

# Coinsurance Within Business Groups: Evidence from Related Party Transactions in an Emerging Market

Nan Jia

Department of Management and Organization, Marshall School of Business, University of Southern California,  
Los Angeles, California 90089, nan.jia@marshall.usc.edu

Jing Shi

International Institute for Financial Studies, Jiangxi University of Finance and Economics, 330013 Jiangxi,  
People's Republic of China; and Research School of Finance, Actuarial Studies and Applied Statistics,  
Australian National University, Canberra ACT 0200, Australia, jing.shi@anu.edu.au

Yongxiang Wang

Department of Finance and Business Economics, Marshall School of Business, University of Southern California,  
Los Angeles, California 90089, yongxiaw@marshall.usc.edu

Using novel transaction-level data on Chinese business groups, this study provides the first direct evidence of the coinsurance theory of business groups by investigating when different types of internal resources are transferred within a business group. We find that in Chinese business groups, a credit crunch experienced by the controlling shareholding firm (the “controller”) of a publicly listed firm increases the loan-based related party transactions (RPTs) including loan guarantees and intercorporate loans provided by the listed firm to the controller. In turn, when the listed firm’s performance dips, the controller and its son firms provide more support to the listed firm in the form of non-loan-based RPTs. These findings directly show the dynamic interactions of members within business groups.

*Key words:* organizational studies; strategy; industrial organization; firm objectives; organization and behavior

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## 1. Introduction

Business groups consist of legally independent firms bound together by formal and/or informal ties and are widespread in the world, especially in emerging economies (for an overview of the global prevalence of business groups, see Khanna and Yafeh 2007). However, researchers hold a wide range of views on the nature of business groups in explaining why they exist. A predominant view in finance draws on the agency theory and asserts a “tunneling” role of business groups, as many corporate governance scholars have blamed business groups for allowing resources to be transferred to controlling shareholders and minority shareholders to be expropriated (e.g., Johnson et al. 2000, Bertrand et al. 2002, Bae et al. 2002, Morck and Nakamura 2005, Morck et al. 2005, Jiang et al. 2010). In contrast, many economics and management scholars have adopted a more positive view of business groups. Drawing on the internal market theory and the institutional void theory, these scholars have lauded business groups for helping firms to overcome market failures, especially in economically and institutionally underdeveloped emerging markets (e.g., Khanna and Palepu 2000a, b;

Keister 1998, 2001; Chang and Hong 2000, 2002; Khanna and Rivkin 2001; Mahmood and Mitchell 2004; Gopalan et al. 2007; Belenzon and Berkovitz 2010; Jian and Wong 2010). Researchers of organization theory have also provided explanations based on theories of social networks, the resource-based view, and isomorphism (e.g., Granovetter 1994, 1995, 2005; Keister 1998; Guillén 2000, 2001, 2002; Chung 2000). However, an emerging strand of research argues that a theoretical focus on either the “tunneling” function or the “propping up” function alone may be too narrow to sufficiently capture the full complexity of business groups’ operations<sup>1</sup> and has theorized a “coinsurance” effect of business groups (e.g., Lincoln et al. 1996, Khanna and Yafeh 2005, Fisman and Wang 2010). Our study aims to advance the existing knowledge of the coinsurance theory.

What is the definition of coinsurance? According to the *Oxford Dictionary*, insurance “provid[es]

<sup>1</sup> We use double quotations for “propping up” and “tunneling” throughout this paper because we do not believe that either term provides an accurate description of how business groups function in many emerging economies, including our research context (China).

protection against a possible eventuality.<sup>2</sup> Consistent with Khanna and Yafeh (2005) and Fisman and Wang (2010), a business group member will receive support from the parent firm *in the event that the member encounters difficulties* in its business operations; *in return*, the member will contribute to the parent firm *in the event that the parent firm suffers from financial distress*. The coinsurance theory of business groups is distinctive from both the “tunneling” theory and the “propping up” theory in two main respects. First, for coinsurance to exist, the parent firm must *neither* perpetually “tunnel” resources out of one member *nor* perpetually “prop up” another such that resources can flow both into and out of a member firm. Second, the timing of resource flows due to coinsurance is *not random*; rather, resources are more likely to be transferred into a member firm when the member firm experiences difficulties in its business operations. The coinsurance theory provides a more holistic assessment of business groups (Fisman and Wang 2010).

We take advantage of a unique research setting—business groups in China—to provide direct evidence of coinsurance relationships within business groups. A typical business group in China comprises the parent firm (i.e., the controller), the listed firm held by the controller, and many other (predominantly private) son firms controlled by the same controller. The controller is the largest shareholder and exercises considerable control over the listed firm’s strategies and operations through its power to appoint board members, even if it has less than a majority stake. The mandatory disclosure of internal transactions, which are called connected transactions or related party transactions (RPTs), between a publicly listed firm and all the other members of its affiliated business group (including its controller and the other son firms controlled by this controller) enables us to directly examine the specific favors exchanged within business groups. Moreover, by law, publicly listed firms in China are also required to disclose loan-based RPTs separately from non-loan-based RPTs. These disclosures allow us to investigate the different types of internal resource flows within a business group. Another key challenge is to identify negative performance shocks at the firm level, such as the credit crunches experienced by the listed firm’s controller, which is usually a private firm whose financial information is not publicly available. We are able to use a novel indicator made available by the regulation that all listed firms in China are required to disclose whether their controlling firms collateralize their controlling stakes. A controlling firm that has collateralized its controlling stakes in a listed firm is

widely viewed by the market as experiencing significant financial distress and taking such action as a last resort to obtain funds (e.g., Zheng 2011, Li 2006, Lu 2008, Hu 2008, among many other financial newspaper articles). This information provides an effective indicator of the credit crunches experienced by controlling firms. On the other hand, a listed firm experiences adverse performance shocks if its performance is negative for two consecutive periods, as this performance makes the listed firm a “special treatment” (ST) firm and may cause the firm to be delisted from the Chinese stock market according to regulatory rules. We provide more details of the context later.

By analyzing RPTs of all publicly listed firms during the period from 1998–2008, we find that among Chinese business groups, when the controller experiences a credit crunch, the listed firm, which has easier access to external finance, will transfer more funds to the controller via loan-based RPTs. In return, when the listed firm faces performance challenges, it will receive more support from the controller and its other son firms held by the controller in the form of non-loan-based RPTs, which help the listed firm improve its performance. These findings contribute to the existing literature of coinsurance by providing *direct evidence* of the coinsurance mechanism, by explicating *how* coinsurance takes place in terms of different types of resource flows, and by showing *when* coinsurance takes place, as discussed in detail below.

First, this study provides a more direct test of the coinsurance relationship than the existing studies, which mainly *infer* coinsurance relationships from performance measures. The predominant approach in the literature is to study the overall performance impact of business groups, such as the volatility of firms’ profitability and growth, based on which researchers draw inferences of the coinsurance theory (e.g., Khanna and Yafeh 2005). However, direct investigations of the specific theoretical mechanisms that drive the costs and benefits of group affiliations are scant, as appropriate research settings and data that allow for such investigations are difficult to find (Khanna and Yafeh 2007). Fisman and Wang (2010) recently examined publicly listed firms in China and found that internal loan-based transactions have a negative effect on listed firms’ overall performance, whereas non-loan-based transactions have a positive effect. Based on these findings, Fisman and Wang (2010) made the inference that the listed firms and their controllers trade favors in a coinsurance relationship, but they did not provide direct evidence of such a coinsurance relationship. We extend the approach of Fisman and Wang (2010) not only by confirming the overall firm performance effects but also by directly showing that the favors are traded at the

<sup>2</sup> <http://oxforddictionaries.com/definition/english/insurance?q=insurance> (accessed February 27, 2013).

times when respective parties experience financial difficulties. This approach takes us closer to the heart of the coinsurance thesis.

Similarly, our findings that the listed firms and the controllers support each other through different types of resource transfers (providing funds or trading goods or services at favorable terms) contribute to the understanding of *how* coinsurance functions in business groups, as few researchers have examined the specific strategies of business group affiliates (Carney et al. 2011).

Finally, we highlight the timing of the exchange of favors by considering the effect of firm-specific negative shocks, an essential component of the coinsurance theory, because the theory predicts that internal resource transfers are more likely to occur when the group members face financial challenges rather than randomly or constantly. This approach bears critical importance from both the theoretical and empirical standpoints. Theoretically, although prior studies have established that business groups transfer resources to and from their members, they have provided very limited discussion of *when* such transfers should occur. Empirically, tests of this timing issue have focused on macrolevel shocks, such as the major policy changes in a country (e.g., Ghemawat and Khanna 1998, Khanna and Palepu 1999) or industries' performance shocks (e.g., Bertrand et al. 2002). However, relying on macrolevel shocks is shown to be highly problematic and to have generated inaccurate explanations (Siegel and Choudhury 2012). To alleviate these concerns, this paper uses individual firm-level negative shocks to overcome this econometric identification challenge.

In addition to providing direct evidence of the coinsurance theory, we also conduct a series of supplementary analyses, to study the implications that coinsurance relationships in business groups have for public policies, corporate governance, and the development of the institutional environment. The findings of the supplementary analyses are consistent with the coinsurance theory, and offer suggestive evidence that neither the "tunneling" story nor the "propping up" story alone accurately captures the relationships among members of the same business group.

Section 2 discusses the theoretical foundations of the coinsurance theory. Section 3 presents the data and describes the empirical strategy. Section 4 presents and discusses the empirical analysis of testing the coinsurance hypothesis as well as a series of supplementary analyses. Section 5 concludes.

## 2. Theoretical Background

Researchers have developed several theories to explain why business groups exist. The existing work

on business groups in emerging markets has largely characterized business groups either as "parasites," which expropriate minority shareholders to enrich controlling shareholders, or as "paragons," which facilitate firms' transactions and operations in difficult economic and institutional conditions (for reviews, see Khanna and Yafeh 2007, Carney et al. 2011).

Drawing on the agency theory, many scholars in corporate finance maintain that the structure of business groups enables the controlling shareholders—usually the parent firm of group-affiliated firms—to extract wealth from the group-affiliated firms in which the parents have low cash flow rights (e.g., Johnson et al. 2000, Bertrand et al. 2002, Bae et al. 2002, Morck and Nakamura 2005, Morck et al. 2005, Jiang et al. 2010). Because higher equity stakes and control rights generate more freedom to allocate resources (Stulz 1988), the business group as an organizational form facilitates the transfer of assets and profits from group-affiliated firms to benefit the controlling shareholders. This process is dubbed "tunneling" by Johnson et al. (2000). Consistent with the tunneling theory, empirical evidence suggests that group affiliations lower the performance of firms whose controlling shareholders have lower stakes, but increase the value of the controlling shareholders themselves and firms whose controller shareholders have higher stakes (e.g., Bertrand et al. 2002; Bae et al. 2002, 2006). "Tunneling" may occur in many specific forms. For example, the controlling firm may use internal financial transfers, such as intercorporate loans, to siphon funds from publicly listed group-affiliated firms (Jiang et al. 2010). Countries with weak investor protection, such as ineffective enforcement against the expropriation of minority shareholders, are especially vulnerable to "tunneling" (e.g., Morck et al. 2005, Jiang et al. 2010).

