

7 Inter-firm Relations in Business Groups: Group Structure and Firm Performance in China

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INTRODUCTION

The networks of interfirm relations that developed in business groups during economic transition have become an important part of China's emergent economic structure. As part of industrial reform, the Chinese government began in the mid-1980s to encourage firms to form business groups (*qiye jituan*). Business groups are coalitions of firms from multiple industries that interact over long periods of time and that are distinguished by elaborate interfirm networks of lending, trade, ownership and social relations. The organizational structure of a business group resembles a conglomerate, but relatively exclusive internal relations make the groups highly stable and resistant to reorganization. In the early 1980s, Chinese reformers began to separate firms from administrative bureaus and to reduce state support of firms to encourage the formation of business groups. Firms that joined business groups gained significant autonomy, and they also became responsible for finding inputs and marketing their products. As the firms sought sources of goods and capital, they quickly developed stable interfirm exchange ties similar to those found in Japan's *keiretsu* and Korea's *chaebol* (Keister 1998).

The process by which these networks of relations in business groups formed and the resulting structure of interfirm alliances will likely play an important role in shaping China's post-reform economic structure. Similarly, the role that the business groups play in firm behaviour – particularly financial behaviour – will affect China's continued development given the prevalence of the groups and the critical role that firm financial outcomes occupy in the development process. This chapter explores both of these processes. First, I examine the factors that contributed to the formation of the exchange ties that define the business groups. That is, I explore the factors

that encouraged firms to develop lending and trade ties with each other in the early stages of reform. It was these early ties that formed the basis of the groups' structures and that shaped outcomes for firms both immediately and over time. Second, I study how business groups affect firm financial performance. I focus on the effect of the groups on firm outcomes both early in reform and after markets had begun to mature because changes in market development are likely to create different effects at these different stages.

I propose that firms will initially rely on external cues (from outside the group) to form lending and trade ties in the groups, but that they will increasingly draw on internal indicators of viability (cues from within the group) in selecting exchange partners. I also propose that in the early stages of reform, certain characteristics of business groups will improve firm performance. Interlocking directorates and the presence of a finance company in a business group, for example, will improve communication and firm access to scarce capital when markets are beginning to develop. Firms in groups with these traits will perform better financially as a result. As markets become more established, however, business group membership will begin to impede firm competitiveness and flexibility reducing performance of group members. I test these ideas empirically with two data sets. The first data set includes detailed information about lending and trade ties, firm traits, and firm finances for 535 firms in China's 40 largest business groups in the early stages of reform. The second data set includes detailed, longitudinal information about 800 firms (both state owned enterprises and other firms) in more recent years. The findings provide support for my arguments and important insight into the formation and function of business groups during economic development.

The Emergence of Chinese Business Groups

Relations among firms are the building blocks of markets. In order to carry out market transactions, all firms must interact with each other. When these interactions are repeated, intercorporate alliances of various sorts are often formed, resulting in lasting relations among firms. Business groups are a particular type of intercorporate alliance. They are coalitions of firms, bound together by varying degrees of legal and social connection, that transact in several markets under the control of a dominant, or core, firm (Granovetter 1994).

Before the mid-1980s, business groups did not exist in China. However, the number of groups increased rapidly in the following years as a result of both the state's encouragement and firms' needs. By the early 1990s there were more than 7 000 known business groups in China (Reform 1993). The 1995 assets of state-owned *qiye jituan* were 1.12 trillion yuan (US\$135.70 billion), one quarter of the country's total state-owned assets (Kan 1996). In

addition to their immense size, business group membership carried with it a degree of prestige within China. These groups resembled powerful foreign multinational corporations. To cash in on this additional advantage, firms of all sizes and in all industries had an added incentive to join groups, adding to the quantity and density of existing groups (Li 1995). The conception of business groups was raised by the Chinese government among the heads of Chinese firms in as early as 1978 when the nation first embarked on its reform. The Chinese government observed that the keiretsu were successful in Japan, and they decided to take a similar approach to developing its own industry. The Communist Party Central Committee first encouraged links resembling those of the Japanese keiretsu among Chinese organizations, marking the initialization of a period in which experimental groups were formed.

