact, despite the similar cultural tradition the two geographically proximate countries share, Korea demonstrates exactly the opposite way of organizing business to that in Japan.

**Internal Variations: Three Roles, Six Types, and the Structural Capability**

Internal variations also demand our attention. Isomorphism exists to the extent that these *chaebol* business groups are hierarchically controlled with hardly any exception. However, hierarchy does not come in just one form. The 49 *chaebol* business groups display a variety of ways hierarchies can be organized. Going back to Figure 6, one can see that reliability measures for controllers and intermediaries are slightly more dispersed than those for the receivers. This is good news and bad news at the same time. It is bad news because those measures perform less well in the first two role-sets than in the receiver role-set. It is good news because it signals that we are going to see some
variety of ways control is achieved in these business groups. This variety and its implications are discussed in this section.

With regard to the roles they play, the role-sets and actors in Figure 4 can be classified in one of three structurally distinct roles: the controllers, the intermediaries, and the receivers. The controllers are those that send equity ties to others without ever receiving those ties. The intermediaries receive equity ties and transmit them to others. The receivers receive, but do not send, equity ties. For example, in Hyundai Group, the shaded circle at the top plays the controller role. The business group also has one intermediary role and three receiver roles. The three receiver role-sets differ in the volume of ties they receive from the other two role-sets, but they are not structurally distinct from each other. In some business groups, individual actors instead of role-sets play one or more of the three roles.

Depending upon the presence-or-absence of each of these three structurally distinct roles and how the relations between them are organized, the 49 chaebol equity holding structures in Figure 4 can be categorized into one of the six types shown in Figure 8. These six types are distinguished according to the following criteria. The three types in the top row differ from the other three in that the owning families of these chaebol were able to find role-mates in their controller role-set. As I described earlier, in Type 2 the owning family is not in the controller role-set. The family acts as if it were an intermediary but at the same time strongly controls the controller role-set. This use of agents distinguishes Type 2 business groups from Type 1. Type 3 has a controller role-set, but differs from Type 1 and Type 2 because it lacks intermediary role-sets. In the bottom row, the owning family of a Type 4 chaebol can take advantage of the
<Table 2: Chaebol Business Groups and Types of Equity Holding Structure>

intermediary role-set, although it fails to find role-mates to form a controller role-set. The owning family of a Type 5 chaebol finds role-mates in neither the controller role-set nor

21 One may wish to have a fourth role-set: the agents. They are categorized as intermediaries here.
an intermediary role-set. However, it still has individual subsidiaries that can help, albeit somewhat weakly, maintain the family control. Type 6 shows the simplest structure where the owning family has to control every subsidiary directly.\textsuperscript{22} Table 2 gives the names of the chaebol business groups and their equity holding types together with ranks in terms of asset size as of 1989. One can find from Table 2 that six of the top ten business groups have Type 1 structure, the lowest ranking business groups most frequently have Type 6 structure, and the second tier business groups are scattered in Types 2, 4, and 3.

An interesting observation from these internal variations of hierarchical control is the differential structural capability that these six types of equity holding structure can provide the owning family and the business group with. For instance, in Type 6, where the owning family holds every subsidiary directly, further growth of the business group is severely constrained by the pool of family capital if the family wants to maintain its control. In Type 5, the constraint is more or less relieved by the existence of an intermediary firm. Just how much relief there will be is determined by the asset size of the subsidiary that plays the intermediary role, because the MRFTA regulates crossholdings over 40\% of the holder’s asset. Holding the average asset size constant, a Type 4 chaebol would have even more relief than one in Type 5, because it has not just one but a whole set of firms playing the intermediary role. This advantage of having an intermediary role is also evident in Type 1 and Type 2, again holding the asset size

\textsuperscript{22} Two business groups, Daehan and Jinheung, show a somewhat hybrid pattern between Type 5 and Type 6 (see Figure 7). The owning families of these two chaebol send equity tie to only one subsidiary, and this subsidiary sends equity ties to all the others. Although this subsidiary is obviously playing an intermediary role, the pattern is different from Type 5 because it lacks the direct tie from the family to the receiver role-set. These two business groups are classified in Type 6 because the clear limit of Type 6 – one actor having to directly control many others – is still present in them.
constant. The advantage of forming a controller role-set is also obvious. Because the owning family can share its role with these controller firms, the pool of capital, and thus control, that can be amplified by means of hierarchical crossholdings becomes larger. However, it is also likely that there is an optimal mix of control amplification and business group expansion. Hierarchies can amplify control only when the asset of subsidiaries is actually put in use to control other subsidiaries. But if the newly acquired firms are large relative to the structural capability that the equity holding structure provides to the business group, the chaebol may grow in terms of business expansion but can have great trouble consolidating control because the asset of these newly acquired firms is yet to be used for such purpose. As I demonstrate later in this article, not all chaebol business groups are successful at maintaining this optimal mix. In the next section, I discuss the mechanism of family control in greater detail before I present the evidence for this argument.

