

OWNERSHIP STRUCTURE, ONGOING RELATED PARTY TRANSACTIONS AND CORPORATE PERFORMANCE: EVIDENCED FROM CHINESE LISTED FIRMS

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Abstract

This paper is to review the association of the magnitudes of ongoing related party transactions with the largest shareholders (ORPTs) on the ownership structure and their impact on corporate performance of Chinese listed firms after substantial reform of Chinese corporate governance framework in 2005. Previous literature found that the largest shareholders used related party transactions to tunnel or prop up their controlled firms for their own benefits. Based on a sample of 6657 firm-year observations from 2007 to 2011, the authors find that there is still a positive association between ownership of the largest shareholders and ORPTs, but no significant association between ORPTs and corporate performance, and therefore, there is no evidence that the largest shareholders use ORPTs to tunnel or prop-up their listed firms. This study also finds that there is an endogenous effect of ownership of the largest shareholders on ORPTs, and the authors suggest that the largest shareholders still have to retain the control of Chinese listed firms because in economic reality, those listed firms are still an integral part of business operations of the largest shareholders (business groups), i.e. alignment effect.

Keywords: Ownership Structure, Ongoing Related Party Transactions, Corporate Performance

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1. Introduction

In 1990's, the Chinese government re-established the stock market as a vehicle for her state-owned enterprises (SOE) to raise funds from the public through initial public offerings (IPO) to overcome their financial difficulties and improve their operating performance. Nowadays, in view of the significance in market capitalization and turnover, Chinese stock market has become one of the leading stock markets in the world. However, there have been several corporate scandals, especially those concerning related party transactions (RPTs) between the listed firms and their largest (controlling) shareholders.

2. Related party transactions in Chinese listed firms

Same as the practice in other countries, Chinese stock exchanges require profitability of the IPO candidates in the latest three years (track record) before the IPO, but the quality of the assets held by SOEs was highly variable; so many SOEs restructured themselves and spun off their core and high-quality (profitable) business segments and assets for IPO, while leaving

their non-core businesses, assets, debts, and surplus manpower in the residual SOEs. In that way, SOEs were able to improve their chances of a successful listing of the spun-off portion (i.e. listed firms). The residual SOEs (business groups) normally retained control of the new listed entity as the largest shareholder (or controlling shareholder); however, having spun off their core assets, they were often forced to rely on the listed firms for support, resulting that there have been a series of RPTs between the listed firms and their controlling business groups in Chinese stock market. On one hand, the listed firms could raise funds through subsequent placements and bank loans, and then re-lend the funds to their largest shareholders or their controlled business groups. On the other hand, the listed firm's products might be sold to the business groups at unreasonably low prices, or the listed firm might make payments to the business group for "consulting services" while in fact no services had been provided. In some cases, the listed firms even provided collateral (guarantee) to help the group to obtain bank loans. The cost of these RPTs, which hurts the market value of the listed firms, was borne by the minority shareholders.

Further, some listed firms would have been propped up by their controlling shareholders for the purpose of IPO. As indicated by Leung and Cheng (2013), Agricultural Bank of China (ABC) shows in its H-share prospectus that in 2008, before its corporate restructuring, ABC disposed of certain non-performing assets to its controlling shareholders; otherwise, ABC would have had negative equity in the track record.

The issue of RPTs has been highly scrutinized by the scholars. Johnston et al. (2000) use the term “tunneling” to describe the diversion of resources between the controlling shareholder and its controlled firm at the expense of minority shareholders, while Friedman et al. (2003) define “propping-up” as the negative of tunneling. Several scholars have studied that in Chinese stock market, the controlling shareholders use RPTs to tunnel the interest of minority shareholders (e.g. He and Liu, 2005; Berkman et al., 2009; Jiang et al., 2010). Several scholars also study that the controlling shareholders use RPTs for earnings management and propping-up, i.e. increasing the profitability of their listed firms for IPO, avoidance of being delisted due to recurrent loss-making and subsequent funds raising (e.g. Liu and Lu, 2007; Lo et al., 2010; Jian and Wong, 2010; Peng et al., 2011).

2.1 Ownership structure of Chinese listed firms

In order to retain the control of those Chinese listed firms, a typical Chinese listed firm has two classes of shares: tradable and non-tradable shares. Normally, the controlling shareholders hold about 40% of ownership of listed firms before the share reform (i.e. concentrated ownership in the hands of the largest shareholders). The largest (controlling) shareholders and the governments mostly hold those non-tradable shares (including state shares and restricted institutional shares) which could not be freely

disposed of in the stock exchanges for cash, and those shares could only be transferred privately or through irregularly scheduled auctions. In addition, both tradable and non-tradable shares offered their holders the same dividend and voting rights per share, but non-tradable shares of those firms were priced at a significant discount to the tradable shares of the same firms, and those shares were not readily for sale in the stock market. Therefore, once the largest shareholders need funds for their own use, they were more likely to extract the funds from their controlled listed firms as mentioned in Section 1.1.