Business groups became increasingly common starting in the late 1980s. Between 1987 and 1989, Chinese business groups emerged rapidly in the state-owned sector with the encouragement and assistance of the state. Documents issued by related state agencies not only outlined the state's concept of its role in the establishment and subsequent management of the groups but also included information about the nature of the groups that the state would encourage to form. These documents stressed the importance of interdependence in financial arrangements and alluded to the significance of interlocking directorates in improving interfirm communication. As a result, the state gradually reduced its role in firm management to that of a shareholder, with limited liability and limited responsibility, in formerly state-owned firms. The core firm in a business group thus obtained a greater role as much of the state's responsibility was shifted to the core firm as it began to acquire ownership rights in the other member firms. The 1990s saw a rapid expansion of business groups in all sectors of the economy. The state continued to voice support for the groups and vowed to support them financially. The number of business groups proliferated, but many of them did not survive to the end of the decade.

The Formation of Interfirm Ties in Chinese Business Groups

Rapid change during transition created informational asymmetries that made it difficult for firms to evaluate the needs, competencies and reliability of potential trade partners. Buyers and sellers needed to determine whether particular ties were beneficial, but both were reluctant to reveal too much information about their own needs and competencies. The threat of opportunism that made firms reluctant to be too forthcoming with information, but the joint hesitation to reveal information made it difficult for firms to assess the reliability of others and often prevented trust from

developing. In this section, I explore how firms developed lending and trade ties under these conditions.

External influences and the declining importance

Members of China's business groups formed long-term, relatively exclusive lending and trade ties primarily inside the groups, but processes external to the groups shaped the emergence and evolution of these ties. Evidence from other transition economies suggests that as uncertainty about markets increased, managers turned to those they knew to reduce risk. Thus managers built new ties on existing relations, creating considerable path dependence in interfirm exchange. In China, the role that social relations (*guanxi*) play in organizing economic activity, particularly in uncertain contexts, has been well-documented (Bian 1997, Kipnis 1997, Yan 1996). During China's transition, the influence of *guanxi* (personal ties) was particularly salient in the formation of economic relations (Bian 1997, Kipnis 1997).

Evidence from other countries indicates that when uncertainty is high, organizational decision makers turn to those with whom they have dealt successfully in the past in order to protect themselves from malfeasance and opportunism (Hagen 1998, Powell 1990). They also target firms with whom their partners are connected because they can more easily ascertain information about the trustworthiness and reliability of these potential partners (Gulati 1995, Rousseau, Sitkin and Camerer 1998, Sitkin *et al.* 1998). Prior direct connections allow organizations to learn about each other's abilities and capacities and, in some cases, to establish an infrastructure of personnel and practices on which the new relation can build. Similarly indirect connections (i.e., common third-party connections) provide either referrals or an indicator that the potential partner has successfully managed prior relations (Baker 1990, Burt 1982).

Managers were concerned with cost, but concern with uncertainty and the need to establish long-term strategic advantage gave prior external relations considerable salience. Indeed, laboratory experiments have shown that when uncertainty is high, partners in dyadic exchange relations continue to trade even when lower prices are available elsewhere (Kollock 1994). I expect that even when less expensive alternatives were available:

Hypothesis 1: The greater the number of prior external ties (either direct or indirect) between two firms, the greater the likelihood the firms formed a lending or trade tie in the business group.

During transition, variations in levels of market development provided critical information to managers as they formed exchange ties. Market development in China was gradual and uneven because reformers favoured coastal and southern regions and because entrepreneurial firms in some areas

quickly took advantage of new freedoms (Jefferson and Xu 1991). Firms in developed regions had access to more resources and were better able to become suppliers, while firms in less developed areas were more likely to become borrowers and receivers. Yet access to resources had significance, for both buyers and sellers, beyond simple availability. High levels of uncertainty encouraged firms to find trade partners with whom they could form stable relations. Firms that needed resources valued suppliers that would be around in the future, and firms that had access to resources were able to take advantage of this position to cultivate dependence on their products that would persist in the future.

To a potential buyer, firms in developed areas appeared to be more reliable, long-term partners because they were more likely to have access to resources in the future. Managers were even willing to pay a higher price to get resources from such firms because of the security the relation provided (Galaskiewicz 1985, Pfeffer and Salancik 1978). Moreover, trading with a firm that was likely to be around in the future could reduce the cost of searching for new trade partners, which were particularly high in developing markets.