The Nested Hierarchy: How Family Control Is Maintained

My main focus so far has been on the relations between role-sets. I now turn to take a closer look inside those role-sets. Looking inside these role-sets gives much deeper understanding how the family control is maintained in the chaebol business groups by the use of crossholdings. The mechanism was hinted earlier when discussing the three seemingly deviant cases of Ssangyong, Hanil, and Jinro. Because it is impossible to consider all 49 business groups here, it is best to examine one of the most complex and sophisticated equity holding structures as an example. Here I continue to rely on Hyundai
Group\textsuperscript{23} as an example. Figure 9 has Hyundai Group’s equity holding structure in more detail than the one in Figure 4. I have already discussed how the relations between the role-sets are transitively organized to ensure hierarchical control. This is of course true of the equity holding structure shown in Figure 9. In this figure, the way relations between role-mates are organized prominently demands our attention.

To begin with, the density\textsuperscript{24} of relations is high in the controller- and the intermediary role-sets but extremely low in the three receiver role-sets. Furthermore, the relations between role-mates in the controller- and intermediary role-sets are also hierarchically organized, closely resembling the relations between role-sets.\textsuperscript{25} The solid dot located at the top within the controller role-set represents the owning family. The

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\textsuperscript{23} Three of the top six chaebol – Hyundai(rank 1\textsuperscript{st}), Samsung(3\textsuperscript{rd}), and Hanjin (6\textsuperscript{th}) – exemplify three different ways to take the best advantage of the privately owned social structures. Hyundai divides the receiver firms into three different receiver role-sets according to the volume of equity ties they need to receive. Samsung has the intermediary role-set send two different kinds of intermediary ties to the receiver role-sets, relieving some of the burdens from the controller role-set. Hanjin uses both strategies but lacks the self-reinforcing loop attached to the intermediary role-set.

\textsuperscript{24} Density is defined as the percent of realized ties in the number of theoretically possible ties. When there are \( n \) actors in a system, the number of theoretically possible ties is \( n(n-1) \). If \( m \) ties are realized in this system, density is defined \( (m/(n(n-1))) \times 100 \).
family sends strong equity ties to its role-mates to ensure control over these important subsidiaries. It is especially important to keep a strong hold on these subsidiaries, because given their role as controllers, losing control over these role-mates can substantially endanger the family’s grip on the entire business group. On top of sending strong ties to these role-mates, the relations between the role-mates are hierarchically organized to give the family additional control. The arrow-headed loop attached to the controller role-set in Figure 9 indicates that control is firmly in place. Jointly, the controller role-set sends equity holding ties to the other four role-sets. Turning to the intermediary role-set, the relations between firms in this role-set are also hierarchically organized. This benefits the owning family in two ways. The first is, of course, the firm control achieved through hierarchical organization. The second benefit is the economy of control. By arranging the relations between these firms hierarchically, the family and its role-mates can send strong ties to a few firms located toward the top of the hierarchy instead of sending mediocre ties to every firm in the intermediary role-set. Again, the arrow-headed loop attached to the intermediary role-set indicates that perfect control is completed within this role-set.

Once firm control is ensured, the firms in the intermediary role-set can be safely used for sending equity ties to, thus amplifying the family’s control over, the receiver role-sets.

The relations between firms in the three receiver role-sets are extremely sparse, not to mention hierarchically organized. Again, this confirms that the use of capital in these business groups is extremely economical. Because their role is to receive equity ties, i.e., to be controlled by others, there is no need to organize these firms hierarchically. Instead, the capital can be spared for other purposes. Taken together,

25 Note that the graphical representation of relations between role-mates in Figure 12 does not exactly match the actual pattern observed in Hyundai Group. It is drawn as an ideal typical image to help readers
Figure 9 shows how the family can make use of minimum resources to achieve maximum control through their use of relations between actors, a clear example of the benefits of private ownership of a social structure.

