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Impact of state ownership and control mechanisms on the performance of group affiliated companies in China

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Abstract This paper examines the moderating impact of state ownership and group control mechanisms on the relationship between diversification and performance of companies affiliated with large business groups in China. We find that the state ownership has enhanced the performance of group affiliated companies when they adopted higher degrees of diversification. We also find that cash flow rights have a positive impact on the performance of companies with lower degrees of diversification while in general group control rights have a negative impact on the performance. These results suggest that a group's control mechanisms, derived from pyramid ownership structures, enable the dominant owners to expropriate the value from minority shareholders or tunnel corporate resources for their own interest.

Keywords Group affiliated companies · State ownership · Diversification · Firm performance

Business groups are prevalent organizational forms that play a leadership role in many countries, particularly emerging economies (Chang, 2003a; Goto, 1982; Khanna & Rivkin, 2001; Leff, 1978; Maman, 2002; Peng, 2005). In contrast to public companies in well-

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established market economies, such as the United States, where firms have been organized in multidivisional structures, business groups may consist of numerous independent companies that are tied by ownership, economic relations, and/or social links. Such unique organizational form provides an opportunity to study the role of organizational structures in corporate strategy and performance of the companies that are affiliated with business groups (Chang, 2003a; Chang & Hong, 2000; Chung, 2001; Feenstra, Yang, & Hamilton, 1999; Guillen, 2000; Guthrie, 1997; Keister, 1998, 1999; Khanna & Palepu, 2000a; Khanna & Rivkin, 2001; Yiu, Bruton, & Lu, 2005).

It has been noted that companies affiliated with business groups in emerging economies are more likely to diversify than independent firms (Chang & Choi, 1988; Khanna & Palepu, 2000a, b; Khanna & Rivkin, 2001). An explanation for this phenomenon usually points to severe market imperfections in emerging economies where there exist inefficient product/factor markets, weak contract enforcement mechanisms, and strong interventions imposed by governments. Therefore, diversification can be beneficial because firms can overcome these imperfections by diversifying through affiliations in business groups in which firms share resources and coordinate to achieve their strategic objectives (Chang & Choi, 1988; Khanna & Palepu, 1997). However, while some empirical studies found that a high level of diversification may not necessarily lead to lower performance (cf. Chang & Hong, 2000; Guillen, 2000; Khanna & Palepu, 2000a, b), others noted that the relationship between diversification and performance in business groups remained inclusive (cf. Khanna & Rivkin, 2001; Lee, Peng, & Lee, 2007; Lu, Bruton, & Lan, 2004).

What makes the issue complex is the role of the internal environment, such as an ownership structure and control mechanisms, in the configuration of diversification and performance because different types of diversification have distinctive ways to create value (Hill, Hitt, & Hoskisson, 1992; Hill & Hoskisson, 1987). A firm having a lower level of diversification can develop the synergy by exploiting economies of scope between business units that share activities and resources. By contrast, a firm adopting a high level of diversification relies upon an efficient internal capital market in which the headquarters acts as an investment banker to allocate financing resources to specific investment projects (Williamson, 1981).

Control mechanisms in business groups can be more complex than that in independent firms as affiliated companies are controlled and coordinated by multiple links, including ownership, economic exchange, and social networks (Khanna & Rivkin, 2001). Whereas business groups are owned by the government, diversification can be used as a device to achieve a nation's political, social, and economic goals, such as to enter national strategic industries or to increase employment. All these factors can moderate the performance of diversified companies affiliated with business groups.

Although management of business groups has been well documented in other countries, studies on business groups in the People's Republic of China (PRC) — the largest emerging economy in the world—just started (Guthrie, 1997; Keister, 1998, 1999; Li & Wong, 2003; Yiu et al., 2005). In the PRC, the state and local governments since the mid 1990s have invested substantially in large business groups and expected them to play the leadership role in national and local economic development. Our purpose in this paper is to answer one research question: What impact do state ownership and group control mechanisms have on the performance of diversified companies that are affiliated with business groups? In the remaining of this paper we will first develop hypotheses based upon theoretical perspectives. Then, we shall introduce empirical findings in 628 public companies affiliated with large business groups in the PRC by testing the hypotheses proposed. It is concluded with a discussion of the implications of this study for future research and practices.

Theoretical perspectives and hypotheses

What is a business group?

Across societies business groups have been known under various names, such as the *keiretsu* in Japan, the *chaebol* in South Korea, the *guanxi qiye* in Taiwan, the *qiye jituan* in mainland China, business houses in India, family holdings in Turkey, *grupos* in Spain, the *grupos economicos* in Latin America countries, and the *konzerne* in Germany. In emerging economies, business groups, particularly large ones, play a leading role in national and local economic development.

Today, most scholars have reached a consensus by referring a business group to as a collection of individual firms that, as affiliated companies, are tied up by ownership, economic means (such as inter-firm transactions), and/or social relations through which they coordinate to achieve mutual objectives (Granovetter, 1994; Khanna & Rivkin, 2001; Leff, 1978; Strachan, 1976). In some countries, such as South Korea and the PRC, boundaries of business groups have been defined more likely based upon ownership (Chang, 2003a; Yiu, Bruton, & Lu, 2005). For instance, in South Korea the Korean Fair Trade Commission (KFTC) legally defines a business group as 'a group of companies, more than 30% of whose shares are owned by some individuals or by companies controlled by those individuals, and whose management such as appointing officers is substantially affected'. In the PRC the state government officially defines a business group (or enterprise group) as 'an economically collected organization that consists of a parent company, as the main entity, and numerous independent enterprises and non-enterprise organizations that are linked by investing and production/operation collaboration' (*The State Statistics Bureau of the People's Republic of China*, 2001: 18). In this study, we will refer to this official definition in the PRC and focus on the business group in which affiliated companies are owned wholly or partially by a parent company.