To potential suppliers, the control of scarce resources created opportunities to reduce risk and to ensure future exchange by fostering dependence on their products (Cook 1977, Pfeffer *et al.* 1978). Resource access was particularly important in China given its legacy of supply shortages, and managers quickly learned to exploit resource advantages for security and long-term advantage by cultivating alliances with less advantaged firms. In the early stages of reform, relatively soft budget constraints partially assuaged concerns about compensation from firms with limited resources and further encouraged those in developed regions to exploit firms with limited access to resources.

Thus, I expect that firms located in developed areas were more likely to become suppliers and those in less developed regions were more likely to become buyers simply because resource availability was greater in more developed regions. However, because firms also valued security and were willing to pay a cost to reduce uncertainty, these relations still occurred when the cost of the relation was greater than alternatives. Of course, suppliers did not eschew relations with strong buyers or buyers in developed regions, but in relations with weaker partners, firms in developed regions had an advantage even if their prices were higher. That is, even when less expensive alternatives were available:

Hypothesis 2: Firms located in developed regions became lenders and suppliers, those located in less developed regions became borrowers and customers.

While continued soft budget constraints provided some reassurance to suppliers that they would receive compensation from their customers, suppliers faced additional risk in exchanging with less advantaged firms. To alleviate this risk, firms in more developed areas relied more heavily on prior direct and indirect connections to identify potential customers in less developed areas. That is, even if there was a cost involved:

Hypothesis 3: Poor market development increased reliance on prior connections.

Internal factors and their increasing significance

As the value of information from prior relations declined, the value of information available in the business group grew, and managers increasingly turned to the group for guidance in developing ties. This change is consistent with research that shows that once a set of relations has coalesced into a relatively stable network, the network serves as a source of information on the reliability, competencies and needs of potential trade partners (Gulati 1995). Yet unlike in the West where interfirm networks are usually defined along a single dimension (e.g., board interlocks, strategic alliances), firms in business groups were linked in multiple ways. In addition to lending and trade relations, firms were connected through ownership ties, interlocking board memberships, social ties, and relations formed through joint production and research efforts. These multiple linkages provided both direct and indirect sources of information about potential trade partners, and the information available through these internal ties became more abundant as the groups aged and linkages multiplied. This suggests that, even when there was a cost involved:

Hypothesis 4: The greater the number of internal direct and indirect non-trade ties between two firms, the greater the likelihood the firms developed a lending or trade tie in the business group.

As in other business groups, social relations developed from trade relations (Granovetter 1995). Over time, membership in the same group increased the likelihood that the firms were connected by other ties. Expectations that an alliance would continue to trade were cemented, and managers became increasingly reluctant to discontinue economic relations with partners they interacted with in other arenas. In addition, firms often preferred to trade with a known partner, even if it cost more than trading with a potentially opportunistic stranger. Relational embeddedness thus increased the reluctance of firms to abandon lending and trade relations in established business groups, leading to the development of a thick skein of ties that became increasingly stable (Lincoln, Gerlach and Takahashi 1992). Social

obligations developed relatively quickly in Chinese business groups and that internal non-trade ties became a source of pressure or obligation to remain in lending and trade relations, extending the life of the economic tie sometimes indefinitely. For example, social relations or relations such as those that developed between two firms engaged in joint product development affected the formation of lending and trade relations. As a result, I expect that:

Hypothesis 5: The longer the past internal lending or trade relation between two firms in a business group, the stronger the effect of internal non-trade ties on the formation of an exchange tie between the firms.

Chinese Business Group Structure and Firm Performance

China's policy makers proposed from early in reform that business groups with certain structural traits, such as director interlocks and group-specific banks in Japan's keiretsu and South Korea's *chaebol*, would protect firms from competition, create economies of scale and enhance firm performance. Next, I explore whether certain traits did affect firm performance and how these changed over time.