The hierarchical arrangement of relations between role-mates within the controller- and the intermediary role-sets is not characteristic of Hyundai Group alone, but can be consistently observed across different chaebol business groups. Figure 10 gives evidence for this observation. The within-role-set hierarchy scores are highest in the controller role-sets, intermediate in the intermediary role-sets, and mostly null in the receiver role-sets. In other words, the relations between role-mates within role-sets are hierarchically arranged inside the controller role-sets, less so in intermediary role-sets, and least so in the receiver role-sets. Given the ‘bigger’ hierarchies between role-sets

understand the hierarchical relations between role-mates

26 The hierarchy scores shown in Figure 13 are transitivity scores weighted by density within the corresponding role-set. I use this measure because transitivity represents perfect hierarchy. High transitivity scores, therefore, indicate that the relations being measured are close to perfect hierarchy. Transitivity scores are weighted by density because transitivity among dense relations is more significant than that among scant relations. The transitivity scores are calculated with UCINET 4.0. The number of data points
shown in Figure 4, I use the term ‘nested hierarchy’ to represent the existence of these ‘smaller’ hierarchies within the controller- and the intermediary role-sets.

**Institutionalization-Network Contingency: The Bent Effects of the MRFTA**

Relying on the 1989 data, the discussions so far have mainly dealt with how the legacies of the old system and the MRFTA were combined to produce isomorphism in the control mechanism of the Korean *chaebol* (institutionalization-to-network contingency). The evidence strongly supports the existence of such isomorphism. In addition, the internal variations provide richer details of the isomorphism. Now I turn to how these internal variations bent the effects of the new institutional environment, the MRFTA, in respect to further growth of the *chaebol* after 1989 (network-to-institutionalization contingency).

First, recall from my discussions on the MRFTA that the most important goal of the legislation was decentralization. The nested hierarchy demonstrates that the owning families of the *chaebol* could effectively avoid decentralization of control. This result testifies to the extraordinary flexibility that the private ownership of a social structure can bring to the owner. As for the decentralization of economic power, the MRFTA’s actual consequence was that it made the growth of the *chaebol* a function of the available asset since it regulated crossholdings over 40% of the holder’s asset. The ratification of the MRFTA did not disrupt the *chaebol*’s growth. Rather, their growth function became much simpler. Figure 11 shows the relationship between each *chaebol* business group’s

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in Figure 13 is 95 instead of 111 because there are 16 role-sets that contain only two role-mates. Transitivity scores can be calculated only when there are three or more actors in the network.
<Figure 11: The Relationship between Remaining Asset in 1989 and Equity Growth until 1994>

unused asset in 1989 and the amount of equity growth five years later in 1994. Because the average percent of internal equity holding can vary from chaebol to chaebol, the amount of asset left after subtracting the already used part from the total asset gives a more accurate measure of growth potential as it is regulated in the MRFTA. In Figure 11 the horizontal axis shows 40% of this remaining amount. The vertical axis measures the amount of total equity growth between 1989 and 1994. First of all, it is remarkable to find that a straight line provides the best fit with $R^2$ of .863 after removing noise. As expected, the MRFTA has made the equity growth of the chaebol a simple function of

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27 The year 1994 is selected for two considerations. First, since the compliance deadline of the MRFTA was 1990 and the KIS data set reflects the chaebol’s final adjustments in 1989, a generous amount of time had to be allowed for the combined effects of the institutionalization-network contingency to take effect. Second, because there are only 49 chaebol in the data set, it was desired to keep as many of them as possible in Figure 14. Usually we lose more data points by allowing a longer time-span. The year 1994 gives an optimal compromise where we can allow a five-year time-span and keep 47 business groups in the data.

28 The equity growth data for 1994 were not available for 4 of the 49 chaebol in the 1989 data. In addition to these 4 business groups, Samsung Group is also deleted because, with its remarkably high equity growth
available asset. Second, in Figure 11, data points that are more than one standard deviation apart from the expected amount of equity growth are indicated with solid dots. These are either super performers or poor performers. Inferring from Figure 8, we expect that business groups with better-organized equity holding structure (Types 1 and 3) would perform better and those with poorly organized equity holding structure (Type 6 and 5) would perform accordingly. The implications of Type 2 and Type 4 are somewhat ambiguous. Of the seven super-performers, five – Samsung, Hyundai, Lotte, Keukdong Construction, and Dongkook Steel & Iron – are business groups with Type 1 or Type 3. Of the four poor-performers, Daelim and Sammi can be readily understood given their highly constrained equity structure of Type 5. However, the high growth of Ssangyong and Dongyang Cement (Type 2 and Type 4, respectively) and the unexpectedly low growth of Hanjin and Hanil (Type 1 and Type 2) demand further explanation. This explanation can be found in Figure 12.