Meanwhile, based on the internal market theory (Leff 1976, 1978) and the institutional void theory (Khanna and Palepu 1999, 2000a, b), researchers in economics and management literature have argued that business groups enhance firm value, because they provide efficient groupwide internal labor and capital markets, serve as intermediaries to enhance information flow, and facilitate coordination among group members, all of which create value for group-affiliated firms (e.g., Khanna and Palepu 2000a, b; Khanna and Rivkin 2001; Chang and Hong 2000, 2002; Keister 1998, 2001; Mahmood and Mitchell 2004; Gopalan et al. 2007; Belenzon and Berkovitz 2010; Jian and Wong 2010). As underdeveloped market institutions generate market failures because of information asymmetry, weak contracting institutions, and thin external markets for essential resources such as capital and labor (Khanna and Palepu 2000a, b; Khanna and Rivkin 2001), business groups exist to fill the

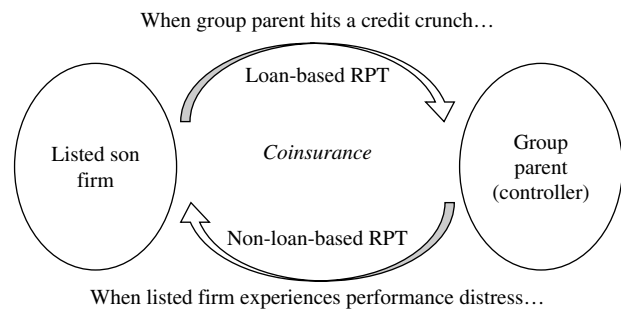
“voids left by the missing institutions that normally underpin the efficient functioning of product, capital and labor markets” (Khanna and Rivkin 2001, pp. 46–47). For example, listed firms may receive support through abnormal related sales to their controlling owners and thereby generate “propped up” earnings (Jian and Wong 2010).

However, a theoretical perspective on a pure “tunneling” effect or a pure “propping up” effect alone faces inherent challenges. For example, if business groups existed solely to help the controllers to steal wealth from minority shareholders, it would be difficult to explain why minority shareholders still invest in group-affiliated firms in emerging economies, often at premium prices rather than discounts (e.g., Fauver et al. 2003, Claessens et al. 2003, Khanna and Palepu 2000b, Ferris et al. 2003). In addition, the literature of the “propping up” perspective found business groups to enhance firm value at the developing stage of many countries, some of which, paradoxically, are the very contexts where the “tunneling” literature found business group affiliations to be associated with the reduction of firm value or the extraction of economic resources. Therefore, a more holistic assessment of business groups is strongly needed to better understand the nature of this organizational form (Fisman and Wang 2010).

The coinsurance perspective of business groups draws on both strands of research as essential blocks of the theoretical foundations and holds that a business group extracts resources from its member firms when it experiences difficulties and that at other times, the business group aids the member firms that are facing challenges. Fisman and Wang (2010) showed that both “tunneling” and “propping up” effects exist in Chinese business groups and suggested that a coinsurance relationship exists. Khanna and Yafeh (2005) found that business group members shared the risks experienced by individual members and showed that the operating profitability levels of group-affiliated firms are less volatile than those of unaffiliated firms in some countries such as South Korea. Lincoln et al. (1996) found that business group affiliations help to reduce the bankruptcy risks for member firms such that the performance of group-affiliated firms experiences less volatility than that of independent firms in Japan.

In this study, we focus on the coinsurance theory and investigate one specific mechanism through which coinsurance occurs. When the controlling parent firm hits a credit crunch, it tends to transfer financial resources from the group-affiliated publicly listed firms by means of internal loans, because listed firms often have better access to external financing. In return, the controlling firm channels non-loan-based resources into the listed firm when the latter needs

Figure 1 Intragroup Transfers of Favors



to improve its performance, as the listed firm may be under greater pressure from the stock market to maintain good financial performance. Figure 1 summarizes the intragroup transfers of favors.

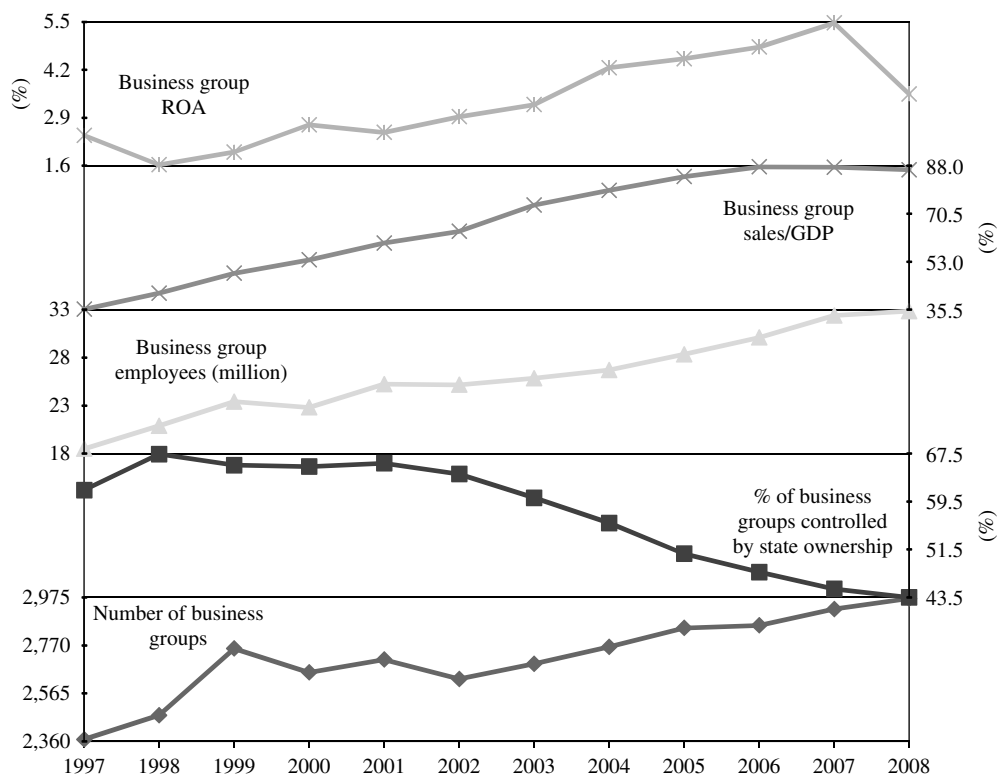
Finally, we acknowledge that researchers have also provided other perspectives on why business groups exist. The perspective of “pyramiding” argued that business groups design pyramidal structures to leverage internal capital to help raise external funding for the purpose of supporting high-risk, capital-intensive new firms or projects (e.g., Almeida and Wolfenzon 2006, Masulis et al. 2011). This theoretical perspective may be connected to the coinsurance theory in that both theories discuss how the internally transferred economic resources are utilized. Whereas the coinsurance theory focuses on how the internal transfers occur to aid member firms that experience financial difficulties, the pyramiding theory emphasizes using these resources for new member firms or new projects. Therefore, these two theoretical perspectives have the potential to be combined with each other, to further expand our understanding of internal transfers. Researchers of organization theory have also provided various explanations of the formation and prevalence of business groups (for brief reviews, see Granovetter 2005) based on theories of social networks (e.g., Granovetter 1994, 1995), the resource-based view (e.g., Guillén 2000, 2002), cross-country isomorphism (e.g., Granovetter 2005), and national policy effects (e.g., Keister 1998, Guillén 2001, Chung 2000). Although we do not focus on them within the limit of this paper, the social forces driving business group behaviors that are highlighted by these theoretical perspectives would complement the economic forces of coinsurance, to generate a richer account of how business groups function.

### 3. Data and Empirical Strategy

#### 3.1. Research Context

In China’s market transition, a primary policy available to the Chinese government to engineer growth is to encourage the formation of business groups (*qiye jituan*) through the restructuring of many state-owned

Figure 2 Business Groups in China: Numbers, Ownerships, Size, Economic Significance, and Performance



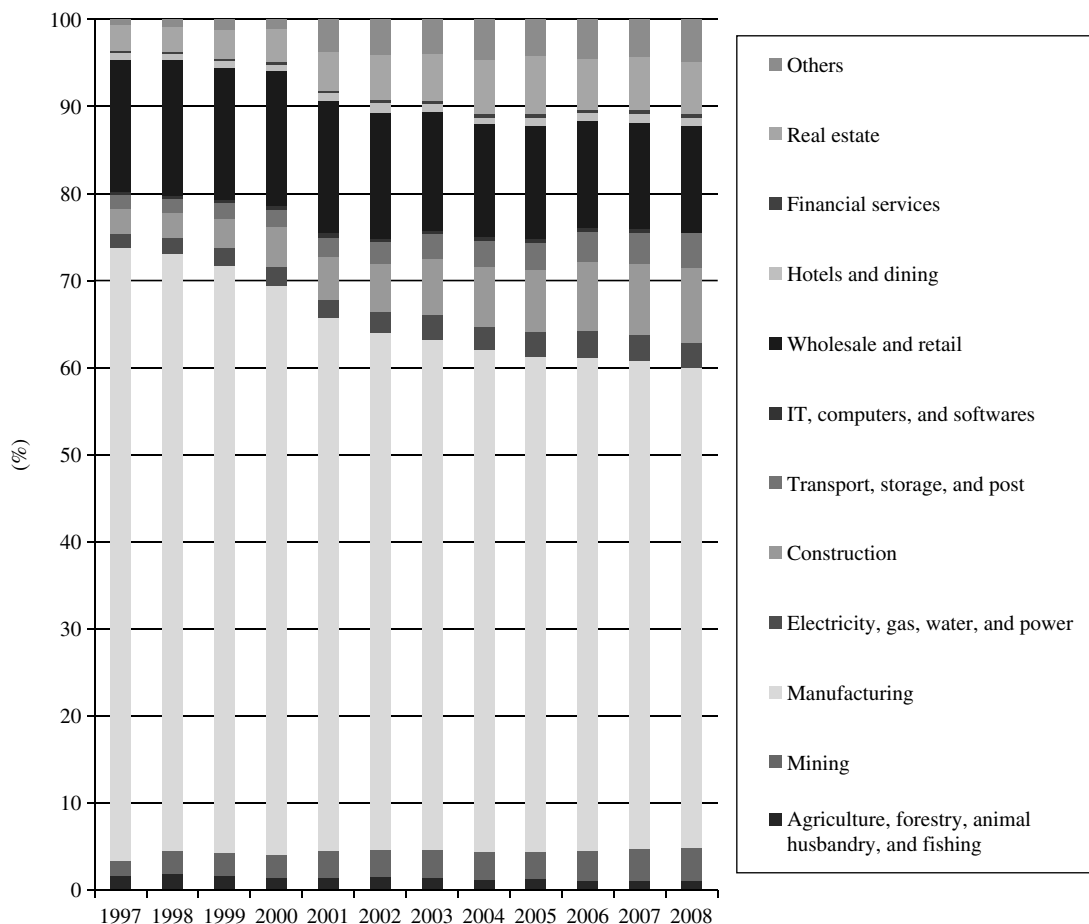
Source. China Statistics Bureau (2008).