Interlocking directorates improve firm performance

Interlocking directorates are not new to China; they existed in government ministries before reform when the same state representative was assigned to the boards of more than one firm. In the business groups, interlocks occur when member firms acquire shares in each other and place representatives on each others' boards. The interlocks have the same functional form as interlocks in other contexts (i.e., an individual occupies a seat on more than one board of directors); however, unlike in the US, where interlocks are both a source of information and a form of co-optation or monitoring, interlocks in China primarily function as an information source for the interlocked firms. The interlocks allow information about technological advances, market opportunities, innovative strategies, etc. to pass among firms in the group. Empirical research on the relationship between interlocks and firm performance in the US, however, has been inconclusive largely because the most interlocked firms are those in financial decline. In contrast, in countries where the division of labour among financial institutions differs from the US there may be a positive interlocks-profits relationship.

Hypothesis 6: The presence of interlocking directorates will improve firm financial performance.

Finance companies improve firm performance

In China in the late 1980s, financial markets were unable to distribute funds efficiently, leaving many firms without necessary capital. Firms that were members of some business groups had access to additional financing through the group's finance company (*caiwu gongsi*), a specialized firm that collected and redistributed funds within the group and also obtained funds through state banks on behalf of member firms. Reformers originally experimented with finance companies in the central industries and later in most other industries. Initially the activities of the finance companies were not monitored, but as their activity expanded regulations were implemented to control lending practices. The finance company enabled the member firms to engage in research and development, to better manage investments both within the group (i.e., investments in other firms that are members of the same group) and outside of the group, and, if necessary, to meet short-term operating expenses. The informational and market-substitute advantages of the group-specific bank suggest that firms in Chinese business groups with finance companies should be advantaged over firms in groups that do not have finance companies, and the more extensive the operations of the finance company, the greater the advantages of this specialized firm. That is, firms in business groups with finance companies should perform better than those in groups with no finance company.

Hypothesis 7: The presence of a finance company will improve firm financial performance.

Later Stages of Development: Business Groups Reduce Performance

In more recent years, the role of China's business groups has changed as the country's economic structure and participation in the world economy have changed. After China's accession into WTO, the government has continued to facilitate measures that promote competition both within China and with foreign firms. Large business groups are regarded as major actors in competing with multinational corporations. Following structuring models of the Shanghai Baosteel Group (Bao Gang), the Aluminium Corporation of China and China National Heavy Duty Truck Corporation all went through significant changes of their management and operational structures. Unlike in earlier years, business groups are now common among both state owned enterprises and other firms, and a large number of the groups are now listed on stock markets both in China and abroad. The number of business groups in China decreased rapidly in the 1990s, but the organizational form is still common. The recently established State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) claims that one of the key functions of SASAC is to develop between 30 and 50 large

enterprises and business groups capable of competing with Western corporations.

Most notably here, the increasing security that developing markets provide firms is likely to reduce the importance of business group membership. Indeed, in the later stages of transition – or the early stages of market development – membership in a business group may hamper competitiveness and flexibility, reducing financial performance for member firms. It is arguably still quite early in China's transition, and the country is likely to continue to undergo important changes. Yet, an initial exploration of the role that membership in a business group played in recent years may be instructive. That is:

Hypothesis 8: In the early stages of reform, business groups improved financial performance, but in the later stages of development, the groups reduce performance.

DATA AND METHODS

To examine these hypotheses, I collected two data sets; both focus on lending and trade relations and financial performance in China's business groups. The first data set includes biannual 1988-96 longitudinal data on all business groups in non-sensitive industries that had registered with the state in 1985. I used these data to explore interfirm tie formation and firm performance early in reform. To collect these data, I administered a questionnaire to the financial officer of each of the 40 core firms in face-to-face interviews (in Chinese without a translator) in 1995-96. I was able to obtain the data from a single source for most business groups because core firms kept detailed records of member firm behaviours and practices. To record the interfirm dyad data, I presented the financial officer with a matrix that arrayed all member firms both vertically and horizontally. This allowed the officer to quickly refer to company records and indicate the presence or absence of a tie. The total possible dyads was 16 306. However, because most of these were absent, it was possible to collect a relatively large amount of data quickly.