The chaebol business groups with the same amount of remaining asset in 1989 did not create their asset in the same way. Figure 8 summarizes the many ways they created the asset. Therefore, the remaining asset in 1989 is not simply a variable that captures the institutionalization effect of the MRFTA. It is at the same time a network variable that reflects the different ways control was amplified, and asset created, until 1989. If so, it is unrealistic to assume that the differential structural capability suddenly stopped operating after 1989. It must have affected the growth of the chaebol continuously between 1989 and 1994. Figure 12 summarizes the relationship between this differential structural capability of the chaebol and the consequent differential costs of 6.5 trillion Korean won in just 5 years, the business group is plotted more than 3 standard deviations above the regression line. If Samsung is included, a quadratic regression equation best fits the data.
of growth after 1989. The horizontal axis measures structural capability as the ratio of control efficiency. The owning families of the chaebol can amplify their equity investment by means of equity crossholdings between subsidiaries. They use this amplified equity to hold asset different in size from chaebol to chaebol. The control efficiency variable is calculated by the following formula.

\[
\text{control efficiency} = \frac{(\text{owning family’s equity} + \text{equity held by subsidiaries})^2}{(\text{owning family’s equity}) (\text{total equity})}
\]

The sum of the owning family’s equity and equity held by subsidiaries divided by the owning family’s equity gives the ratio of equity amplification. However, equity amplification is meaningful only in so far as control is maintained. The sum of owning family’s equity and equity held by subsidiaries divided by the total equity gives the
strength of control in each chaebol. The product of these two terms makes up the control efficiency variable in Figure 12. This variable measures how much control amplification the differential structural capability brings to the owning families of the chaebol when the strength of control is held constant. The vertical axis is simply the remaining asset in 1989 divided by the amount of equity growth between 1989 and 1994. The variable is named ‘cost of growth’ because it measures how much asset each chaebol needs for one unit growth of equity. If the network effect were in operation during this period, one would expect that there would be some kind of relationship between the control efficiency and the cost of growth. Figure 12 summarizes this relationship with a quadratic function.

As control efficiency increases, the cost of further growth decreases at decreasing rates. However, higher control efficiency does not always guarantee lower costs of growth, as is shown in the business groups beyond the inflection point (=.395). Exploring the individual data points allows deeper comprehension of this mechanism. Once again, the solid dots represent data points that are more than one standard deviation away from the regression line. The gray dots represent data points that are located beyond the inflection point. Data points that are above the regression line pay more cost for growth while those below pay less. As expected, five – Samik, Hanyang, Yuwon, Tongil, and Poongsan – of the six chaebol that pay extraordinarily high cost for growth have equity holding structures of Type 5 and Type 6 (see Table 2). Woosung has not been assigned to any type. Turning to the gray dots, the cost of growth increases for these business groups because they amplified their equity too much without consolidating family control. Both Hanil and Ssangyong have a Type 2 structure where they use agents to play the controller
role on behalf of the owning family. From Figure 4, we can maintain that the owning families of Hanhwa and Lotte also rely on individual subsidiaries to maintain its control. In a sense these two business groups can be classified as a hybrid form between Type 2 and Type 3 (Hanhwa), or Type 2 and Type 1 (Lotte). The use of agents may help because by doing so the owning family can amplify its equity investment much more than otherwise. However, Figure 12 suggests that after 1989 they had complications pursuing further growth because much of the remaining asset in 1989 had to be used for consolidating control. Recall from discussions on Figure 11 that Dongyang Cement also marked an extraordinarily high growth between 1989 and 1994. But Figure 12 suggests that this was only possible because Dongyang Cement highly amplified the amount of available equity through crossholdings. These five business groups achieved rapid growth by the use of agents, but since they are already beyond the point of inflection further growth as such would entail increasingly inefficient use of available asset.