firms (Keister 1998, White et al. 2008). Privately owned firms have also followed this path to form business groups (Carney et al. 2009). Business groups constitute a critical component of the Chinese economy. Figure 2 illustrates the economic significance of this organizational form. From 1997 to 2008, the total number of business groups grew from 2,369 to 2,971. These groups played an increasingly important role in China's economy; for example, the number of employees hired by business groups grew from 18.50 million to 32.85 million, and total sales of business groups as a percentage of China's GDP rose from 35.72% to 86.57%. The performance of business groups as measured by return on assets (ROA) grew substantially over this period, increasing from 1.63% to 5.48%. Although most business groups were controlled by state-owned enterprises, the percentage decreased over the years from 67.44% to 43.52%. Figure 3 shows the industry composition of all business groups from 1997 to 2008. A diversified business group participates in multiple industries, and the industry in which it generates the highest sales compared with all of the other industries that it has a presence in is called the primary industry for this business group. Figure 3 reports for each industry the percentage of business groups that take the industry as their primary industry. The data show that Chinese business groups generated most of their sales in the

manufacturing sector, followed by the wholesale and retail sector.

The emergence of business groups also played an important role in the formation of the Chinese stock market, as business groups were encouraged to restructure and publically list their strongest son firms; as a result, all Chinese listed firms are affiliated with a business group (Jiang et al. 2010). The majority of business groups control only a single listed firm. For example, in 2008, only 63 of 1,637 listed firms (3.8%) shared common controllers. In addition, China's regulators have discouraged controllers from controlling more than one listed firm and promoted the merger of multiple listed firms controlled by the same controller into a single listed firm (*Zhengti Shangshi*) out of concerns over earnings management (e.g., Xiao 2011). For example, China Petroleum and Chemical Corporation used to control four listed firms, all of which were merged into one firm by 2007.

Internal transactions among member firms of the same business group are common in China (e.g., Keister 1998, 2001). After a member firm becomes publicly listed, most internal transactions in which it is engaged continue. These transactions are regarded as RPTs by the China Securities Regulatory Committee (or CSRC, the counterpart of the Securities and Exchange Commission in China). The CSRC defines

**Figure 3 Business Groups in China: Industry Composition (Percentage of the Business Groups with the Industry as Their Primary Industry)**

Source: China Statistics Bureau (2008).

firm A as firm B's related party if any of the following conditions are true: (i) either A controls B or B controls A, or both are controlled by the same controller (defined below); (ii) B cannot control A because B is not a controlling firm, but B holds 20%–50% stakes in firm A; or (iii) firm A's senior managers, firm A's main shareholder, or any of their family members is the main shareholder of firm B. The related parties involved in RPTs are most commonly controlled by the controllers. The "controller" of a Chinese listed firm is the largest shareholder of the firm, and through its power to appoint board members, the controller exercises considerable control over the firm's strategies and operations, even if it has less than a majority stake.

The CSRC mandates that all publicly listed firms disclose their RPTs and report their loan-based RPTs separately from their non-loan-based RPTs. Loan-based RPTs refer to intercorporate lending and loan guarantees. Because the listed firm is typically the strongest firm in the business group and has the most transparent financial statements due to disclosure requirements, it commonly acts as a guarantor

of loans to the other group members and assumes the liability of repaying the loans in case of default (Deng 2004, Jiang et al. 2010, Fisman and Wang 2010). For example, by 2011, 36% of all firms listed in the China's stock exchanges provided loan guarantees for other firms in the same business groups, and the total value of loan guarantees exceeded RMB 122.43 billion (approximately USD 19.36 billion) (Han 2011). For instance, Zhejiang Hengyi Group Co. Ltd. (stock code 000703) provided loan guarantees totaling RMB 1.49 billion in 2011, the highest value among all listed firms that acted as loan guarantors that year, which amounted to 23.83% of Hengyi's net assets. These loans were intended to increase the liquidity of two sibling firms (Hong Kong Tianyi Co. and Hengyi Caprolactam Co.), which were also controlled by Hengyi's controller (Han 2011). If borrowing firms default, listed firms acting as guarantors repay the banks and convert the loan guarantees into intercorporate lending, which constituted heavy financial burdens on some listed firms and even caused several listed firms to be delisted from stock exchanges (Deng 2004, Jiang et al. 2010).

Non-loan-based RPTs include the internal purchases and sales of goods or assets, leases, and the formation of new joint venture firms. In non-loan-based RPTs, products and services may flow in either direction—listed firms can purchase from and/or sell to other members of the same business group; in either case, non-loan-based RPTs often involve favorable pricing terms or low transaction costs and are used to help listed firms improve their performance (Fisman and Wang 2010, Jian and Wong 2010, Jiang et al. 2010). In addition to the empirical evidence that non-loan RPTs enhance listed firms' value (presented in the next section), a few examples may also shed light on how either internal purchases or internal sales may benefit listed firms. For example, it was reported that by 2000, Hubei Yihua Chemical Industry Co. Ltd. (stock code 000422) sold almost all of its urea products to trading firms owned by the same controller at a price of RMB 1,785 per ton when the concurrent market price for urea products was only approximately RMB 1,200 per ton. It has been estimated that the price premium of these RPTs generated a net profit of RMB 72.15 million for Yihua, 75% of Yihua's total net profit in 1998 alone. The sales price premium conferred by these RPTs is viewed as a means for the controller to transfer profit to the listed firm (Nan and Xu 2000). Non-loan RPTs may also occur between a listed firm and its upstream suppliers. For example, two of the top five suppliers for Huangzhou CNCR Information Technology Co. Ltd. (stock code 300250) were also controlled by CNCR's controller. To one of the two suppliers, Hangzhou Shichen Machinery Manufacturing Co., in 2008 and 2009, the profit-to-cost ratio of the RPTs with CNCR was only 15%, whereas the profit-to-cost ratio of the transactions with unrelated parties was 19%. The input price discounts in these RPTs were regarded as a means through which the controller managed the earnings of the listed firm (Li 2011).

Important as it is to understand the parties involved in RPTs, it is difficult to obtain such information, because most controllers are private firms and provide limited information to the public. However, we are able to take advantage of a regulatory requirement to generate a unique measure to proxy for financial difficulties experienced by the controllers. Because of government regulations, controllers cannot trade their stakes in the listed firms before 2005,<sup>3</sup> but they can collateralize their controlling stakes to

obtain bank loans. Regulations mandate that all listed firms disclose any collateralization of the controlling stakes. Collateralizing the controlling stakes in a listed firm is widely regarded by practitioners as the last resort for those seeking external funding and as a clear sign that the controlling firm is experiencing a credit crunch (e.g., Li 2006, Lu 2008, Hu 2008, Zheng 2011, Zhang 2012, among other financial newspaper articles, and based on the authors' interviews with firm managers, investment bankers, and stock analysts) for the following two reasons.

First, the controller incurs the risk of losing its control over the listed firm in case of a default, which would be a substantial loss for the entire business group. Moreover, because the value of nontradable controlling shares is more difficult to assess and is associated with higher volatility, banks tend to be reluctant to accept nontradable controlling shares as collateral, and thus typically assess the value of the controlling shares with a much deeper discount than they do other types of collateral such as real estate. In 2011, for example, nontradable shares are typically discounted by 70% to 80% in the collateral market; that is, they secure loans that are only 20% to 30% of the stock value (see, e.g., Tang 2012 and an editorial special report from *Securities Daily* 2001). Because collateralizing the controlling stakes in a listed firm is substantially more costly and riskier than many other alternative ways of obtaining funding, it is a last resort for many controllers to obtain cash and sends a strong signal that the controller is credit constrained.

One may wonder whether a controller not experiencing credit crisis may also collateralize its controlling stakes, for example, to fund investment opportunities that are sufficiently attractive to justify the steep prices demanded by banks. Such a scenario is indeed possible, and generates measurement errors associated with the key variable that uses collateralization of controlling stakes to indicate a controller's credit crunch. However, we submit that this measurement error does not muddy the inferences we can draw in testing the coinsurance theory, for the following two reasons. First, if some controllers collateralize their controlling stakes to pursue promising investment opportunities, then this practice should have at least a neutral and likely a positive effect on the listed firm's value. By contrast, needing cash to survive a credit crunch leads to a value-reducing effect of collateralizing controlling stakes. Therefore, the presence of the measurement error should make it more difficult for us to observe a systematically negative

<sup>3</sup> Although this restriction was terminated in 2005, the timing does not confound the inference that we can draw based on the data from 1998–2008 because by 2008, the majority of the controllers were still not allowed to trade their controlling stakes in the listed firms for the following reasons. To trade their controlling stakes, the controllers were required to implement a series of structural reforms to their corporate governance practices in a two-year

probation period starting from 2006, and most of the controllers did not complete these changes until 2008. Furthermore, even after the structural reform, the controller can only sell up to 5% of its outstanding shares every year.

relationship between collateralizing controlling stakes and the listed firm's value as the coinsurance theory predicts. However, our results (discussed later) show that collateralizing controlling stakes reduces the value of the listed firm not only contemporaneously but persistently for the next two years (in most cases, the duration of the collateralization of controlling stakes is also two years). To the extent that we obtained strong evidence of value reduction, this in fact indicates strengthened support for the coinsurance theory: as the presence of the measurement error reduces the magnitude of the observed value reduction effect, the magnitude of the entire value reduction effect should be greater than the observed effects. Based on this reasoning, we also suggest that the practice of collateralizing controlling stakes to survive negative events should trump the likelihood of pursuing value-enhancing investments. Second, if a controller collateralizes its controlling stakes to pursue promising investment opportunities, then it should not have a direct effect on non-loan-based RPTs, which are found to be ways to enhance the listed firm's value. By contrast, it is very likely for a controller struggling to survive a credit crunch to withdraw its support for its listed firm in addition to extracting more financial resources from the listed firm. Despite the measurement error, which biases the results toward finding no relationship between collateralizing controlling stakes and non-loan-based RPTs, we show that collateralizing controlling stakes significantly decreases non-loan-based RPTs (discussed later). This again suggests that the presence of the measurement error does not weaken the inference we may draw from the empirical findings; it in fact strengthens the interpretation in support of the coinsurance theory.