To explore the effects of business group membership on firm performance later in reform, I collected a second data set. The firms in this data set are different from the firms I studied in the other portions of this paper because it was important to use a random sample, and firm births were frequent during China's transition. The data are longitudinal data, and I used information from 1994 and 1999 for 800 Chinese firms. The sample includes 433 state owned enterprises (SOEs) and 367 collective enterprises, joint ventures,

private firms, and other types of non-state companies (CNFs). The questionnaire had two parts. Part one was a set of 92 questions regarding the structure of the enterprise, manager appointment, participation in reform, organizational and management structure, manager incentives, firm strategy, relations with government offices, investment strategies, and related information. The firm's CEO or their representative in the management hierarchy answered these questions. Part two was a series of 141 quantitative questions regarding enterprise operations. The firm's accountant answered these questions. I collected information about firm output, production expenses, wages and labour, investments, assets and liabilities, costs, profits, and related traits.

Equation specification and estimation

In analyses of the formation of an interfirm tie, the unit of analysis was the interfirm dyad; that is the:

$$n = \sum_{i=1}^{40} n_{it} (n_{it}-1) = 16\ 306 \text{ ordered pairs of the 535 member firms}$$

within the 40 largest business groups (40 separate networks) with every other firm in the same group in each time period¹. I included only business group members because my focus is voluntary, repeated relations within these groups². I included business group members whether they had ties or not. Because membership is not defined by having ties, some firms were not connected to any other firms. Thus, my interest was in the off-diagonal cells in a matrix of the 40 distinct networks, or each of 40 (n x n) matrices at five points in time where the rows ($i=1, \dots, n$) were senders in a relation and the columns ($j=1, \dots, n$) were receivers. I arrayed these as column vectors (p) such that $p=(1,2; 1,3; \dots, 1,n; 2,1; 2,3; \dots, 2,n; \dots, n-1,1; n-1,2; \dots, n-1,n)$ and modelled the likelihood of an (i, j) tie. Specifically, I follow Lincoln (1984) and Lincoln *et al.* (1992) in modelling the presence (yes/no) of each type of directional tie (personnel, commercial, financial) as a function of firm, dyad, and province attributes such that:

$$y_{ijt} = \beta y_{jit} + \alpha y_{ijt-1} + \lambda_i' P_i + \lambda_j' P_j + \pi_{ij}' R_{ij} + \gamma_i' X_i + \gamma_j' X_j + \rho W y_{ij} + u_{ijk} + \varepsilon_{ij}$$

where y_{ijt} is a directional tie from firm i to firm j ; y_{jit} was a reciprocal tie from firm j to firm i ; and y_{ijt-1} was a lagged tie from i to j . The dependent variable is a dichotomous indicator that firm i sent personnel, commercial goods or capital to firm j three or more times in time t . P_i and P_j are column vectors of province-level variables for provinces in which firms i and j were located. R_{ij} is a vector of dyad-level variables; X_i and X_j are vectors of firm-level variables. $W y_{ij}$ is a dyad autoregressive term included to control bias that might occur because some dyads contained the same firms³. $\beta, \alpha, \lambda', \pi_{ij}', \gamma_i'$

γ'_j and ρ are coefficients to be estimated. I used province-level variables and error components to model regional effects. u_{ijk} and ε_{ij} are the region-specific and dyad-specific error terms respectively. I used fixed effects to control for group-level variation (i.e., 39 group dummy variables) and estimated generalized linear mixed (pseudo-likelihood) equations in SAS that allowed the decomposition of the error term into its fixed and random components.

In analyses of firm performance, the unit of analysis is the firm. To estimate the effects of group structure on firm profits and productivity, I use random effects feasible generalized least-squares regression equations. The random effects equations decompose the error term to adjust for autocorrelation arising from common firm membership in the same group and inter-temporal correlation of error terms. Because many of the group-level indicators are present in the same groups (e.g., groups with a finance company often have interlocks as well), the test variables are highly correlated. Therefore, I include separate equations for each set of test variables (these are not nested models); I also include two equations that combine all test variables to demonstrate their joint effect⁴. The equations are of the form:

$$Y_{1990i} = \alpha + \beta'x_i + \gamma' Y_{1988i} + \lambda'G_i + \varepsilon_{it}$$

where: Y_{1990i} is 1990 profits or output per worker, α is the intercept, x_i is a vector of group- and firm-level control variables, Y_{1988i} is a lagged dependent variable, G_i is a vector of group structure variables that test the hypotheses, and ε_i is the stochastic error term. For the estimation of the output per worker equations, I multiplied all variables (both independent and dependent) by the number of workers in 1990 (i.e., the dependent variable is 1990 output, not a ratio).