Due to higher concentrated ownership in Chinese listed firms, other large shareholders can rarely restrict the acts of the controlling shareholders. Several scholars (e.g. Tai et al., 2007; Chen et al., 2009; Hu et al., 2009; Lo et al., 2009) demonstrate that the controlling (largest) shareholders can extract private benefits from their controlled firms or expropriate the interests of minority shareholders through RPTs between the controlled firms and the controlling (largest) shareholders (or business groups). Those scholars also conclude that the likelihood of high magnitudes of RPTs results from the higher concentration of ownership of Chinese listed firms. Appendix 1 presents a suspicious tunneling example of a Chinese listed firm through RPTs.

On 29 April 2005, the China Securities Regulatory Commission (CSRC) promulgated the Notice Relevant to Pilot Reform on the Segmented Shares Structure of Listed Companies (hereafter “share reform”), so that the largest shareholders could realize their interests in listed firms for cash. Table 1 reports the average ownership of the largest shareholders from 2003 (before share reform) to 2011, but it indicates that there is no substantial change in ownership after the share reform.

Table 1. Ownership structure of Chinese listed firms in 2003 to 2011

	Year								
	2003	2004	2005	2006	2007	2008	2009	2010	2011
Average ownership of the largest shareholders (%)	42.6	41.9	40.5	36.5	36.2	36.4	36.6	36.7	36.4

(Source: the firm's data in 2003 to 2011 in CSMAR database)

After the completion of the share reform scheme, the non-tradable shares of Chinese listed firms can be converted into tradable portion, and therefore, the largest shareholders can readily dispose of those shares for cash, thereby reducing the likelihood of tunneling the resources of listed firms through RPTs. SSE (2012) states that after the completion of share reform scheme, the valuation of the interests of those controlling shareholders in the listed firms has been changed from the book value of

the firms to the market value of the listed shares, and if the controlling shareholders engage in RPTs to expropriate their controlled firms, such effect would also deteriorate the value of the listed firms, resulting in the deterioration of interests of both controlling and minority shareholders. Hence, it is expected that the largest shareholders would not abuse RPTs to tunnel their controlled Chinese listed firms after the share reform.

2.2 Motivation of this study

Most studies focus on the firm's data before the share reform. For example, Hu, et al. (2009) and Chen et al. (2009) studied the RPTs from 2002 to 2006, Tai et al. (2007) from 2002 to 2004, Lo et al. (2010) from 2004, Cheung et al. (2009) from 2001 to 2002. In addition to the share reform, in 2005 and 2006, the legal framework in the Chinese stock market encountered substantial reform (hereafter financial reform) as follows:

First, Company Law and Securities Law (and related rules and regulations applicable to Chinese listed firms) were amended in 2005 and became effective in 2006 mainly for the protection of minority shareholders. For example, Chapter 4.5 of Company Law (2005) regulates the organization structure of listed firms, including Article 125 which requires the approval of RPTs by unrelated directors in the board meetings; Chapter 11 of Securities Law (2005) imposes civil and criminal offences to controlling shareholders, directors and officers of listed firms involved in corporate frauds.

Second, Chinese Accounting Standards (CAS) was converged with International Financial Reporting Standards (IFRS) with effect from 2007, and the disclosure of such RPTs seems to be consistent with international standards. In addition, CAS No. 36 further requests enterprises to disclose the paid up capital of the related parties and pricing strategies for the RPTs and the auditors are also required to ensure the completeness and accuracy of that information contents in the financial statements (see Appendix 2). From the information content related to RPTs, financial statement users can also assess the reasonableness of the amounts of RPTs and the firm size of the related parties. The authors expect that the increase in information dissemination of Chinese listed firms can reduce the likelihood of tunneling effects (see OECD1, 2012).

Third, as evidenced from Appendix 3, several Chinese listed firms have reorganized their organization structure to reduce the impact of RPTs on their controlling shareholders. The authors believe this study will provide insight on the possible corporate performance of RPTs in contemporary Chinese listed firms.

Overall, RPTs are permitted in current Chinese legal framework, but subject to restricted requirements. For example, IPO and Listing Management Measure (enacted in 2006) requires the listed firm to have complete business operations (Article 15) and to be financially, organizationally and operationally independent (Articles 17 to 19) and the transfer prices of RPTs must be fair without earnings management (Article 32). Moreover, RPTs can be classified as ongoing (regular) RPTs (i.e. sales,

purchases and provision of services) which exist in the normal course of business operations of the listed firms and its controlling shareholders (business groups); and irregular RPTs (i.e. loans, guarantee and transfer of assets upon the corporate reorganization between the listed firm and controlling shareholders).