Business groups in the PRC

Business groups emerged as an important organizational form in the PRC during the mid 1990s when central and local governments introduced numerous policies to build national teams consisting of large business groups as the device to achieve a rapid economic growth. A large number of business groups in the PRC were either invested directly by the government or transformed from previously industrial bureaus and state owned enterprises (SOEs). Thus, one distinctive characteristic of Chinese business groups was the dominance of state ownership. By the end of 2001 there were 2,710 large business groups on a list of China's central and provincial governments (Wang & Shao, 2002). Of them, 1,786 groups had parent companies that were wholly or dominantly owned by the state and local governments, which contributed to over 93% of assets value and 88% of sales revenue of a total number of business groups in the PRC.

Chinese business groups are usually structured with a parent company, which acts as the headquarters on behalf of a controlling/dominant owner, such as the state, that exercises its authority on others through layers of core companies as affiliates (cf. Fan, Wong, & Zhang, 2005; Li, Sun, & Liu, 2006). As Nolan (2001) observed, Chinese business groups were characterized by consisting of 'a large powerful "parent" or "core" company, otherwise known as a "group company", surrounded by other "children" companies in which the mother holds a controlling share. This is known as the "close" layer of the group. Enterprises in which the parent company has minority share ownership are known as "semi-

close" members. Often close or semi-close member enterprises also own stakes in other enterprises which in turn become "grandchildren" of the parent company. In this way the member enterprises of enterprise groups have expanded quickly' (Nolan, 2001: 75).

Through this multi-layer structure, a parent company is able to control a large number of group affiliates in different industries or markets and therefore diversification becomes a popular strategy for business groups to achieve a rapid growth.

Theoretical perspectives on diversification in business groups

Previous studies noted that companies affiliated with business groups were more likely to diversify than independent firms (Chang & Choi, 1988; Guthrie, 1997; Keister, 1998; Khanna & Palepu, 2000a, b; Ramaswamy, Li, & Petitt, 2004). To explain why diversification was favored in business groups and whether diversification is beneficial to affiliated companies, scholars have introduced five theoretical perspectives, in terms of (1) transaction cost (TC) perspective, (2) resource-based view (RBV), (3) sociological theories, (4) political-economic perspectives, and (5) agency theory (AT). First, a TC perspective assumes that that diversification was a strategic response to external market imperfections in emerging economies where there existed underdeveloped product/factors markets, weak contract enforcement mechanisms, strong interventions of governments on economic activities, and a lack of intermediates for resource exchange (Goto, 1982; Khanna & Palepu, 1997; Leff, 1978). Diversification enables firms to overcome these imperfections through affiliations in business groups where they share resources through intragroup exchange relations (Chang & Hong, 2000; Khanna & Rivkin, 2001). Second, RBV has assumed that resources are main determinants of diversification and group affiliated companies continue entering new markets/industries because they accumulate and/or develop excessive firm-specific capabilities that are not tradable beyond boundaries of groups (Guillen, 2000; Yiu et al., 2005). Third, sociologists have explained diversification from perspectives of social networks and argue that individual firms in different industries are bundled together into business groups by ties that are inherited from traditional practices, administrative relations, and/or social links. These relations enable group-affiliated companies to avoid the uncertainties and/or opportunistic behavior caused by change in external institutions or weak trust in a given society (Granovetter, 1994; Guthrie, 1997; Keister, 1998; Orrù, Biggart, & Hamilton, 1991). Fourth, A political-economic approach has noted the business groups can be used as organizational devices by governments to achieve political, social, and economic objectives, such as to lead a nation's economic development, to increase in local employment, and to take over a nation's strategic or pillar industries (Nolan, 2001). At the same time, as a political-economic approach argued, business groups can enjoy governmental supports by receiving favorable conditions, such as funds, capital, licenses for specific businesses, technology, land, and information (Guthrie, 1997; Nolan, 2001).

The above four perspectives assumed that diversification could be beneficial to affiliated companies, when intragroup resource sharing reduces transaction costs because of external market failure, or social links stabilize transaction efficiency among affiliated companies, or groups received governmental provisions of critical resources. In a contrast, AT examines business groups from a different focus by viewing them as the collection of agency relations between the controlling/dominant and minority shareholders. According to AT, the controlling shareholder could exercise effective control over minority shareholders through complex ownership arrangements and management appointment, to achieve their private benefits (Claessens, Djankov, Fan, & Lang, 1999; La Porta, Lopez-de-Silanes, & Shleifer,

1999a). Business group's unique ownership structure, such as a pyramiding ownership and/or cross-shareholdings, enables the dominant shareholder to expropriate the wealth from other investors or shareholders through diversification by investing in a small fraction of ownership in an affiliated company but controlling a large amount of assets (Chang, 2003a, b; Morck & Yeung, 2003). As a result, agency cost occurs, which destroys the value of diversified companies (Claessens et al., 1999; Lin & Servaes, 2002).