Indeed, an ideal data set that would enable us to more directly examine this issue would include the financial information of the controllers around the time of their decisions to collateralize their controlling stakes, to more directly test whether the collateralization decisions do in fact indicate a credit crunch. However, such information is not available, given that most controllers are private firms. As discussed earlier, business group research has mostly relied on macrolevel shocks at the country level or the industry level to identify when business groups experience financial challenges. However, doing so has been shown to be a highly problematic approach (Siegel and Choudhury 2012).<sup>4</sup> Existing research has rarely used firm-level indicators of

financial difficulties, perhaps due to the paucity of such data. Our approach is novel in that it is among the first to offer a reasonable opportunity to more directly examine firm-specific negative shocks.

We also have a chance to observe the financial challenges facing listed firms. In China, listed firms exhibiting persistently poor performance may face the risk of being delisted. By rule, a listed firm that experiences two consecutive years of net losses is classified as a "special treatment" firm. ST firms are not allowed to refinance in the stock market and often face challenges in obtaining bank loans. For ST firms, the daily trading price limit is set at 5% (10% for a non-ST firm), which reduces the liquidity of the market for the ST firms' stocks and thus further renders them unattractive to investors. Furthermore, if an ST firm suffers a net loss for a third consecutive year, then the trading of its stock will be suspended. After this event, if the firm continues to suffer a net loss for another six months, then it will be delisted from the stock market, which represents a huge loss of value for the firm's shareholders. The regulations requiring low-performing firms to be delisted allow us to use the persistence of negative profits to identify when a listed firm is in great need of support from its controller.

### 3.2. Data, Measures, and Empirical Strategy

We conduct our analysis based on the following three data sources. We obtained the RPT data for all listed firms from 1998 to 2008 from GTA, a Shenzhen-based data vendor that compiled the data from listed firms' financial disclosures. We hand-collected all equity collateralizations of the controlling shares in the listed firms from over 3,000 mandated public

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India, firms affiliated with business groups focus on recombining inputs to create products that have added value, whereas standalone firms mainly resell finished products; when experiencing a positive industry shock, group-affiliated firms systematically use the windfall to increase their expenditures in business activities such as advertising and marketing, inputs in production, and fixed asset investments, whereas standalone firms do not react similarly. Therefore, a positive industry shock leads to lower incremental profits of group-affiliated firms than those of standalone firms. Neglecting this reason, prior studies erroneously interpreted this result as business groups transferring economic resources out of group-affiliated firms. In China, group-affiliated firms are also highly different from standalone firms, and there exists substantial heterogeneity among group-affiliated firms as well (e.g., Keister 1998, 2001; Jian and Wong 2010; Jiang et al. 2010; Fisman and Wang 2010). Therefore, using macrolevel shocks is highly susceptible to the concerns that systematic changes of business strategies of group-affiliated firms in responding to the industry shock may confound the inferences one can draw about the intragroup transfer of resources. Complicating matters, changes of many business strategies are difficult to document, especially on a large scale. Therefore, our approach of examining firm-level shocks helps to circumvent this severe endogeneity concern.

<sup>4</sup> A key challenge is that macrolevel shocks may reverberate differently for different firms, in that some firms may systematically change their business strategies in ways that have little to do with any resource transfer between the firms and their affiliated business groups. For example, Siegel and Choudhury (2012) found that in



announcements of these events. We also compiled the financial statements of the listed firms during this period from GTA.

The first set of dependent variables measures the RPTs of each listed firm.<sup>5</sup> Two variables measure loan-based RPTs. *RPT\_Guarantee* is the total value of the loan guarantees provided by the listed firm to the controller or the controller's other son firms net of the value of loan guarantees provided by the latter to the former in each year, divided by the listed firm's total assets. *RPT\_Lending* is the net outstanding intercorporate lending—the total value of intercorporate loans provided by the listed firm to the controller or the controller's other son firms net of the loans or repayment from the latter to the former, divided by the listed firm's total assets. *RPT\_Nonloan* is the total value of the non-loan-based RPTs that occurred between the listed firm and the controller as well as the controller's other son firms divided by the listed firm's total assets.<sup>6</sup> The second set of dependent variables measures the financial performance of the listed firm: *ROA* is the ratio of the net profits to the total assets, *ROE* is the ratio of the net profits to the total equity, and *Investment Ratio* is the ratio of the investment to the total assets. Among the key explanatory variables, *Controller\_Credit\_Crunch* equals 1 if

<sup>5</sup>Note that our RPT measures capture the listed firms' transactions with all related parties, which include the controllers and other firms held by the same controllers. Indeed, Chinese business groups most often function with a hub-and-spoke structure in their decision making (Fisman and Wang 2010). Moreover, from an econometric point of view, cases in which the listed firm and a related party transact without any coordination by or influence from the controller constitute a measurement error. This measurement error introduces greater noise in our analysis of the effects of the controller's credit crunch on RPTs and on the listed firm's value, because in the absence of the coordination by the controller, the transactions between the listed firm and the related party do not have to occur around the time of the controller's credit crunch. Thus the presence of this measurement error will bias our results toward zero. Despite this potential bias, however, we find robust effects that the controller's credit crunch increases loan-based RPTs, and decreases non-loan-based RPTs and the listed firm's performance. Therefore, the findings actually strengthen rather than weaken the support of the coinsurance theory.

<sup>6</sup>Note that we have a value-based measure of non-loan RPTs, but not a measure of the volume in terms of the actual units of goods transferred. We believe that a value-based measure has some advantages over a volume-based measure. First, because non-loan-based RPTs are used to enhance the firm value of listed firms, both the price and the volume of such transactions can be effective tools to achieve this goal, as highlighted in the previously discussed examples of listed firms purchasing goods at a price discount and selling goods at a price premium to related parties. Therefore, focusing on the changes in the total value of non-loan-based RPTs may more comprehensively capture the changes in both the price and the volume of non-loan-based RPTs that are conducted to support the listed firm, and thus take us closer to the heart of the question of how business groups boost the value of listed firms. Second, volume-based measures may make it difficult to compare the RPTs of different types of products.

the controller collateralizes its controlling stakes in the listed firm and 0 otherwise; this variable indicates whether the controller is credit constrained. *Listed\_Firm\_Perf\_Dip* equals 1 if the listed firm generates negative profits for two consecutive years and 0 otherwise; this variable indicates whether the listed firm is under financial distress and faces the risks of being delisted. We also include a series of control variables of the listed firm's characteristics, including  $\text{Log}(\text{Total Assets})$ ,  $\text{Log}(1 + \text{Tobin's } Q)$ , *State\_Ownership* (i.e., the fraction of outstanding shares owned by the state), *Leverage* (i.e., the ratio of the firms' total debt to their total assets), the firm fixed effects, and the year fixed effects.

We use ordinary least squares (OLS) regressions. In the OLS estimation of panel data, serially correlated residuals cause underestimated standard errors, a bias that cannot be removed solely by including time fixed effects and firm fixed effects (Petersen 2009). In business group research, Siegel and Choudhury (2012) showed that failing to account for autocorrelations at the firm level leads to a serious concern of underestimated standard errors. Following the conventional approach of calculating more conservative standard errors in panel data conditional on time fixed effects and firm fixed effects (Bertrand et al. 2004), we report robust standard errors clustered at the listed firm level. In unreported regressions, we also use robust standard errors (without clustering) to account for heteroskedasticity following White (1980), use clustered standard errors at the SIC-2 industry level, and use two-way clustering following Petersen (2009); all results are highly similar to the main results of clustering standard errors at the firm level.

Table 1 reports the summary statistics of all of the variables, and Table 2 reports the correlations. On average, the value of the loan guarantees amounts to 6.6% of the listed firm's total assets, the value of the outstanding intercorporate loans amounts to 2.3% of the listed firm's total assets, and the value of the non-loan-based RPTs amounts to 10.3% of the

**Table 1** Summary Statistics

Variable	Obs.	Mean	Median	Std. dev.	Min	Max
<i>RPT_Guarantee</i>	13,327	0.066	0.000	0.124	0.000	0.994
<i>RPT_Lending</i>	13,359	0.023	0.000	0.074	0.000	0.997
<i>RPT_Nonloan</i>	13,069	0.103	0.030	0.172	0.000	0.993
<i>ROA</i>	13,230	0.028	0.036	0.075	-0.591	0.240
<i>ROE</i>	13,160	0.055	0.071	0.183	-1.645	1.094
<i>Investment_Ratio</i>	11,341	0.060	0.038	0.066	-0.042	0.300
<i>Controller_Credit_Crunch</i>	13,407	0.083	0.000	0.276	0.000	1.000
<i>Listed_Firm_Perf_Dip</i>	13,407	0.043	0.000	0.202	0.000	1.000
$\text{Log}(\text{Total Assets})$	13,406	21.102	20.967	1.166	10.842	29.909
$\text{Log}(1 + \text{Tobin's } Q)$	12,936	1.178	1.102	0.410	0.340	10.616
<i>Leverage</i>	13,271	0.484	0.476	0.218	0.000	1.852
<i>State_Ownership</i>	13,317	0.318	0.340	0.259	0.000	1.000

**Table 2** Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 <i>RPT_Guarantee</i>	1											
2 <i>RPT_Lending</i>	0.05	1										
3 <i>RPT_Nonloan</i>	0.05	-0.02	1									
4 <i>ROA</i>	-0.13	-0.26	0.11	1								
5 <i>ROE</i>	-0.07	-0.20	0.08	0.73	1							
6 <i>Investment_Ratio</i>	0.00	-0.17	0.04	0.26	0.19	1						
7 <i>Controller_Credit_Crunch</i>	0.08	0.02	-0.06	-0.07	-0.05	-0.03	1					
8 <i>Listed_Firm_Perf_Dip</i>	0.05	0.20	-0.04	-0.45	-0.39	-0.13	0.01	1				
9 <i>Log(Total Assets)</i>	0.08	-0.14	0.13	0.13	0.15	0.13	0.01	-0.10	1			
10 <i>Log(1 + Tobin's Q)</i>	-0.16	0.08	0.00	0.18	0.10	-0.01	-0.12	0.01	-0.44	1		
11 <i>Leverage</i>	0.27	0.13	-0.06	-0.36	-0.14	-0.13	0.06	0.17	0.23	-0.21	1	
12 <i>State_Ownership</i>	-0.08	0.00	0.16	0.06	0.04	0.06	-0.13	-0.02	0.15	-0.06	-0.07	1

listed firm's total assets. These numbers highlight the existence of a high level of loan-based and non-loan-based RPTs. Therefore, RPTs are of significant economic importance to listed firms in China.

## 4. Results

First, we replicate and extend the analysis of Fisman and Wang (2010) with more detailed data as motivational results to show the different effects of loan-based and non-loan-based RPTs on the value of the listed firm to illustrate the nature of the two types of RPTs. These notions facilitate the interpretation of the subsequent main results on when different types of RPTs are more likely to occur. We then start the main analysis by examining the effect of the credit crunch experienced by the controller on different types of RPTs and the listed firm's performance, as well as the effect of the listed firm's performance dip on RPTs. These two sets of analysis provide direct tests of the coinsurance hypothesis. Finally, we discuss a series of supplementary analyses to explore the effect of the subsequent regulations that prohibit loan-based RPTs and the effect of corporate governance and institutional environment.