Table 7.1 about here

Table 7.1 contains variable definitions and descriptive statistics for dyad analyses. The dependent variables were dichotomous indicators of the presence of each of the three exchange ties in the business group. Personnel_{ijt} was a dummy variable coded '1' if firm i sent personnel to firm j three or more times in the current year and '0' otherwise⁵. I coded the measures of commercial and financial ties similarly. The lagged dependent variable, y_{ijt} , was equivalent to the dependent variable, measured in the prior time period. A significant positive estimate of the α coefficient indicates that if firm i sent the resource to firm j in one time period, it was more likely to send that resource in the next period. The reciprocal term, y_{jit} , indicates whether firm j also sent the resource to firm i ; a positive estimate of β indicates reciprocity. I entered firm characteristics as both a trait of both firm i and firm j . A

significant positive estimate of γ'_i indicates that the greater the value of \mathbf{X}_i the more likely firm i was to be the sender in the dyadic tie. A positive γ'_j indicates that the greater the value of \mathbf{X}_j the more likely firm j was to be the receiver. I also entered regional characteristics as traits of both firm i and firm j . A positive estimate of λ'_i indicates that as the value of \mathbf{P}_i increased, i was more likely to be the sender. A positive estimate of λ'_j indicates that as \mathbf{P}_j increased, j was more likely to be the receiver. A positive estimate of π'_{ij} indicates that attributes of this pairing make a tie more likely.

I measured *external direct connections* as the number of ties outside the business group between each pair of firms. I used managers' reports to sum within each dyad (1) the number of interfirm (i.e., across the dyad) pairs of managers who were classmates (*tongxue*) in college, (2) the number of interfirm pairs of managers with family, external professional, or other external social connections, (3) an indicator of whether the firms had a lending or trade relation before the business groups formed and (4) an indicator of whether the firms were in the same administrative bureau before reform. I measured *internal direct connections* as the number of non-trade ties in each dyad that originated from contact inside the business group. These ties included ownership ties and ties formed through joint production, research, and marketing. The formation of these ties dates to the establishment of the group, and none began prior to 1985. I indicated *indirect ties*, both external and internal, as the number of times a pair of firms was connected through indirect associations (via ties to alters). Using separate indicators of each of these ties (e.g., school ties, past lending ties) produced similar substantive results. *Tie duration* was the number of years the firms had a repeated, *internal* lending or trade tie.

I measured *market development* separately for each dependent variable to capture variations in market expansion for the corresponding resource. In the personnel tie models, I measured labour market development as the number of individuals in the province employed in the private sector as a proportion of those employed in the public sector. In the commodity tie models, I indicated commodity market development as the number of private and collective firms as a percentage of the number of state-owned firms. In the financial tie models, I measured financial market development as deposits of foreign banks as a percentage of total bank deposits. I used province-level indicators because municipal data (often collected by various agencies) are less accessible and less internally consistent. Moreover given China's size and regional variation, marked province-level differences correspond well to differences in opportunities and constraints (Nee 1996). I followed Walder (1992) in using an ordinal coding of *administrative rank*.

I controlled for the lagged presence of an *ij financial tie* in the personnel and commercial models to examine interdependence among exchange

relations. If one firm loaned capital to another, it was more likely to take an active interest in the survival of the borrower and lend other resources as well (Lincoln *et al.* 1992). I also controlled for whether the organization was *established before 1978* (prior to reform) and whether it was the core firm to indicate other sources of resources that might have affected firm resource needs. Table 7.2 contains descriptive statistics for firm-level variables. I do not include Pearson correlation coefficients among the regressors to conserve space, but there are no significantly high correlations.

Table 7.2 about here

Results

Tie formation

The coefficient estimates in Table 7.3 provide some insight into the process of interfirm tie formation during transition. Table 7.3 presents the logistic coefficient estimates for models predicting three types of interfirm relations in China's business groups. Each sub sample is slightly less than the full set of 16 306 dyads because of missing data. Consistent with the notion that the identity of one's partner matters in a repeated exchange, the findings indicate that prior economic and social relations between firms increased the likelihood that they would establish lending and trade ties in the business groups, even when less expensive alternatives were available. Hypothesis 1 predicted that prior, external direct and indirect interfirm ties increased the likelihood of lending and trade relations in business groups. The results provide strong support for this hypothesis. Coefficient estimates for the number of external direct and indirect ties were significant and in the predicted directions.