Empirical studies of business groups in emerging economies have shown mixed results. While some empirical studies supported the hypotheses that diversification gave rise to better performance of companies affiliated with business groups (Chang & Choi, 1988; Chang & Hong, 2000; Guillen, 2000; Kim, Hoskisson, Tihanyi, & Hong, 2004; Khanna & Palepu, 2000a, b), others identified a diversification discount when companies diversified through group affiliations (Claessens et al., 1999; La Porta et al., 1999a; Lin & Servaes, 2002). Comparative studies in emerging markets have noted inconclusive relationships between diversification and performance in business groups (Khanna & Rivkin, 2001; Lee et al., 2007; Lu, Bruton, & Lan, 2004).

Of studies of firm diversification in the PRC, a majority of studies focused on motivations or contextual factors that influenced diversification decisions (cf. Guthrie, 1997; Keister, 1998; Li, Li, & Tan, 1998). In generally, it was found that firms with state ownership were more likely to diversify than at of firms with other ownership types since the former enjoyed resource slacks provided by governments (Guthrie, 1997; Li et al., 1998). These studies also suggested diversification reduce the uncertainty caused by inefficiency of external markets or help firms build resources and capabilities as corporate core competencies (Keister, 1998). However, whether diversification contributed positively to firm performance was not conclusive. Recently, Li & Wong (2003) found a negative relationship between diversification and firm performance. They further noted that the performance of diversified firms was moderated by the effect of managerial competence.

The above discussions call attention to the two factors that might moderate the relationship of diversification and firm performance in Chinese business groups. The first refers to the state ownership. Firms with the dominant state ownership could enjoy government support and incentives, such as favorite conditions, monopolistic positions, or strategic resources, such as capital, business licenses, and information, which are critical to implement diversification strategies. For instance, Nolan's (2001) case studies vividly described how Chinese large business groups, as the national team members for the country's economic development, were backed up by governments in their foundation and development.

The other factor, which distinguish business groups from a single firm company, concerns the control mechanisms through which group managers were able to coordinate firms affiliated with a business group. This draws attention to multiple control mechanisms within the group organization, such as internal transaction of strategic resources and/or products, cross-shareholding and interlocking directorship, as well as administrative commands, to coordinate activities of affiliated companies (Chang & Hong, 2000; Leff, 1978; Lu & Yao, 2006). As a result, the relationship between diversification and performance is moderated by ownership structure and group control mechanisms.

The above review of respective theories and summary of previous studies has let us predict the moderating effect of ownership type and internal control mechanisms on the relationship between diversification and firm performance in business group organizations. We then develop an integrated model, as Figure 1 exhibits, from which a number of hypotheses are derived.

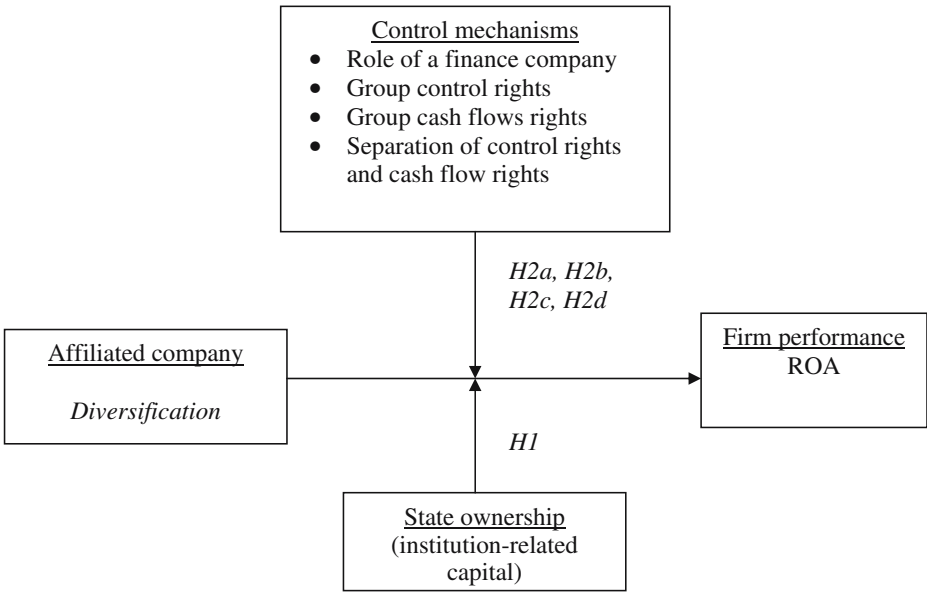

Figure 1 Integrated model of diversification, state ownership, control mechanisms and performance

The impact of state ownership on diversification and performance

There has been a debate on whether state ownership contributed to performance of group affiliated companies. Some found a negative impact of state ownership on firm performance in business groups due to the soft budget constraints and administrative intervention imposed by governments (Nolan, 2001; Yiu et al., 2005). Others found that managers in large business groups could enjoy more autonomy in their decision making in particularly when they diversified through group pyramid ownership structures because companies at the bottom of the pyramid structure were kept at an arm's length from the state or governmental control (Fan et al., 2005). Indeed, after over two decades of economic reforms since the early 1980s, autonomy of managers in SOEs was dramatically increased and one important change in management practices in SOEs was to introduce economic measures, such as profitability, to appraise firm performance (Li et al., 2006; Lu & Child, 1996). All these measures fostered decision making efficiency in state owned business groups.