### 4.1. Motivational Analysis

In the motivational analysis, we replicate the results of Fisman and Wang (2010) regarding the relationship between different types of RPTs and the listed firm's performance to highlight the nature of different types of RPTs. Fisman and Wang (2010) submitted an important finding that loan-based RPTs reduce the listed firm's performance, whereas non-loan-based RPTs increase firm performance (see Fisman and Wang 2010, Table 3, p. 432; for similar evidence, see also Jian and Wong 2010, Jiang et al. 2010). In Table 3, we confirm that their findings are robust to the inclusion of the one-period-lagged explanatory variables as measured in the previous year, including *RPT\_Loan\_L1* (the sum of the ratios of loan guarantees and intercorporate lending), *RPT\_Nonloan\_L1*,

*ROA\_L1*, *ROE\_L1*, and *Log(1 + Tobin's Q)\_L1*. Our results reinforce the insight that in Chinese business groups, value flows from the listed firm to the other members of the business group through loan-based RPTs, and from the other members of the business group to the listed firm through non-loan-based RPTs. This finding serves as the foundation upon which we interpret our subsequent tests of when these value flows occur.

### 4.2. Main Analysis: Impact of the Controller's Credit Crunch

We first use within-firm regressions to examine the effects of the controller's credit crunch on different types of RPTs (i.e., loan-based RPTs, including intercorporate lending and loan guarantees, and non-loan-based RPTs) in Table 4. All of the dependent variables are measured in the year following the controller's credit crunch (i.e., *RPT\_Guarantee\_F1*, *RPT\_Lending\_F1*, and *RPT\_Nonloan\_F1*). For each dependent variable, we report the results of a basic model by controlling for the listed firm's ROA, total assets, Tobin's Q, state ownership, as well as year fixed effects and firm fixed effects.

The analyses generate several interesting findings. First, we find that the controller's credit crunch leads the listed firm to provide a higher amount of loan guarantees (models (1)) and corporate loans (models (2)) to the controller. The results indicate that a greater amount of financial resources flow into the controller when it experiences a credit crisis. When the controller faces a credit crunch, on average, the value of loan guarantees (scaled by the listed firm's assets) increases by 15.2%, and the value of intercorporate lending (scaled by the listed firm's assets) increases by 30.4%. In addition, we find that the controller's credit crunch decreases the amount of non-loan-based internal transactions (models (3)), which suggests that, if the controller encounters financing difficulties, it reduces its support for the listed firm. On average, when the controller experiences a credit

**Table 3** Motivational Analysis—Impact of Related Party Transactions on the Listed Firm's Performance (Replication and Extension of Fisman and Wang 2010)

	Dependent variable			
	ROA (1)	ROE (2)	Log(1 + Tobin's Q) (3)	Investment_Ratio_F1 (4)
<i>RPT_Loan</i>	−0.027** (0.012)	−0.078** (0.035)	−0.017 (0.027)	−0.019** (0.007)
<i>RPT_Nonloan</i>	0.036*** (0.007)	0.078*** (0.019)	0.037** (0.018)	−0.001 (0.005)
<i>RPT_Loan_L1</i>	0.001 (0.010)	0.036 (0.035)	0.013 (0.031)	
<i>RPT_Nonloan_L1</i>	0.011* (0.006)	0.028* (0.017)	−0.048*** (0.017)	
Log( <i>Total_Assets</i> )	0.022*** (0.004)	0.050*** (0.012)	−0.181*** (0.015)	−0.009*** (0.002)
<i>State_Ownership</i>	−0.005 (0.006)	−0.011 (0.017)	0.005 (0.019)	0.007 (0.005)
<i>Leverage</i>	−0.211*** (0.014)	−0.252*** (0.047)	0.075*** (0.025)	−0.013** (0.006)
<i>ROA</i>			0.246*** (0.051)	0.097*** (0.010)
<i>ROA_L1</i>	0.129*** (0.021)			
<i>ROE_L1</i>		0.099*** (0.026)		
Log(1 + <i>Tobin's Q</i> )_L1			0.376*** (0.014)	
<i>Investment_Ratio</i>				0.122*** (0.016)
Firm fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	10,773	10,654	10,484	9,421
<i>R</i> <sup>2</sup>	0.51	0.33	0.83	0.49

*Notes.* Each column reports the result of a linear regression with robust standard errors clustered at the listed firm level in parentheses. All specifications include firm fixed effects and year fixed effects.

\*Significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%.

crunch, the value of non-loan-based RPTs (scaled by the listed firm assets) decreases by 10.7%. Overall, these results show that when the controller experiences a credit crunch, it both extracts more financial resources from the listed firm and reduces its support for the listed firm.

To examine whether the effect is also contemporaneous, we rerun the regression in Table 4 by replacing the dependent variables, which are measured in the subsequent year ( $t + 1$ ) after the controller's credit crunch with current-year measures ( $t$ ); that is, we use the listed firm's ROA, ROE, and investment ratio measured in the same year as the controller's credit crunch. The results (not reported but available upon request) show that the controller's credit crunch has a positive but not a statistically significant effect on contemporaneous loan guarantees, a positive but weak effect ( $p < 0.10$ ) on contemporaneous intercorporate lending, and a negative but weak effect ( $p < 0.10$ ) on contemporaneous non-loan-based RPTs. Moreover,

the magnitudes of these coefficients are smaller than those generated in Table 4.<sup>7</sup> We also examine the lingering effect of the controller's credit crunch on RPTs by adopting the dependent variables measured with a two-year lag ( $t + 2$ ). The results (not reported but available upon request) show that the controller's credit crunch continues to have a positive effect on the amount of loan guarantees provided by the listed firm two years later. However, neither the positive effect of the credit crunch on intercorporate lending

<sup>7</sup> A possible explanation for why the contemporaneous effects are weaker than the lagged effects is that the controller may have tried alternative means of rescue before seeking internal support from the listed firm, possibly out of concern that loan-based internal transfers adversely affect the listed firm's performance. We note that this pattern is inconsistent with a pure "tunneling" story in which the expropriating nature of the relationship between the controller and the listed firm may lead to immediate transfer of resources and thus a stronger contemporaneous effect.

**Table 4** Impact of the Controller's Credit Crunch on Related Party Transactions: Within-Firm Estimation

	Dependent variable		
	<i>RPT_Guarantee_F1</i> (1)	<i>RPT_Lending_F1</i> (2)	<i>RPT_Nonloan_F1</i> (3)
<i>Controller_Credit_Crunch</i>	0.010* (0.005)	0.007** (0.003)	-0.011** (0.005)
<i>ROA</i>	-0.123*** (0.030)	-0.176*** (0.024)	0.079*** (0.026)
<i>Log(Total Assets)</i>	0.015*** (0.005)	0.004 (0.003)	-0.022*** (0.007)
<i>Log(1 + Tobin's Q)</i>	-0.006 (0.008)	0.002 (0.004)	0.004 (0.011)
<i>State_Ownership</i>	-0.006 (0.011)	-0.002 (0.005)	0.001 (0.015)
Firm fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
Observations	11,199	11,235	10,975
<i>R</i> <sup>2</sup>	0.40	0.32	0.50

*Notes.* Each column reports the result of a linear regression with robust standard errors clustered at the listed firm level in parentheses. All specifications include firm fixed effects and year fixed effects.

\*Significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%.

two years later nor the negative effect on non-loan-based RPTs two years later is statistically significant at conventional levels. Taken together, these results suggest that a controller's credit crunch has a contemporaneous effect on RPTs in ways that is consistent with the coinsurance thesis. However, there is a time lag for these effects to develop, as they become much stronger in the subsequent year after the controller's credit crunch, and weaken afterward.

Based on the previous results, one may expect the controller's credit crunch to have a negative effect on the listed firm's overall performance. Next, we examine the impact of the controller's credit crunch on the listed firm's financial performance in the subsequent year (*ROA\_F1* and *ROE\_F1*) as well as the investment level in the subsequent year (*Investment\_Ratio\_F1*). Table 5 reports the results of the within-firm regressions, which show that the controller's credit crunch decreases the listed firm's financial performance in the following year as measured by ROA (models (1)) and ROE (models (2)). This evidence is consistent with our main findings that a credit-challenged controller will extract financial resources from the listed firm and reduce its support for the listed firm, both of which will lower the listed firm's value. In addition, the controller's credit crunch also lowers the listed firm's investment levels (models (3)), probably because the increase of loan-based RPTs imposes greater financial stress on the listed firm, which causes the firm to be more conservative in its future investments. When the controller experiences a credit crunch, on average, the listed firm experiences a

decrease of 25% in ROA, a decrease of 41.7% in ROE,<sup>8</sup> and a decrease of 6.7% in the investment ratio. In summary, these results support the theory that when the controller experiences a credit crunch, the listed firm extends its help to the controller at the listed firm's own expense.

We also examine the effect of controllers' credit crunch on the listed firm's contemporaneous performance. The results (not reported but available upon request) show that the effects of the controller's credit crunch on the listed firm's ROA, ROE, and investment ratio in the current year ( $t$ ) are not statistically significant at conventional levels. These results are also consistent with the previous discussion that the controller's credit crunch has a weaker effect on RPTs contemporaneously than in the subsequent year ( $t + 1$ ). To further address the question of the lingering effect of controllers' credit crunch, we examine the effects on the listed firm's performance two years later ( $t + 2$ ) and three years later ( $t + 3$ ) after the credit crunch. The results (not reported but available upon request) show that the negative performance effect of the controller's credit crunch persists in the second year ( $t + 2$ ), as the coefficients of credit crunch are negative and statistically significant on the listed firm's ROA ( $p < 0.01$ ) and ROE ( $p < 0.05$ ); the effect is negative but not statistically significant on the listed firm's investment ratio in the second year. All performance effects of the controller's credit crunch fail

<sup>8</sup> The magnitude of the effect on ROE is much larger than that on ROA, probably due to an amplified effect of changes in financial leverage during a credit crunch.

**Table 5** Impact of the Controller's Credit Crunch on the Listed Firm's Performance: Within-Firm Estimation

	Dependent variable		
	<i>ROA_F1</i> (1)	<i>ROE_F1</i> (2)	<i>Investment_Ratio_F1</i> (3)
<i>Controller_Credit_Crunch</i>	-0.006* (0.003)	-0.024** (0.010)	-0.004* (0.002)
<i>Log(Total Assets)</i>	-0.008*** (0.003)	-0.013 (0.008)	0.000 (0.002)
<i>Log(1+Tobin's Q)</i>	0.052*** (0.005)	0.083*** (0.015)	0.029*** (0.004)
<i>State_Ownership</i>	0.003 (0.007)	-0.003 (0.015)	0.007 (0.006)
Firm fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
Observations	11,216	11,142	10,916
<i>R</i> <sup>2</sup>	0.30	0.11	0.36

*Notes.* Each column reports the result of a linear regression with robust standard errors clustered at the listed firm level in parentheses. All specifications include firm fixed effects and year fixed effects.