Table 7.3 about here

Likewise the results support the prediction of Hypotheses 2 and 3. The interactions between market development and reliance on prior connections are consistently positive, suggesting that prior connections were particularly important where market development was weak. Although the presence of resources may lead firms to be senders (rather than to cultivate dependence), research on Chinese business groups suggests otherwise (Keister 1998 2001). Managers in firms that were predominantly senders overwhelmingly acknowledged awareness that trade partners might have been dependent on them and nearly always argued that this was desirable. The regression results also suggest that poor market development increases reliance on prior social connections, but at a decreasing rate. The interaction terms and squared terms

support the idea that reputation is particularly important when uncertainty is high, but that this effect reaches a threshold and then decreased.

The notion that organizational decision makers look beyond immediate economic gains, particularly under uncertain conditions, is evident in the cost results in Table 7.3. Not only did firms opt to trade with seemingly stable partners, but they were also willing to forego less expensive alternatives to establish or maintain these relations. The negative effect of the single cost differential variable included in the first model for each tie indicates that firms were less willing to be involved in the repeated exchange tie if the resource was available cheaper elsewhere. Interpreted with the market development coefficients, this result provides evidence that uncertainty was a significant predictor of the presence of a tie despite cost. These results are particularly strong given that the definition of uncertainty is resource-specific.

Yet, as the structure of lending and trade relations developed in the business groups, the groups increasingly became sources of information for their member firms about the abilities and competencies of potential trade partners. The results in Table 7.3 support the argument that non-trade ties in the business group, both direct and indirect, increased the likelihood that a lending or trade relation developed. Similarly, the longer the firms were allied, the more weight decision makers gave to other internal connections. These results support Hypotheses 4 and 5.

Financial performance

Table 7.4 presents GLS estimates of the equations including the interlocking directorates test variables. Consistent with hypothesis 6, the analyses suggest that interlocking directorates have a positive effect on firm performance and productivity. The presence of interlocks in a business group has a positive effect on the profits. Moreover, the more predominant the interlocks within a business group, the greater the profits and productivity of the member firms. Similarly, the results in table 5 show that profits are greater for firms in groups with finance companies, as proposed by hypothesis 7.

Tables 7.4 and 7.5 about here

The results in Table 6 provide separate estimates for firms in state owned enterprises (SOEs) and other firms because these two organizational forms are considerably different types of entities. The results, although they are preliminary, do provide evidence that in more recent years, membership in a business group is not beneficial to either SOEs or other firms. In fact, the effect of group membership is significantly negative and relatively strong. Cox tests suggest that the apparent increase in strength between 1994 and

1999 is also real. This implies that the negative effect is growing over time. The implication of this finding is that China's economy may be becoming competitive enough that firms that compete openly are stronger than those that remain protected by business groups. Future research will usefully follow trends in these patterns and provide more concrete evidence of longitudinal patterns in the role that business groups play in shaping firm outcomes.

Table 7.6 about here

CONCLUSION

I had two objectives in this paper. First, I explored the factors that affected the formation of lending and trade relations in Chinese business groups in the early stages of reform. Second, I examined the effect of business group structure in China's transition economy on the financial performance and productivity of the groups' member firms. I started by observing that one of the most profound components of China's industrial reform has been the re-organization of firms into business groups, a process that began in the mid-1980s. I argued that the factors that influence the formation of ties in these groups are important to understanding the emergent structure of the groups and ultimately China's new economy. I also proposed that using multiple indicators of group structure – including indicators of the presence and predominance of interlocking directorates, informal finance arrangements, and the hierarchical organization of the group – would clarify the role that business groups play in determining firm performance in China and would also inform understanding of the importance of these groups and interorganizational relations more generally. Finally, I drew an important distinction between early and later development in studying the relationship between group structure and firm financial performance. In short, I proposed that certain elements of group structure would benefit firms early in reform, but as markets became more stable, group membership would become detrimental to firm well-being.