On the other hand, large business groups, which were regarded as members of 'national teams' in national and local economic development in the PRC (Nolan, 2001), enjoyed governmental support and provision of strategic critical resources, such as the access to bank, loans, capital, opportunities of being listed in stock markets, land, business licenses, technology, and others, such as foreign trading, which still required governmental approval. As a result, affiliated companies with the dominant state ownership could build and develop slacks of resources and therefore became more diversified (Guthrie, 1997; Keister, 1998, 2000; Peng, 2002; Peng, Lee, & Wang, 2005; Tan & Peng, 2003). Furthermore, as Keister (1998, 2000, 2001) noted, affiliated companies in diversification

could enhance performance by cross-subsidization among others within the same group. We therefore develop the following hypothesis:

Hypothesis 1 The state ownership of affiliated companies has a positive contribution to the firm performance when they adopt higher degrees of diversification.

Impact of group control mechanisms on the performance of diversified affiliated companies

There are three main control mechanisms that have been commonly used in business groups (Chang, 2003b; Keister, 1998). The first concerns the foundation of a finance company that enhances the efficiency of allocating scarce capital and financing resources that are either absent or difficult to obtain from external finance markets. Literature has discussed in details about the role of a finance company in business groups (Goto, 1982; Keister, 1998). In general, a finance company in business groups takes responsibilities to manage cash flows among affiliated companies, to allocate or redistribute funds or financing resources for new projects or acquisitions, to restructure debts, and to arrange loans, credits, and stocks among affiliated companies themselves and between affiliated companies and external financial institutions, such as bank and investors. An introduction of a finance company could help a given business group reduce transaction costs of using financing resources and to allow managers to take advantages of information asymmetries for better investment opportunities both within and outside the group.

In the PRC, the state government in the mid 1990s introduced a policy to require all large business groups to establish a finance company. Keister (1998) examined the performance of Chinese business groups and found those with the establishment of a finance company achieved better performance. In particularly, the role of a finance company could become more important to highly diversified affiliated companies because their values are determined by economies of finance and/or successful restructuring of assets —both activities require a finance company to manage. We therefore have the following hypothesis:

Hypothesis 2a Companies affiliated with a business group having a finance company would achieve a better performance when adopting a higher degree of diversification strategy than those having no finance company.

The second control mechanism refers to a group's control of an affiliated company through its ownership structure in which a group's parent company acts as the group headquarters. This control is therefore determined by a parent company's ownership in a given affiliated company. When a parent company has the dominant ownership, it gains respective voting rights in the company's board and therefore could influence the latter's decision.

In business groups whose ownership is structured vertically in a pyramid, a parent company, as the dominant owner, could use this control rights to leverage a large amount of assets by investing in a small fraction of ownership in others to achieve its objectives or interest. This is achieved when a company uses deviations from one-share-one vote, pyramiding ownership structure, and cross-holdings as means to control a target firm. For instance, a parent company owns 11% of Company A's ownership. Then, Company A in turn owns 21% of Company B's ownership. This chain of ownership enables the parent company to control 11% of Company B.

Control rights can be an important consideration for diversification because it helps a parent company reduce the risks associated with specific investment projects. At the same time, through control rights a parent company could expropriate the value from other investors or tunnel corporate resources to subsidize other affiliates (Claessens et al., 1999). Empirical studies in Asian corporations suggested that higher control rights would cause a serious agency problem when diversification increases because a parent company, as the dominant owner, could extend its control to large number of companies (Claessens, Djankov, & Lang, 2000; Lin & Servaes, 2002). As a result, the agency cost may exceed the benefits of diversification and gives rise to a diversification discounted. We therefore develop the following hypothesis:

Hypothesis 2b Group control rights would have a negative impact on performance of an affiliated company when it adopts a higher degree of diversification.

The third control device deriving from a group's ownership structure concerns a parent company's control of cash flows for and from a specific affiliated company. This calls attention to the concept of cash flow rights. As we have exemplified in control rights above, in a group pyramiding ownership structure, a parent company, as the dominant owner, gains 2% of cash flow rights. How does cash flow rights influence a given owner's incentives to diversification and its efforts to enhance performance of the diversified company? Jensen & Meckling (1976) would suggest that cash flow rights increases an owner's incentives to pay out dividends since a given owner's private benefits, as a residual claimant, is determined by its cash flow rights (cf. Bethel & Liebeskind, 1998; Claessens et al., 2000; La Porta et al., 1999a). Accordingly, higher cash flow rights would make a given owner increase its commitment to enhance the performance rather than to expropriate the value. This is likely the case when the company adopts a lower level of diversification because it has the advantage of synergy through economies of scale and scope (cf. Lin & Servaes, 2002). We thus have the following hypothesis:

Hypothesis 2c Cash flow rights would have a positive impact on the performance of an affiliated company when it adopts a lower degree of diversification.

As we have discussed previously, according to AT, a group's pyramid structure raises potentially serious agency problems and increases agency cost that gives rise to diversification discount when the dominant owner expropriates the value from minority owners or tunnel corporate resources (Chang, 2003a; La Porta et al., 1999a). This agency problem occurs when ownership and control are separated from each other. Empirical evidence has noted that a higher level of separation of ownership and control, the more likely the dominant owner expropriates the wealth through a higher level of diversification (cf. Claessens et al., 2000). This is likely to occur when a level of diversification increases since a parent company could leverage more assets for its private benefits. As a result, the separation of ownership and control leads to a negative relationship to the performance of diversified companies (Lin & Servaes, 2002) The above arguments help us develop the following hypotheses:

Hypothesis 2d The separation of ownership and control leads to a lower performance of an affiliated company when it adopts a higher degree of diversification.