Therefore, this study covers the firm's data from 2007 to 2011, and the results are expected to provide the most updated and accurate findings on the financial reform. Besides, this study only covers ongoing RPTs, and excludes irregular RPTs because irregular RPTs include (1) tunneling - the embezzlement of firms' resources through loan and guarantees to the largest shareholders and those RPTs are strictly prohibited by law and their effects have been well addressed by several scholars (e.g. Berkman et al., 2009; Jiang et al., 2010); (2) propping-up - the largest shareholders provide financial support through loans and advances to the listed firms and the motive and consequence are apparent and self-explanatory; (3) the transfer of assets, mostly in corporate reorganization, is strictly regulated by law and under a series of administrative procedures for approval and disclosure, and it should be non-current.

This section presents the historical background of RPTs in Chinese listed firms. The remainder of this paper proceeds as follows. Section 2 describes a review of the literature and establishes the testing hypotheses. Section 3 explains the research design. Section 4 discusses the empirical results, and the conclusions drawn from this study are presented in Section 5.

3. Literature review and hypotheses

3.1 Ownership structure and related party transactions (RPTs)

A classical agency problem that arises as a result of the separation of ownership and management when ownership is widely dispersed (Jensen and Meckling, 1996). However, as mentioned in Section 1.2, ownership of Chinese listed firms is concentrated in the hands of the largest shareholders, and therefore, the concentrated ownership of a listed firm can, in principle, lead to the following agency problems:

(1) conflict between managers and shareholders (Jensen and Meckling, 1996; Shleifer and Vishny, 1997); and

(2) conflict between controlling shareholders and minority shareholders (La Porta et al., 2002; Jiang et al., 2010).

Therefore, RPTs between the listed firm and its largest (controlling) shareholder (for tunneling, propping-up and earnings management) is one of the typical agency problems in contemporary corporate governance and most scholars and regulators frequently study this issue. For example, Shanghai Stock Exchange conducts two studies on RPTs of

¹ OECD (2012) reports that the disclosure and transparency of RPTs (through the application of IFRS) has been adopted in several countries for minority protection.

Chinese listed firms, one reports on the corporate governance and financial performance of Chinese listed firms (SSE, 2010a), the other on the regulations and governance of RPTs (SSE, 2010b).

Previous literature has addressed the association between the magnitudes of RPTs and corporate governance mechanisms of Chinese listed firms. As the ownership structure is a key corporate governance factor, this paper focuses on the association of the magnitudes of ongoing RPTs (ORPTs) and ownership structure.

As mentioned in Sections 1.1 and 1.2, most of contemporary Chinese listed firms have been spun off from Chinese business groups for the purpose of IPO and the controlling shareholders retain the control of their listed firms by holding the substantial ownership of those listed firms. When a controlling shareholder obtains controlling power, the primary agency issue is not the potential conflict of interest between management and shareholders, but to prevent the controlling shareholder from taking benefits at the expenses of minority shareholders (Shleifer and Vishny, 1997; La Porta et al., 2002; Jiang et al., 2010).

The engagement of RPTs between the listed firms and their controlling shareholders is always used as for tunneling, propping-up and earnings management (e.g. Johnson et al., 2000; Chen, Chen and Chen, 2009; Cheung et al., 2009; Jian and Wong, 2010; Lo et al., 2010). It is expected that with the increase in ownership (control) in the listed firms, the largest shareholders have higher influence the firms and tunnel them. In China, Chen and Wang (2005) study the association between the corporate governance mechanisms and RPTs, and find positive association between the scale of all RPTs and the ownership concentration from 1998 to 2002. Liu and He (2004) also find that the higher the ownership of the largest shareholders, the higher is the amount of cash dividend and the more use of related sales and purchases activities in order to benefit the largest shareholders. Chen and Wang (2005), Liu (2008), Tai et al. (2007) and Hu et al. (2009) find that the magnitudes of RPTs is positively related to ownership of the largest shareholders in most cases, and is negatively related to the increase in number of other large shareholders and the alignment of other large shareholders in some cases before the financial reform. Previous studies are based on the firm's data prior to the financial reform. In accordance with the contemporary rules and regulations, RPTs between the listed firms and their controlling shareholders (parties) are restricted and even prohibited. Therefore, the following hypothesis is upheld:

H1: There is an association of the magnitudes of ongoing related party transactions between largest shareholders and their controlled listed firms (ORPTs) on the ownership structure of Chinese listed firms.

H1 is further divided into H1.1 and H1.2 as follows:

H1.1: There is a positive association between ownership of largest shareholders and ORPTs.

H1.2: There is a negative association between ownership of other large shareholders and ORPTs.