My findings provided strong support for these arguments. The results show that early in reform, firms sought to reduce uncertainty by exchanging with those with whom they had prior direct or indirect connections. They also traded with those that had secure access to scarce resources, even when less expensive alternatives are available. These findings provide evidence that organizational decision makers seek power through dependent exchange ties. Consistent with research on social dilemmas, these findings also demonstrate that reputation influenced lending and trade even when less expensive alternatives were available. Perhaps most important, my results

show that the processes underlying exchange formation vary over the life of the business groups. In the early stages of development, processes originating outside the groups had the strongest influence on the formation of ties. As time passed, the role of external social relations and other external indicators of the trustworthiness and reliability of potential partners decreased. Yet processes originating within the business groups became more important. Firms increasingly sought to ally with group members with whom they had other ties and who were central players in the network of interfirm ties within business groups.

I also found important support for my arguments regarding the effect of business groups on firm financial performance. I found a positive relationship between the presence and predominance of interlocking directorates and firm performance in the early stages of development. The finding provides support for the argument that interlocking directorates improve information flow among firms, reducing the cost to an individual firm of obtaining and processing information. I also found that having a finance company improved profitability for member firms, but that an extremely hierarchically organized group reduces performance.

Because conditions in China were similar in many ways to other transition economies, these results provide important information about the process of economic transformation more generally. Relatively high uncertainty, changing sources of uncertainty, market failure, managers who are not accustomed to markets and expanding competition were prevalent in China as they are in many transition economies. The strong but declining role of the state, the continued importance of bureaucratic power, and hardening budget constraints were also typical of a transition economy. My findings suggest that regional differences in market development during transition may be institutionalized and thus shape economic exchange after transition. Similarly the continued importance of bureaucratic power during transition may cause the post-transition economic structure to reflect pre-reform advantages. Perhaps most consequential for understanding transition economies, however, is the finding that internal ties became increasingly important predictors of economic relations, even at a financial cost. Thus, while business groups may be advantageous early in reform, increasing internalization of ties may create inefficiencies that have negative long-term consequences.

While the transition context is unique, these results also speak to the process by which interfirm relations emerge, and thus to the general process by which social structures come into being. The somewhat unique transition context required some modifications of existing theory, but much of what we know of organizations from other contexts remained true. My results highlight the critical role that social relations play in the formation of economic ties, particularly under uncertainty. The results also confirm in a

unique setting the notion that external connections decline in salience and internal relations become more important as interfirm networks develop.

Acknowledgement

I am grateful for research assistance from Jin Lu. I also grateful acknowledge the grants that supported this work, including: two grants from the National Science Foundation (SBR-9633121 and SES 987514) and grants from the US Department of Education, the Cornell East Asia Program, the Cornell Centre for International Studies, the President's Council of Cornell Women, IBM, the Institute for Research in the Social Sciences at the University of North Carolina at Chapel Hill and the College of Social and Behavioral Sciences at Ohio State University. Portions of this research on based on previous publications (Keister 1998 2001 and *Chinese Business Groups: The Structure and Impact of Interfirm Relations During Economic Development*, New York: Oxford University Press).

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Notes

¹ This is equivalent to the $n(n-1) = 285,690$ dyads minus dyads containing firms in different groups.

² Firms outside business groups did develop lending and trade ties, but the ties they formed seldom coalesced into the close-knit relations that are characteristic of relations in business groups.

³ $Wy_{ij} = \sum_p W_{pq} y_q$ where p and q are dyads and $p \neq q$. $W_{pq} = 1/n_p$ if dyads p and q share a common firm and 0 otherwise. Wy_{ij} is the mean of the dependent variable over all dyads that include firm i or firm j (excluding ij).

⁴ The random effects model decomposes the error term as follows: $\varepsilon_{it} = \alpha_i + \rho_j + \gamma_t + \lambda_{it}$ where ε_{it} is the total stochastic component for firm i in time t , α_i is the error component associated with firm i , ρ_j is the component associated with group j , γ_t is the component associated with time period t , and λ_{it} is the stochastic component. While inter-temporal correlation is minimal in panel data, preliminary tests indicated that errors were correlated between 1988 and 1990.

⁵ I chose three as the cut-off because fewer exchanges did not indicate an ongoing exchange relation, and after three exchanges, preliminary analyses suggested that the firms were likely to continue to trade.