Methods

Sample

Our sample was selected from data of publicly traded companies that were affiliated with large business groups in mainland China in 2001. We selected public companies as samples because a majority of them were core companies associated with large business groups (cf. Nolan, 2001; Keister, 1998, 2000). After ten years of development, by the end of 2001 China's two security markets in Shenzhen and Shanghai had developed relatively effective external regulatory and monitoring mechanisms that enabled us to collect respective data from their annual reports, such as financial statements, organizational decisions, cross-shareholding and intrafirm transaction activities. Moreover, from 2000 the State Statistics Bureau began to publish annual reports of large business groups on China. We could identify affiliated companies from the Bureau's data. Finally, the year 2001 was critical to China's institutional change because it was the year when China admitted to the World Trade Organization (WTO). This incident indicated that the country had completed main tasks of transitions to a market-oriented economy.

We used three criteria to select whether a company was affiliated with a business group. Our first criterion came from *China's Annual Book of Large Enterprise Groups* published by the State Statistics Bureau which reported a total of 2,710 business groups registered at the central and provincial governments. According to the annual book, business groups on this short list should have over 500 million RMB (approx. US$ 60 million) total assets value and annual sales revenue of the core and other affiliated companies. Our second criterion was referred to the definition provided by the State Administration for Industry & Commerce that defined business groups should have at least five affiliated companies with assets over 100 million RMB (approx. US$ 12 million). The third criterion came from a sample company's list of top ten shareholders. We excluded those whose largest shareholder was not registered as a business group's parent company. Eventually, 628 companies were selected. We then drew their data of two years in 2001 and 2002 from their annual reports.

Measurements

Variables There are three sets of variables: the performance of a sampled company as the dependent variable; a set of independent variables, including diversification, state ownership structure, group control devices; and numerous control variables, such as age, size, leverage, growth opportunities, ownership concentration, and industry dummies.

Dependent variable

Performance Scholars have long recognized the multidimensional nature of the performance construct. In the present study, a firm's performance is measured by Return on Assets (ROA). Considering the time lag between diversification and performance, we use the average ROA of two years between 2001 and 2002 as the dependent variable.

Diversification In this study we define diversification as a number of industries where a company operates. There have been various measures of diversification, ranging from product counts or SIC based measures (Montgomery, 1982), categorical measures based upon specialization, vertical and horizontal ratios (Rumelt, 1974), entropy (Palepu, 1985),

and Herfindahl indices (Herfindahl, 1950), to categorical measures based upon entropy index (Hoskisson, Hitt, Johnson, & Moesel, 1993). These indicators have different strengths and weakness as the construct of diversification. We chose Palepu's entropy measurement of SIC-based measures as the indicator of diversification. Entropy measures were then calculated based on the 4-digit industries in which a sample organization operated, according to the following formula.

$$\mathrm{DT} = \sum_{i=1}^{N} P_i \ln\left(\frac{1}{P_i}\right),\ i = 1, 2, 3, \ldots, M$$

Where DT is the diversification index derived from entropy measures. P_i = a percentage of the revenue of Product i in the total sales revenue of a corporation.

To calculate DT, we first reviewed major product categories or business scopes that were reported in a sample's annual reports and financial statements. If the a sample reported to produce one or one family products or services, we then identify the product or service's 4-digit industry category and calculated its entropy index according to the above formula. Then, a sample's final entropy measurement is the sum of sales revenues from different industries. A sample with single or dominant businesses (a single product's revenue above 95% of total revenues) usually have zero or almost zero entropy value. Higher entropy value, the more diversified a company.

State ownership We used the percentage of state ownership as the measurement of state ownership.

Group control mechanisms (1) — Finance company We used a dummy variable to measure whether a group established a finance company: Yes = 1, No = 0.

Control mechanisms (2) — Group control rights A group's control rights refers to the weakest link in the chain of voting rights from a parent company to affiliated companies at the bottom of a pyramid (Claessens et al., 2000; La Porta et al., 1999a). Suppose, for example, that a parent company owns 11% of the stock of Company A, which in turn has 21% of the stock of Company B. Further assume that there are no deviations from one-share-one-vote or cross-holdings between companies A and B, or the product of the two ownership stakes along the chain. We would say that the parent company controls 11% of Company B.

Group control mechanisms (3) — Cash flow rights Similar to the concept of control rights, a group's control over cash flow is measured by cash flow rights held by its parent company (Claessens et al., 2000; La Porta et al., 1999a). This is the result of multiplying percentages of shares along a pyramid. For instance, if a parent company owns 11% of the stock of Company A, which in turn has 21% of the stock of Company B, we would say that the parent controls 2% (10% × 21%) of Company B.

Group control mechanisms (4) — Separation of ownership and control A group's separation of ownership and control is measured by its cash flow rights divided by control rights.

Control variables In addition to the key dependent and independent variables used to test hypotheses advanced in this study, we include several control variables. These controls are

Table 1 Means, standard deviations, and correlations of key variables ($N = 628$).