\*Significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%.

to be statistically significant in the third year ( $t + 3$ ) after the controller's credit crunch.<sup>9</sup> This finding is consistent with the fact that the duration of most collateralizations of controlling stakes is two years (although some cases involve shorter durations, such as one year or six months). Moreover, the pattern whereby the value-reducing effect of the controller's credit crunch tends to last for two years and diminish in the third year suggests that a typical credit crunch is a persisting painful process that the listed firm and the controller must endure, but that in many cases, they gradually recover from the negative shock without going into bankruptcy, which could attest to the value of internal coinsurance.

One may wonder whether the negative impact of the controller's credit crunch on the listed firm's performance might be explained by an alternative "common shock" story; that is, there might be a common negative performance shock, such as an industry-level downturn, experienced by both the controller and the listed firm in the same year, which could explain the negative relationship between the controller's credit crunch and the listed firm's performance. However, this alternative hypothesis cannot adequately explain why the controller's credit crunch has a positive effect on the amount of loan-based internal transactions: if the common shock also causes the listed firm to suffer from a credit crunch, then little can explain why the listed firm should *increase* its lending to the controller. Furthermore, if the common shock story holds, then

the controller's credit crunch should be negatively related to the listed firm's performance *in the same year*, as the common shock should negatively impact both firms simultaneously. As discussed earlier, unreported results show that the effect of the controller's credit crunch is not statistically significant in any of the contemporaneous models; that is, the controller's credit crunch has little effect on the current performance and current investment of the listed firm in the same year. The finding that the listed firm's performance is unaffected in the year during which the controller hits a credit crunch but substantially decreases in the next two years helps to alleviate the concern that the common shock story constitutes an alternative explanation of the coinsurance theory.

#### 4.3. Main Analysis: Impact of Listed Firm's Performance Dip

The coinsurance theory also predicts that when the listed firm experiences difficulties in its business operations and thus needs support, the business group will channel internal resources to the listed firm to help improve its performance. To test this prediction, we examine the relationship between the listed firm's performance dips and the non-loan-based RPTs in the year after the performance dip (i.e., *RPT\_Nonloan\_F1*) as well as the loan-based RPTs in the subsequent year (i.e., *RPT\_Guarantee\_F1* and *RPT\_Lending\_F1*) based on the within-firm regressions in Table 6. The results in model (1) show that the listed firm's performance dip leads to more non-loan-based RPTs in the following year than would be the case in the absence of any performance dip. On average, when the listed firm experiences a performance dip, the value of non-loan-based RPTs (scaled by the listed firm's assets) increases by 18.5%. This finding is consistent with our hypothesis that the controller will help the listed firm through internal transactions at favorable terms or at lower transaction costs, which will increase the value of the listed firm, thereby reducing the firm's risk of being delisted in the stock market.

Meanwhile, the results in models (2) and (3) show that the listed firm's performance dip has little impact on loan-based RPTs. Collectively, these results suggest that when the listed firm faces performance challenges, its affiliated business groups lend support mainly through an increase of non-loan-based RPTs but not through a reduction of loan-based RPTs. This event likely occurs because the controller and other members of the business groups face limited alternative access to external financing, as they mostly are private and typically are not as financially strong as the listed firm. For example, a shortage of financing was identified by 71.3% of business groups as the most important factor that threatens their business operations, according to a survey conducted

<sup>9</sup>Note that the lack of statistical significance is not an artifact of reduced degree of freedom, as we continue to have 8,500 observations in the  $t + 3$  models.

**Table 6** Impact of the Listed Firm's Performance Dip on Related Party Transactions: Within-Firm Estimation

	Dependent variable		
	<i>RPT_Nonloan_F1</i> (1)	<i>RPT_Guarantee_F1</i> (2)	<i>RPT_Lending_F1</i> (3)
<i>Listed_Firm_Perf_Dip</i>	0.016* (0.008)	-0.013 (0.010)	0.000 (0.008)
<i>ROA</i>	0.102*** (0.029)	-0.143*** (0.031)	-0.176*** (0.024)
<i>Log(Total Assets)</i>	-0.022*** (0.007)	0.015*** (0.005)	0.004 (0.003)
<i>Log(1 + Tobin's Q)</i>	0.004 (0.011)	-0.005 (0.008)	0.002 (0.004)
<i>State_Ownership</i>	0.003 (0.015)	-0.007 (0.011)	-0.003 (0.006)
Firm fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
Observations	10,975	11,199	11,235
<i>R</i> <sup>2</sup>	0.50	0.40	0.32

Notes. Each column reports the result of a linear regression with robust standard errors clustered at the listed firm level in parentheses. All specifications include firm fixed effects and year fixed effects.

\*Significant at 10%; \*\*\*significant at 1%.

by the China Statistics Bureau (2008). Therefore, the business group has less leverage in supporting the listed firm by lowering the internal loans provided by the listed firm than through other means such as non-loan-based internal transactions, which do not necessarily reduce funding cash flows into the business groups. In other words, decreasing loan-based RPTs and increasing non-loan-based RPTs do not appear to be equivalent ways for a business group to lend support to the listed firms, as the business group may not be able to afford reducing the extraction of funding from the listed firm, due to a lack of alternative access to external financing.

Taken together with the results showing the effects of the controller's credit crunch and the listed firm's performance on RPTs, our findings lend strong support to the coinsurance theory. In the next section, we conduct supplementary analyses to provide additional evidence that is consistent with the coinsurance theory.

#### 4.4. Supplementary Analyses: Regulations, Corporate Governance, and Institutional Environment

In this section, we conduct a series of supplementary analyses that are consistent with the coinsurance theory. These analyses examine the implications of a coinsurance relationship for public policies and corporate governance, as well as the influence of the institutional environment on the variation of coinsurance relationships. They provide additional suggestive evidence that neither the "tunneling" story nor the "propping up" story alone accurately characterizes

the multifaceted relationship between the listed firms and the controllers, and lends further support to the coinsurance theory.

The first supplementary analysis explores the effect of a regulatory change that hinders loan-based internal transactions. On August 28, 2003, the CSRC issued a regulation<sup>10</sup> demanding detailed plans from the listed firms to decrease the amount of outstanding loan guarantees and intercorporate loans provided to their controllers by 30% per year. This regulatory change affords us an additional opportunity to investigate the internal operations of Chinese business groups. If a business group exists only to "tunnel" resources out of the listed firm, this new policy will enhance the value of the listed firm, as it mitigates the risk of financial resources being extracted from the listed firm, especially when the controller hits a credit crunch. However, if business groups provide coinsurance for members, the new policy may actually prove to be detrimental to the value of the listed firm, as the policy disrupts the coinsurance relationship that allows the listed firm and the controller to trade favors. In a coinsurance relationship, a controller has the incentive to support the listed firm not only because it benefits at least partially (from its partial ownership) from the listed firm's improved performance, but also because of the prospect of obtaining internal loan support from the listed firm in reciprocity. The policy essentially removed the

<sup>10</sup> The regulation is widely known as the "No. 56 File," which was entitled, "A Notice Concerning Some Issues on Regulating the Funds Between Listed Companies and Related Party Transactions and on Regulating Listed Companies' Provision of Guarantees."

**Table 7** Impact of a Policy Change

	Dependent variable				
	<i>ROA_F1</i> (1)	<i>ROE_F1</i> (2)	<i>RPT_Guarantee_F1</i> (3)	<i>RPT_Lending_F1</i> (4)	<i>RPT_Nonloan_F1</i> (5)
<i>Controller_Credit_Crunch</i> * <i>Regulatory_Change</i>	−0.015** (0.007)	−0.057*** (0.020)	0.010 (0.010)	0.004 (0.006)	0.003 (0.010)
<i>Controller_Credit_Crunch</i>	−0.002 (0.005)	−0.009 (0.011)	0.005 (0.007)	0.007 (0.005)	−0.011 (0.007)
<i>Regulatory_Change</i>	−0.001 (0.006)	−0.022 (0.014)	0.067*** (0.006)	−0.028*** (0.006)	0.036*** (0.010)
<i>ROA</i>			−0.123*** (0.030)	−0.176*** (0.024)	0.079*** (0.026)
$\text{Log}(\text{Total Assets})$	−0.008*** (0.003)	−0.012 (0.008)	0.015*** (0.005)	0.004 (0.003)	−0.022*** (0.007)
$\text{Log}(1 + \text{Tobin's } Q)$	0.052*** (0.005)	0.083*** (0.015)	−0.006 (0.008)	0.002 (0.004)	0.004 (0.011)
<i>State_Ownership</i>	0.003 (0.007)	−0.002 (0.015)	−0.006 (0.011)	−0.003 (0.005)	0.001 (0.015)
Firm fixed effects	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y
Observations	11,662	11,588	11,645	11,678	11,401
$R^2$	0.36	0.21	0.48	0.39	0.57

*Notes.* Each column reports the result of a linear regression with robust standard errors clustered at the listed firm level in parentheses. All specifications include firm fixed effects and year fixed effects.

\*\*Significant at 5%; \*\*\*significant at 1%.

prospect that the listed firm would reciprocate to the controller, thereby reducing the expected benefits deemed by the controller to be associated with supporting the listed firm. In other words, because the policy constrains the controller's access to loan support from the listed firm, it in turn severely undermines the controller's incentives to support the listed firm when the latter faces financial challenges. As trading favors in a coinsurance relationship is value enhancing for the listed firm (Fisman and Wang 2010), the policy should therefore decrease the listed firms' value.

Table 7 reports the results of the regressions that include an indicator of this regulatory change and its interaction with the controller's credit crunch.<sup>11</sup> Models (1) and (2), which examine the listed firms' ROA and ROE, respectively, show that the regulatory change and the controller's credit crunch have a negative interaction effect on the listed firm's performance. These results indicate that the regulatory change reduces the listed firm's value, especially when the controller hits a credit crunch and needs financial support from the listed firm. This result is difficult to reconcile with a pure "tunneling" story

but is consistent with the coinsurance theory. In models (3)–(5), the results show that when the controller hits a credit crunch, the regulatory change has no effect on RPTs. Based on this set of supplementary analyses, we make the following observations. First, the coinsurance theory receives additional support in this setting, whereas pure "tunneling" cannot easily explain these results. Second, because the coinsurance relationship has value for the listed firm, unnecessary or even improper policy interventions are ineffective and may in fact reduce firm value.