The six business groups indicated with solid dots below the regression line achieved very efficient growth between 1989 and 1994 relative to their control efficiency in 1989. Three of them – Hanjin, Haitai, and Daesung – can be more readily understood because they had either Type 1 or Type 3 structures in 1989 (see Table 2). The other three pose an enigma because it is not likely that they could achieve such efficient growth with such inefficient equity holding structure (Daelim with Type 5; Hanbo and Hansin with Type 6). One possible explanation is that they acquired much more new equity during this period without consolidating control. The recent experience of Hanbo may be relevant here: the business group went bankrupt when its main transactions bank refused to extend further credit, leaving behind a debt of six trillion Korean won. Investigations
revealed that the business group relied on political bribery to get that colossal amount of bank credit.

**CONCLUSION AND DISCUSSIONS**

Open systems organization theories share one same script: organizations posed with a same set of problems deriving from the environment devise a same set of solutions, of which the final outcome is isomorphism – be it institutional or technical. However, the predictions are based on different ways in which they conceptualize the environment, stimulating the researcher’s curiosity about the areas they intersect. One area where such intersections are least explored is the relationship between neoinstitutional and network theories of organization. Existing research in this connection has unanimously dealt with one isomorphic process: mimetic isomorphism.

Using equity holding data in the Korean *chaebol* business groups, this paper projects the reciprocal contingency effect that institutionalization and network structure have on each other with regard to the coercive isomorphic process. The twenty-year experience of the developmental state system characterized by cheap bank credit led to the formation of large business groups hierarchically controlled by the founding entrepreneur’s family. Among the many characteristics these business groups have, private ownership of social structures gave the owning families extraordinary ability to cope with the increasingly unfavorable institutional environment. When problems of the developmental system surfaced and the government set out to move toward a more liberalized economy, these *chaebol* business groups responded with their most powerful
weapon, the privately owned social structures, to bend the effects of institutional pressures.

The isomorphic feature of hierarchical control shown in Figure 4 testifies that the formation of network structure of equity holding in the Korean chaebol has been contingent on the institutional environment predominant throughout the developmental phase. It could not have been possible, among other things, without the cheap bank credit available almost exclusively to the chaebol. On top of the effects of this legacy of the developmental period, the changing institutional environment of the 1980s – most importantly the MRFTA – forced the chaebol to eliminate reciprocal crossholdings, perfecting the isomorphism shown in Figure 4. However, when the government made an attempt to depart from the developmentalist legacy, the contingency effect began to work the other way around. Armed with many subsidiaries and the relations between them, the owning families of the chaebol could now take advantage of their private ownership of social structures to bend the effects of the changing institutional environment. The analysis of chaebol’s growth pattern between 1989 and 1994 shows that there is a systematic variation in the effects of the MRFTA according the equity holding structure each chaebol had in 1989. These mutual effects together fill a significant gap in organization theory. Based on the evidence I provided in this article, I argue that not only the organizational structure but the structure of networks is influenced by the institutional environment, and that the effects of institutional pressures are also determined by the structure of networks. In other words, this article strongly suggests that there exists the institutionalization-network contingency.
In addition to its contribution to organization theory, this article has important implications for the post-developmental transition in general and financial liberalization in (former) developmental systems in particular. Developmental states usually foster the growth of large business groups in their attempts at state-led, export-oriented growth, necessitating patronage relationship with the private business. However, this patronage relationship has its limits from the beginning because the government’s support for the big business eventually leads to a power-shift to the latter. So far few authors have recognized this limit inherent in the developmental system\textsuperscript{29} (Johnson 1982; Kim 1993). The problem stands out especially in the area of finance. One sociologically significant consequence of the developmental system is that, when the financial liberalization begins amid the post-developmental transition, it has no financial capitalist class to speak on behalf of the financial capital that is being liberalized. Considering the fact that most developmental systems leave behind a powerful industrial capitalist class as a legacy when they leave, it is unlikely that we will see financial liberalization as the true meaning of the words in these societies. What we are more likely to see is perhaps a mixture of two consequences. One is continued financial repression by a new repressor: the big business. The other is the government’s retreat from the financial liberalization program.

\textsuperscript{29} Chalmers Johnson in his \textit{MITI and the Japanese Miracle} states that the state-business relationship is a permanent problem inherent in developmental state systems. However, this observation has largely gone without receiving as much attention as it duly deserves in follow-up studies.
REFERENCES


York: Bobbs-Merrill.


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Appendix 1: Real Interest Rates in South Korea, 1963-1985
Source: Chung (1987)

Appendix 2: Reversed Bank-Business Relations in South Korea, 1990
Source: Hyundai Securities Inc. (1990)
Appendix 3: Non-performing Loans at Banks, 1967-1985
Source: Park and Kim (1994)