Variables	Means	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ROA	0.0432	0.0423	–												
2. Diversification	0.4922	0.410	−0.249**	–											
3. Group age	9.50	3.77	−0.149**	0.089*	–										
4. Ln (Employee)	7.38	1.189	0.098*	−0.063	−0.121**	–									
5. Ln (Assets)	21.09	0.864	0.135**	−0.048	−0.087*	0.487**	–								
6. Leverage	1.39	6.849	−0.007	−0.040	0.059	−0.005	−0.078	–							
7. Growth opportunities	6.80	140.2	0.016	0.017	−0.040	0.022	0.015	−0.013	–						
8. Percentage of state ownership	0.3132	0.2751	0.114**	−0.157**	−0.223**	0.190**	0.211**	−0.010	0.008	–					
9. Ownership concentration	0.6057	0.1505	0.163**	−0.151**	−0.299**	0.121**	0.132**	−0.071	0.023	0.340**	–				
10. Finance company 1= Yes, 0 = No	0.0860	0.2805	0.041	−0.039	0.021	0.143**	0.288**	−0.005	0.004	0.067	0.060	–			
11. Group control rights	0.3517	0.1962	0.046	−0.062	−0.094*	0.030	0.059	−0.003	−0.001	0.230**	0.401**	0.025	–		
12. Group cash flow rights	0.2261	0.1545	0.109**	−0.082*	−0.159**	0.040	0.029	−0.001	0.014	0.234**	0.393**	0.034	0.926**	–	
13. Separation index[1]	1.775	0.4968	−0.123**	0.072	0.159**	0.088*	0.210**	−0.016	−0.044	−0.085*	−0.153**	0.007	−0.262**	−0.428**	–

*Correlation at 0.05(2-tailed), **Correlation at 0.01(2-tailed).

Table 2 Results of hierarchical regression analyses for ROA, diversification, state ownership, and group control mechanisms[1] [2] [3].

	ROA						
	1	2	3	4	5	6	7
Constant	−0.099*	−0.101*	−0.102*	−0.095	−0.099*	−0.098*	−0.120*
	(0.051)	(0.050)	(0.051)	(0.050)	(0.050)	(0.051)	(0.053)
Control variables	−0.001	0.000	−0.001	−0.001	0.000	−0.001	0.000
Group age	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln (Employees)	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.000)
Ln (Assets)	0.008**	0.008**	0.008**	0.008**	0.008**	0.008**	0.008***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Ln (Leverage)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth opportunities	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ownership concentration	0.026*	0.026†	0.026†	0.023	0.025†	0.027*	0.026†
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Independent variables	−0.021***	−0.019***	−0.021***	−0.023***	−0.023***	−0.021***	−0.020***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Diversification (DT)							
Percentage of state ownership	−0.005	−0.003	−0.005	−0.005	−0.005	−0.005	−0.003
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Finance company	−0.004	−0.005	−0.004	−0.004	−0.004	−0.004	−0.004
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Group control rights	−0.055*	−0.055*	−0.056*	−0.058*	−0.061*	−0.058*	−0.059*
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Group cash flow rights	0.078**	0.077**	0.079**	0.083**	0.087**	0.081**	0.082**
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
Separation index	−0.005	−0.005	−0.005	−0.004	−0.004	−0.004	−0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Interactions							
Diversification × state ownership		0.005**					0.005**
		(0.002)					(0.002)
Diversification × finance company			0.001				0.001
			(0.002)				(0.002)
Diversification × group control rights				0.005*			0.001
				(0.002)			(0.006)
Diversification × group cash flow rights					0.005**		0.004
					(0.002)		(0.006)
Diversification × separation index						−0.001	0.001
						(0.002)	(0.002)
R^2	0.140	0.153	0.141	0.147	0.148	0.141	0.158
Adjusted R^2	0.098	0.110	0.097	0.103	0.104	0.097	0.109
F value	3.342***	3.559***	3.231***	3.387***	3.410***	3.227***	3.205***

[1] Numbers in parentheses are *std. error* values.

[2] Fifteen industry variables are omitted. These industries included industrial electronics, textile, construction materials, house appliances, paper making, pharmaceuticals, chemicals, automotive, metallurgical industry, other industrial manufacturing, electricity, trading, real estate properties, utilities, and conglomerates.

[3]† $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

critical for a properly specified model, and for rejecting alternative explanations of empirical results. First, we include *age* or number of years between a sampled affiliated company's foundation to year 2001. Then, we introduced firm *size* as a control variable that is measured by (1) log value of a total employment establishment and (2) log value of total assets in 2001. Third, we measured the average log value of leverage that has been defined as debt divided by equity, reflecting the influences from debt holders and shareholders on the performance impact (Barton & Gordon, 1988; Donaldson, 1961). Furthermore, we included the growth opportunity as a control variable, following Berger and Ofek (1995). Then, we included the ownership concentration (the percentage of the largest ten shareholder's shares in the total ownership) as a control variable. Finally, we introduced 15 main industry dummy variables.

The correlations matrix is presented in Table 1, which suggests that no critical multicollinearity problems for logistic regression analysis.

Results

The results of the analyses are exhibited in Table 2. Model 1 is our basic model to test the relationship between diversification and firm performance while Model 7 is the full model including all variables and interactions. Diversification was found to have a significantly negative impact on ROA ($p < 0.001$), although its coefficient remains small.