In the second set of supplementary analyses, we explore the listed firm's corporate governance features to test the effects on internal transactions. We first investigate the ownership concentration of the noncontrolling shareholders. If there are large shareholders other than the controller, these large shareholders can more effectively counterbalance the power of the controller and mitigate the controller's expropriation of the listed firm compared to more fragmented shareholders (e.g., Burkart et al. 1997). If a pure "tunneling" story holds, then a higher concentration of block shareholders will enable other large shareholders to better monitor and thus reduce the controller's expropriation of the listed firm's assets, especially when the controller has an urgent need to do so during a credit crunch. In unreported results, we rerun the regressions of Table 4 with an additional variable, *High\_Concentration*, which we define as the

<sup>11</sup> We have also controlled for a related regulatory change in 2005, when a follow-up regulation was approved, known as the "No. 34 file." It stipulated that all funds expropriated by the controller (especially state controller) must be repaid to the listed firm no later than 2006.

Herfindahl index of the top nine largest shareholders (except for the controller), and its interaction with *Controller\_Credit\_Crunch*. In unreported results, this interaction effect is not statistically significant at any conventional level. The effect fails to support a pure “tunneling” story, as a pure “tunneling” story predicts a positive interaction effect on loan-based RPTs.

Second, we also examine the separation of cash flow rights and control rights in the firm. Greater separation of the cash flow rights from the control rights makes it more attractive for the controller to extract financial resources from the listed firm (Morck et al. 2005). According to a pure “tunneling” story, a high separation of the rights will lead to more stealing if the controller hits a credit crunch. In unreported results, we rerun the regressions of Table 4 with the variable *Separation\_of\_Rights*, which we define as the difference between the controlling rights and the cash flow rights, following Claessens et al. (2000), and its interaction with *Controller\_Credit\_Crunch*. In unreported results, this interaction term fails to be statistically significant and thus lends no support to the pure “tunneling” story. In summary, the supplementary analysis of corporate governance features provides indirect evidence that a pure “tunneling” story cannot fully characterize the internal operations of Chinese business groups.

In the third set of supplementary analyses, we explore the substantial variation across different Chinese provinces in their development of market-supporting institutions, such as the development of financial markets (e.g., Cull and Xu 2005, Bai et al. 2006, Li et al. 2006). If a coinsurance relationship holds, then a less developed external financial market should further limit the alternative ways in which the controllers under a credit crunch may access funding other than extracting it from the listed firms; consequently, the controllers under a credit crunch may extract even more funds from the listed firms, such that the negative impacts of controllers’ credit crunches on loan-based RPTs and on listed firms’ values should be stronger in a less developed financial market. This finding provides a chance to distinguish the coinsurance thesis from the “propping up” thesis because, according to the institutional void theory, business group affiliations enhance individual firms’ value more substantially when the external institutional environment is less developed (e.g., Khanna and Palepu 2000a, b).

Drawing on the National Economic Research Institute’s Index of Market Development of Chinese Provinces (published as Fan and Wang 2000, 2001, 2004, 2006), we use the composite index of *Financial Market Development* to proxy for the degree to which each province’s capital markets are developed. The composite index comprises two subindices. The first subindex is the percentage of deposits in non-

state-owned financial institutions in the province, and the other subindex is the percentage of bank credits offered to non-state-owned firms in the province. These measures inversely capture the extent to which the province’s external credit market is dominated by the state rather than by the market; that is, a higher value of the composite index indicates a more developed financial market in the province. We divide the provinces into two groups: those with more developed financial markets (*Financial Market Development* above the median value) and those with less developed financial markets (*Financial Market Development* below the median value).

We first examine the effect of the controller’s credit crunch on the listed firm’s performance in the subsamples of firms that are headquartered in provinces of less developed financial markets and in the subsample of more developed financial markets. The results (not reported but available upon request) show that the controller’s credit crunch has negative effects on *ROA\_F1* ( $p < 0.10$ ) and on *ROE\_F1* ( $p < 0.05$ ) in provinces with less developed financial markets, but these effects fail to reach statistical significance in provinces with more developed financial markets. To further understand why this occurs, we examine the effect of the controller’s credit crunch on RPTs in the two subsamples. The results show that the controller’s credit crunch has a positive effect on *RPT\_Guarantee\_F1* ( $p < 0.05$ ) and on *RPT\_Lending\_F1* ( $p < 0.10$ ) in provinces with less developed financial markets, but these effects fail to reach statistical significance in provinces with more developed financial markets.

These results suggest that in a less developed financial market, the listed firms that support their credit-constrained controllers suffer a greater loss of value than in a more developed financial market, which is more consistent with the coinsurance theory than the institutional void theory. However, we also note that these results are only suggestive because of a potential competing effect that a more developed financial market may make it easier for the listed firms to raise external funds and thus enable the listed firm to provide more funds to the financially distressed parent firm.

Finally, there are 53 incidents (firm-year observations) in which the listed firm and the controller simultaneously experienced financial distress. Our findings are robust to the exclusion of these observations. Moreover, investigating these incidents provides additional evidence that is inconsistent with the “tunneling” story. A pure “tunneling” story would predict that the financially distressed controller increases its extraction from the listed firm regardless of whether the listed firm is also financially distressed; however, using these incidents of simultaneous financial distress, our findings show that the



controller's credit crunch has no effect on either its loan-based RPTs or the performance of the listed firm that was also experiencing financial difficulties.

## 5. Discussion and Conclusion

Because solely focusing on either the "tunneling" function or the "propping up" function of business groups cannot fully capture the complexity and nuances of the reasons behind the existence of business groups (Fisman and Wang 2010, Almeida et al. 2011, Siegel and Choudhury 2012), and because there is a shortage of direct empirical evidence of the internal operations of business groups (Carney et al. 2011), we directly investigate the coinsurance theory of business groups as developed by Khanna and Yafeh (2005) and Fisman and Wang (2010) by showing when and how internal transfers of different types of resources within a business group occur. Using a novel and unique data set that includes different types of RPTs between publicly listed firms and other members of their affiliated business groups, the financial information of the listed firms, and their controllers' collateralization decisions in China from 1998–2008, we provide direct evidence for the coinsurance theory. Specifically, we find that on the one hand, the controlling firm's credit crunch increases the amount of loan-based RPTs, that is, intercorporate loans and loan guarantees, that it receives from the listed firm and reduces its support for the listed firm in the form of non-loan-based RPTs, both of which decrease the profits and investments of the listed firms. On the other hand, the listed firm's performance dip increases the amount of support received from the controller in the form of non-loan-based RPTs, which help the listed firm to improve its performance and mitigate the risk of being delisted.

Our findings enrich the existing knowledge of the coinsurance relationship of business groups by taking us closer to the heart of the coinsurance thesis. First, we directly investigate the specific mechanisms—the occurrence of different types of internal transfers—that drive the coinsurance relationship, moving beyond previous studies' reliance on overall firm performance to infer a coinsurance relationship. To the best of our knowledge, this is the first paper to provide direct evidence of coinsurance relationships in business groups. In addition, this examination also allows us to trace how different types of resources flow in a business group, which provides new information on the operations and strategies of business group affiliates and thus expands the existing understanding of these issues. Finally, in examining the timing of resource flows, we take advantage of individual firm-level negative shocks to directly examine when internal exchanges of favors occur in business groups, an issue that is

understudied both conceptually and empirically in the literature.

Our empirical approach contributes to the repertoire of methods of studying coinsurance and risk sharing among business group members. A dominant approach in the literature is to focus on whether group affiliations reduce the volatility of firm performance. For example, Khanna and Yafeh (2005) compared the standard deviations of profits (and growth rates) of group-affiliated firms and unaffiliated firms and found that group affiliations smoothed firm performance in 4 of the 12 emerging markets in their sample. We have expanded the analysis of firms' overall performance to directly examine specific types of favors exchanged between group firms in the form of related party transactions and have further investigated the timing of these exchanges, both of which may help to identify the coinsurance effect at a more nuanced level. Additionally, some prior studies also utilized industry- or country-level shocks to examine whether group affiliations smoothed the effect of these shocks on firm performance (e.g., Ghemawat and Khanna 1998, Khanna and Palepu 1999, Bertrand et al. 2002). Our use of individual firm-level shocks has the advantage of better identifying the shocks experienced by group firms that may result in intragroup transfers of resources. We caution that although some studies attribute performance smoothing effects to "tunneling" or "propping up," their evidence in fact supports a coinsurance story. For example, Bertrand et al. (2002) found that an industry-level performance shock generated a smaller change in the performance of the firms in which the controlling shareholders have lower stakes in Indian business groups than the change in the industry average performance, which was interpreted as "tunneling." However, as noted by Khanna and Yafeh (2007), these results also indicated that these group-affiliate firms experienced fewer losses in the event of negative shocks, which is inconsistent with a pure "tunneling" story; rather, the evidence lends support to a coinsurance effect. Moreover, recent work by Siegel and Choudhury (2012) highlights the inherent shortcomings of a research design using macroshocks to assess business groups and challenges the conventional wisdom of "tunneling." Almeida et al. (2011) also discussed a selection effect that could have driven the previous evidence for "tunneling" in business groups.

Our results in support of a coinsurance theory are challenging to reconcile with either a pure "tunneling" story or a pure "propping up" story. Our supplementary analyses provide additional evidence that neither a pure "tunneling" story nor a pure "propping up" story can fully explain the empirical patterns associated with a regulatory change, with the listed firms' corporate governance structures, and with the

effect of the institutional environment. More generally, the coinsurance theory offers a logical explanation for why minority shareholders are still attracted to investing in firms that are affiliated with business groups, often at a price premium, even in a country with poor investor protection. This phenomenon would be difficult to explain from a pure agency-based view, which focuses on how the controlling shareholders of business groups expropriate minority shareholders by “tunneling” resources out of the firms. Finally, this paper has some inherent linkage to the institutional void theory, which submits that firms in the same business group may choose to transact with each other instead of transacting in the outside market because of missing or underdeveloped external institutions in support of market exchanges (e.g., Chang and Choi 1988, Khanna and Yafeh 2007). Our findings suggest that a firm may be even more inclined to engage in internal transactions when the firm itself or the peer firms of the same business group face financial challenges. Therefore, the coinsurance relationship may further increase the value of the decision to transact inside the business group instead of purchasing from the outside market.

Admittedly, we have a single-country study and provide evidence in support of the coinsurance theory only for business groups in mainland China. Many prior studies on the “tunneling” theory or the “propping up” theory draw on cross-country contexts (e.g., Khanna and Rivkin 2001, Khanna and Yafeh 2005, Masulis et al. 2011), so one may question whether the coinsurance thesis may be applicable and whether it trumps a pure “tunneling” or a pure “propping up” theory in other settings as well. Recent studies, such as those by Almeida et al. (2011) and Siegel and Choudhury (2012), challenged previous findings of the “tunneling” effect in South Korea and India and found evidence of internal support within business groups. These results point future research to the need for a more comprehensive cross-country examination of the coinsurance relationships between business group members.