In order to examine the moderating effects of state ownership and control mechanisms on the performance of diversification, we created five interaction variables. The results provided in Model 3 and Model 6 suggested that two interaction variables, *diversification* × *finance company* and *diversification* × *group separation index*, were not significant. Thus, Hypotheses 2a and 2d were rejected.

The results of other models indicated that *diversification* × *state ownership* (Model 2), *diversification* × *group control rights* (Model 4), and *diversification* × *cash flow rights* (Model 5) had a significant impact on the dependent variable (ROA). Our full model (Model 7) shows a relatively significant positive relationship between the interaction of diversification and state ownership and firm performance. However, group control rights had a negative relationship to ROA while cash flow rights had a positive relationship to ROA, both receiving some statistical supports. To understand these results in further details, we plotted the interactions of the three models in Figures 2, 3, and 4.

Figure 2 shows that the state ownership has a positive impact on affiliated companies when their diversification increases. Thus, *Hypothesis 1* receives a support.

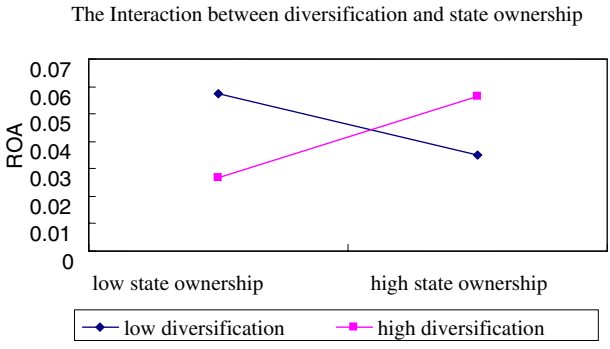

Figure 2 Interaction between diversification and state ownership

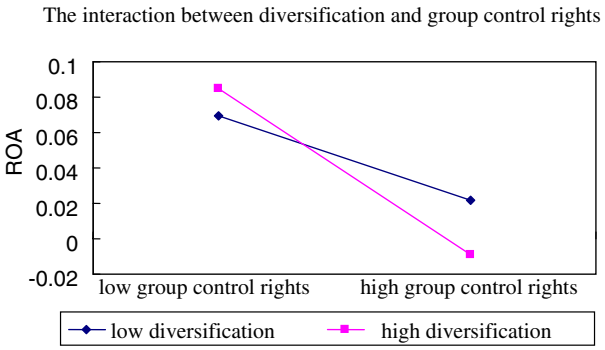

Figure 3 Interaction between diversification and group control rights

Figure 3 indicates that performance in both lower and high diversification companies decline but the slope of ROA in companies have higher degrees of diversification was steeper than those with lower degrees of diversification. This suggests that higher control rights is more likely to destroy the value of an affiliated company when the latter adopts a higher degree of diversification. However, the coefficient received relatively weak statistical support ($p < 0.05$). Therefore, *Hypothesis 2b* is only partially supported.

Figure 4 shows that cash flow rights had a positive impact on the performance of an affiliated company. Its interaction with diversification indicated an increase in cash flow rights could improve the performance of lower diversified companies but there has been almost no effect on companies adopting higher degrees of diversification. Its coefficient has strong statistical significance ($p < 0.01$). Therefore, *Hypothesis 2c* is supported.

Discussion

Contributions

The present study examines the impacts of state ownership and group control mechanisms on the performance of diversified companies associated with business groups. The results supported some hypotheses but rejected others. Four contributions emerge. First, our regression analysis has shown a negative relationship between diversification and performance. As our literature review has noted, there has been mixed results of empirical studies on whether diversification contributes to firm performance in business groups. Our

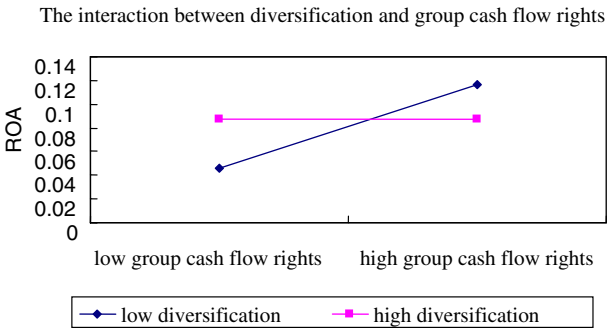

Figure 4 Interaction between diversification and group cash flow rights

finding is consistent with previous studies of Li and Wong (2003) and Kim et al. (2004) but not with others in China (cf. Li, Li, & Tan, 1998) and in other emerging economies (Chang & Choi, 1988; Khanna & Palepu, 2000a, b). As indicated in Model 1, the coefficient of diversification was small. This result suggests a slow decline of performance when diversification increased. The differences between ours and those supporting a positive relationship between diversification and performance might be caused by different samples. Diversification could be beneficial during an earlier stage of group foundations in the early and mid 1990s when a market economic institution was built in the PRC. With a progress of China's transition to a market economy, market competition became keen and external financial markets, such as stock markets, developed although they were not perfect. As a result, advantages of diversification through group affiliations were diminished. Therefore, our findings are consistent with Li and Wong's (2003) study that was conducted in a later stage of China's transitions and with Lee, Peng, and Lee's (2007) work that focused on South Korea's transitions.

Second, our research proved that government supports remained critical to development of business groups. The result shows that government supports enhanced the performance of affiliated companies with higher degrees of diversification. To explain why state owned business groups were likely to achieve better performance, Ma, Yao, and Xi (2006) argued, from property rights theory, that this was because groups substitute for ownership voids and set more effective control mechanisms over companies. Our finding further advanced our understanding of how state ownership moderates the performance of different diversification strategies. Governmental support, according to Peng, Lee, and Wang (2005) and Peng (2002), may offer business groups advantages of institutional relatedness capital. Such capital is characterized as a lower degree of assets-specificity, which motivates companies to conduct higher degrees of diversification. As a result, they are more likely to enhance the performance of highly diversified group affiliations.

Third, our study confirmed that group control rights through pyramid ownership structures was likely leading to a diversification discount when companies chose higher degrees of diversification. This finding is consistent with those in other Asian corporations (Claessens et al., 2000; La Porta et al., 1999a; Lin & Servaes, 2002). For instance, Lin and Servaes (2002) found that a diversification discount occurs more likely when control becomes relatively concentrated. In this scenario, a parent company in Chinese business groups as an insider owner (cf. Chang, 2003a) would run affiliated companies by diversifying in industries to suit its own interests.

Fourth, our findings identified a positive impact of cash flow rights on the performance of the companies with lower degrees of diversification while such impact was stable for higher degrees of diversification. This result is consistent with La Porta, Lopez-de-Silanes, and Shleifer (1999b). This finding suggests that cash flow rights motivate a parent company to improve the performance of a concentrate or related diversification that has more means to create value, such as development of the synergy through coordination of others by allocating critical resources and appointment of capable managers in given companies.

Our findings indicate that the state ownership adds to the unique feature of Chinese business groups in a comparison to the counterparts in other countries where family and private ownership has dominated business organizations. In business groups where family or private ownership controls, the dominant family owner and management could be highly integrated when family members were assigned to take over strategic positions in the management team (Chang, 2003a). In stateowned business groups, this is less likely to be achieved because the state has to delegate decision power to a parent company to

coordinates and administers affiliated companies. Thus, an agency relationship exists between the state owner and management of a given business group, in addition to that between shareholders. Since the government in the PRC currently remains powerful in control of critical resources, business groups with the dominant state ownership therefore enjoy institution-related capital as resource slacks. However, we suspect, based upon our finding, that group management might take this advantage to subsidize their favorite investment projects, as Hoskisson and Hitt (1990) noted that managers are motivated to diversify because of their desire for increased compensation and reduction of managerial risks.

The influence of state ownership in large business groups may maintain market imperfections. Although governmental supports to business groups might make a contribution to their performance, we argue that for a long run this could jeopardize China's efforts to perfect the overall market institutions because close links between large business groups and governments can probably produce the crony socialism — the large amount of assets are controlled in hands of a small number of powerful government agencies that take beneficial advantages but have little accountability for risks and cost for wrong decisions. Moreover, governmental favorite conditions for state owned groups would make non-state owned firms in a vulnerable position in market competition particularly when critical resources for firm strategic management are controlled by government agencies.

Implications for future research and practice

Our research findings have implications for future research on the relationship between diversification and performance in business groups. Since the performance of diversified companies affiliated with business groups is complicated by the ownership structure and group control mechanisms, there is a need of comparisons of performance of group affiliated companies to independent firms and identify whether a diversification discount exists in business groups. There is also a need of further examinations of the relationship of ownership structure to the performance in business groups with different dominant owners, such as private, foreign, and family. Moreover, we need further investigations on multiple control mechanisms, including internal markets and interlocking directorship, and their influences in the performance of group-affiliated companies. Finally, a comparative study of Chinese business groups to those in other countries should be introduced, which helps us understand the role of business groups in different stages of national economic development (Lee et al., 2007; Peng & Zhou, 2005).

Our research findings also have implications for managers and policy makers in practices. Experiences from South Korea noted that with economic liberalization and diminution of governmental supports business groups were restructured by more focusing on core businesses (Kim et al., 2004; Lee et al., 2007). Considering China's transition to a market economy, we suggest managers restructure scopes of their businesses by focusing on core businesses but spin-off unrelated businesses. An alternative is to translate control rights into full cash flow rights by reducing layers of ownership pyramids. This would motivate the dominant owner to make commitment to enhance performance of an affiliated company. To policy makers, our study suggests that they seriously consider investor protection, particularly minority shareholders' interests (cf. La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). This requires to improve respective legal systems and external monitoring and control mechanisms over public corporations that are associated with business groups. In particularly in the PRC, since policy makers are government agencies

while a majority of large business groups are owned by the state, how to avoid conflicts of interests for governments deserves particular attention. We then suggest disperse or reduce state ownership by transferring it to number of institutional investors.

Nonetheless, this study has a number of limitations. First, we need a better and more integrated theoretical model to understand the configuration of diversification, ownership structure, group control mechanisms, and performance. For instance this study did not test the impact of infragroup transactions on the performance, which, according to RVB, is an important group control device to enhance diversification performance. Second, we need a longitudinal comparison of the proposed relations over a period, which could help us understand how changes in institutional environments influence group strategic management and performance. Third, samples should be extended by including non-public companies that are affiliated with business groups because their data should provide us an indepth insight into management practices of affiliated companies and their relations to the dominant owner as well as to others. Last but not least, we have not considered geographic/international expansion, which is likely to be a cutting edge topic both in practice and research concerning Chinese business groups (Delios & Beamish, 1999; Lu & Yao, 2006).

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