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### References

- Almeida H, Park SY, Subrahmanyam M, Wolfenzon D (2011) The structure and formation of business groups: Evidence from Korean chaebols. *J. Financial Econom.* 99(2):447–475.
- Almeida HV, Wolfenzon D (2006) A theory of pyramidal ownership and family business groups. *J. Finance* 56(6):2637–2680.
- Bae K-H, Kang J-K, Kim J-M (2002) Tunneling or value added? Evidence from mergers by Korean business groups. *J. Finance* 57(6):2695–2740.
- Bae K-H, Kang J-K, Lee I (2006) Business groups and tunneling: Evidence from private securities offerings by Korean chaebols. *J. Finance* 61(5):2415–2419.
- Bai C-E, Lu J, Tao Z (2006) Property rights protection and access to bank loans—Evidence from private enterprises in China. *Econom. Transition* 14(4):611–628.
- Belenzon S, Berkovitz T (2010) Innovation in business groups. *Management Sci.* 56(3):519–535.
- Bertrand M, Duflo E, Mullainathan S (2004) How much should we trust differences-in-differences estimates? *Quart. J. Econom.* 119(1):249–275.
- Bertrand M, Mehto P, Mullainathan S (2002) Ferreting out tunneling: An application to Indian business groups. *Quart. J. Econom.* 117(1):121–148.
- Burkart M, Gromb D, Panunzi F (1997) Large shareholders, monitoring, and the value of the firm. *Quart. J. Econom.* 112(3):693–728.
- Carney M, Shapiro D, Tang Y (2009) Business group performance in China: Ownership and temporal considerations. *Management Organ. Rev.* 5(2):167–193.
- Carney M, Gedajlovic ER, Heugens PPMAR, van Essen M, van Oosterhout JH (2011) Business group affiliation, performance, context, and strategy: A meta-analysis. *Acad. Management J.* 54(3):437–460.
- Chang SJ, Choi U (1988) Strategy, structure and performance of Korean business groups: A transactions cost approach. *J. Indust. Econom.* 37(2):141–158.
- Chang SJ, Hong J (2000) Economic performance of group-affiliated companies in Korea: Intragroup resource sharing and internal business transactions. *Acad. Management J.* 43(3) 429–448.
- Chang SJ, Hong J (2002) How much does the business group matter in Korea? *Strategic Management J.* 23(3):265–274.
- China Statistics Bureau (2008) *Large Corporations in China* (China Statistics Press, Beijing).
- Chung C-N (2000) Markets, culture, and institutions: The formation and transformation of business groups in Taiwan, 1960s–1990s. Ph.D. dissertation, Stanford University, Stanford, CA.
- Claessens S, Djankov S, Lang LHP (2000) The separation of ownership and control in East Asian corporations. *J. Financial Econom.* 58(1–2):81–112.
- Claessens S, Djankov S, Fan JPH, Lang LHP (2003) When does corporate diversification matter to productivity and performance? Evidence from East Asia. *Pacific Basin Finance J.* 11(3):365–392.
- Cull R, Xu LC (2005) Institutions, ownership, and finance: The determinants of profit reinvestment among Chinese firms. *J. Financial Econom.* 77(1):117–146.
- Deng K (2004) Issues and problems with loan guarantees in Chinese listed firms. *Securities Market Herald* (12):53–56.
- Fan G, Wang X (2000) *NERI Index of Marketization of China's Provinces 2000 Report* (Economics Science Press, Beijing).
- Fan G, Wang X (2001) *NERI Index of Marketization of China's Provinces 2001 Report* (Economics Science Press, Beijing).
- Fan G, Wang X (2004) *NERI Index of Marketization of China's Provinces 2004 Report* (Economics Science Press, Beijing).
- Fan G, Wang X (2006) *NERI Index of Marketization of China's Provinces 2006 Report* (Economics Science Press, Beijing).

- Fauver L, Houston J, Naranjo A (2003) Capital market development, international integration, legal systems, and the value of corporate diversification: A cross-country analysis. *J. Financial Quant. Anal.* 38(1):135–157.
- Ferris SP, Kim KA, Kitsabunnarat P (2003) The costs (and benefits?) of diversified business groups: The case of Korean chaebols. *J. Banking Finance* 27(2):251–273.
- Fisman R, Wang Y (2010) Trading favors within Chinese business groups. *Amer. Econom. Rev.: Papers Proc.* 100(2):429–433.
- Ghemawat P, Khanna T (1998) The nature of diversified business groups: A research design and two case studies. *J. Indust. Econom.* 46(1):35–61.
- Gopalan R, Nanda V, Seru A (2007) Affiliated firms and financial support: Evidence from Indian business groups. *J. Financial Econom.* 86(3):759–795.
- Granovetter M (1994) Business groups. Smelser NJ, Swedberg R, eds. *Handbook of Economic Sociology* (Princeton University Press, Princeton, NJ), 453–475.
- Granovetter M (1995) Coase revisited: Business groups in the modern economy. *Indust. Corporate Change* 4(1):93–130.
- Granovetter M (2005) Business groups and social organization. Smelser NJ, Swedberg R, eds. *The Handbook of Economic Sociology* (Princeton University Press, Princeton, NJ), 429–450.
- Guillén MF (2000) Business groups in emerging economies: A resource-based view. *Acad. Management J.* 43(3):362–380.
- Guillén MF (2001) *The Limits of Convergence: Globalization and Organizational Change in Argentina, South Korea, and Spain* (Princeton University Press, Princeton, NJ).
- Guillén MF (2002) Structural inertia, imitation, and foreign expansion: South Korean firms and business groups in China, 1987–95. *Acad. Management J.* 45(3):509–525.
- Han X (2011) Listed firms' loan guarantees exceed RMB 150 billion. *21st Century Economic Report* (October 19).
- Hu X (2008) Desperate for cash? Equity collateralization by the controlling shareholders. *China Securities J.* (July 29), <http://business.sohu.com/20080729/n258438543.shtml>.
- Jian M, Wong TJ (2010) Propping through related party transactions. *Rev. Accounting Stud.* 15(1):70–105.
- Jiang G, Lee CMC, Yue H (2010) Tunneling through intercorporate loans: The China experience. *J. Financial Econom.* 98(1):1–20.
- Johnson S, Porta RL, Lopez-de-Silanes F, Shleifer A (2000) Tunneling. *Amer. Econom. Rev. Papers Proc.* 90:22–27.
- Keister L (1998) Engineering growth: Business group structure and firm performance in China's transition economy. *Amer. J. Sociol.* 104(2):404–440.
- Keister LA (2001) Exchange structures in transition: Lending and trade relations in Chinese business groups. *Amer. Sociol. Rev.* 66(3):336–360.
- Khanna T, Palepu K (1999) Policy shocks, market intermediaries, and corporate strategy: The evolution of business groups in Chile and India. *J. Econom. Management Strategy* 8(2):271–310.
- Khanna T, Palepu K (2000a) Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *J. Finance* 55(2):867–891.
- Khanna T, Palepu K (2000b) The future of business groups in emerging markets: Long-run evidence from Chile. *Acad. Management J.* 43(3):268–285.
- Khanna T, Rivkin JW (2001) Estimating the performance effect of business groups in emerging markets. *Strategic Management J.* 22:45–74.
- Khanna T, Yafeh Y (2005) Business groups and risk sharing around the world. *J. Bus.* 78(1):301–340.
- Khanna T, Yafeh Y (2007) Business groups in emerging markets: Paragons or parasites? *J. Econom. Literature* 45(2):331–372.
- Leff NH (1976) Capital markets in less developed countries: The group principle. McKinnon R, ed. *Money and Finance in Economic Growth and Development: Essays in Honor of Edward S. Shaw* (Decker Press, New York), 97–122.
- Leff NH (1978) Industrial organization and entrepreneurship in the developing countries: The economic groups. *Econom. Development Cultural Change* 26(4):661–675.
- Li H, Meng L, Zhang J (2006) Why do entrepreneurs enter politics? Evidence from China. *Econom. Inquiry* 44(3):559–578.
- Li J (2006) The controller collateralized its controlling stakes in Daxia limited as he hits credit crunch. *21st Century Economic Report* (January 8).
- Li Y (2011) Sibling firms as primary suppliers, CNCR deep in related party transactions. *Investment Express* (June 8), <http://finance.eastmoney.com/news/1345,20110607140748023.html>.
- Lincoln JR, Gerlach ML, Ahmadian CL (1996) Keiretsu networks and corporate performance in Japan. *Amer. Sociol. Rev.* 61(1):67–88.
- Lu Y (2008) Controllers hit credit crunch and equity collateralization becomes widespread. *China Bus.* (June 8), <http://finance.sina.com.cn/stock/y/20080607/21024960525.shtml>.
- Mahmood IP, Mitchell W (2004) Two faces: Effects of business groups on innovation in emerging economies. *Management Sci.* 50(10):1348–1365.
- Masulis RW, Pham PK, Zein J (2011) Family business groups around the world: Financing advantages, control motivations, and organizational choices. *Rev. Financial Stud.* 24(11):3556–3600.
- Morck R, Nakamura M (2005) A frog in a well knows nothing of the ocean: A history of corporate ownership in Japan. Morck R, ed. *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers* (University of Chicago Press, Chicago), 367–459.
- Morck R, Wolfenzon D, Yeung B (2005) Corporate governance, economic entrenchment, and growth. *J. Econom. Literature* 43(3):655–720.
- Nan F, Xu G (2000) Primary means of related party transactions and their influence in China. *Listed Firms* (9), <http://www.people.com.cn/GB/paper87/1676/271817.html>.
- Petersen MA (2009) Estimating standard errors in finance panel data sets: Comparing approaches. *Rev. Financial Stud.* 22(1):435–480.
- Securities Daily* (2001) Deep discounts in collateralization of listed firms' stocks: Ninety percent pledged to banks. (August 19), <http://roll.sohu.com/20110819/n316780379.shtml>.
- Siegel J, Choudhury P (2012) A reexamination of tunneling and business groups: New data and new methods. *Rev. Financial Stud.* 25(6):1763–1798.
- Stulz R (1988) On takeover resistance, managerial discretion and shareholder wealth. *J. Financial Econom.* 20(1–2):25–54.
- Tang Z (2012) Equity collateral came back when financing became more difficult. *Shanghai Securities J.* (January 5), <http://business.sohu.com/20120105/n331196888.shtml>.
- White H (1980) A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48(4):817–838.
- White RE, Hoskisson RE, Yiu DW, Bruton GD (2008) Employment and market innovation in Chinese business group affiliated firms: The role of group control systems. *Management Organ. Rev.* 4(2):225–256.
- Xiao Q (2011) Large and medium-sized firms' IPOs are focused on independence, and the CSRC encourages "integration" in IPO. *21st Century Economic Report* (May 27), <http://www.21cbh.com/HTML/2011-5-27/3NMDAwMDIOMDg3Nw.html>.
- Zhang H (2012) 6 listed firms exceeds 30% in proportion of equity pledge. *Caixin.com* (March 8), <http://special.caixin.com/2012-03-12/100366785.html>.
- Zheng Y (2011) 557 Listed firms' controllers collateralized their controlling stakes for bank loans. *Securities Daily* (December 15), <http://finance.sina.com.cn/stock/s/20111215/021010994728.shtml>.