3.2 RPTs and corporate performance

Both domestic and foreign researches demonstrate that the frequency and magnitudes of RPTs are detriment to the firms and the market value. For example, Nekhili and Cherif (2011) find that in French listed firms, the magnitude of RPTs exhibit a negative effect on their firm value from 2002 to 2005. Wahab et al. (2011) evidence that in Malaysian listed firms, the magnitudes of RPTs are negatively related to the return on total assets from 2005 to 2007.

However, some scholars find that there are dual effects of related party transactions, tunneling and propping-up, that are beneficial or detrimental to the firm performance, respectively. Cheung et al. (2009) find that minority shareholders in Chinese listed firms seem to be subject to expropriation through tunneling but also gain from propping-up during 2001 and 2002. Peng et al. (2011) find that all RPTs can be used for tunneling or propping-up, depending on different financial situations of the listed firms from 2001 to 2003. Lin et al. (2010) find that based on the Taiwanese listed firms from 1996 to 2006, the firm performance (firm value and earnings per share) is positively related to ongoing sales and purchases RPTs, but negatively related to the level of guarantees made for the borrowing of related parties which results in expropriation of firm's minority shareholders. Jian and Wong (2010) study that from 1998 to 2002, Chinese listed firms prop up earnings by using related sales to controlling shareholders and then lend the sales proceeds back to controlling shareholders after propping-up. He and Liu (2005) study the corporate performance and related party asset transactions in Chinese listed firms from 1998 to 2001, but find that the large shareholders will tunnel using RPTs when the listed firms have good accounting performance. Aharony et al. (2010) evidence that from 1999 to 2001, some listed firms engaged in related party sales of goods and services to manage earnings upwards in the pre-IPO period; and tunneled for the benefit of the parent company in the post-IPO period.

In this paper, the authors examine the association between ORPTs and corporate performance of Chinese listed firms because ORPTs are ongoing (regular) and may have two potential consequences: (1) As RPTs are conducted at arm's length basis or measured in the same prices and conditions with non-related third parties, they are motivated by purely economic reasons (e.g. to realign the firm operations) and there is no potential

tunneling or propping-up effect (Cheung et al., 2009). Chen et al. (2012) state that ORPTs decrease the transaction costs of listed firms or increase its value (efficiency enhancing theory); (2) As RPTs are not at the arm's length basis, with the possible dual effects of tunneling and propping-up to achieve the specific needs of the controlling shareholders (Cheung et al., 2009). The prices and conditions of RPTs between a listed firm and its largest shareholder are unfair or abnormal, for tunneling, i.e. the transaction costs are more favorable to the largest shareholders, and the firm's resources are transferred to business groups (Liu and He, 2004), or earnings management, under which the listed firm can maintain its profitability of ROE not less than three years for subsequent issues of new shares for fund raising, or avoid recurrent loss for being delisted (Liu and Lu, 2007; Tai et al., 2007).

Second, previous literature has addressed the association between ORPTs and corporate performance. Chen et al. (2009) find that there is significant positive relationship between the magnitude of related party purchases and ROA or Tobin's Q, but Tai et al. (2007), Liu (2008), and Cheung et al. (2009) argue that in Chinese stock market, the controlling (largest) shareholders may either tunnel or prop-up, depending on the financial performance of their listed firms. Because a Chinese listed firm is permitted to issue new shares for funds raising if it can have an average return on equity of not less than 6% for the past three years, Tai et al. (2007) and Liu (2008) classify the benchmark of ROE of 6% as a division for the potential tunneling or propping-up: (1) for firm with ROE of higher than 6%, the controlling shareholder is likely to transfer its interest to the listed firm through RPTs (propping-up); (2) for low-performing firm (ROE less than 6%), the controlling firm is likely to tunnel the resources of its controlled firm through RPTs (tunneling). Therefore, the following hypothesis is made:

H2: There is an association between ORPTs and the corporate performance of Chinese listed firms.

H2 is further divided into H2.1 and H2.2 in respect of the benchmark of ROE at 6%:

H2.1: There is a positive association between ORPTs and the corporate performance of Chinese listed firms, if the return on equity equals to 6% or more.

H2.2: There is a negative association between the magnitudes of ORPTs and the corporate performance

of Chinese listed firms, if the return on equity is less than 6%.

1. Research design and model

The empirical model used in this paper is based on Tai et al. (2007), Liu (2008) and Chen et al. (2009). Each variable in this paper is discussed in turn.

(1) The magnitudes of ongoing related party transactions (ORPTs)

Sales transactions (RPT_SALES) include both the sales of goods and the provision of services to the largest shareholder and its controlled entities; purchase transactions (RPT_PURCHASES) include both the purchase of goods and the receipt of services from the largest shareholder and its controlled entities. In this paper, the values of these variables are divided by the total sales, i.e. the business size, to determine the magnitudes to which Chinese listed firms are engaged in particular types of RPTs, consistent with Chen et al. (2009).

(2) Corporate performance variables

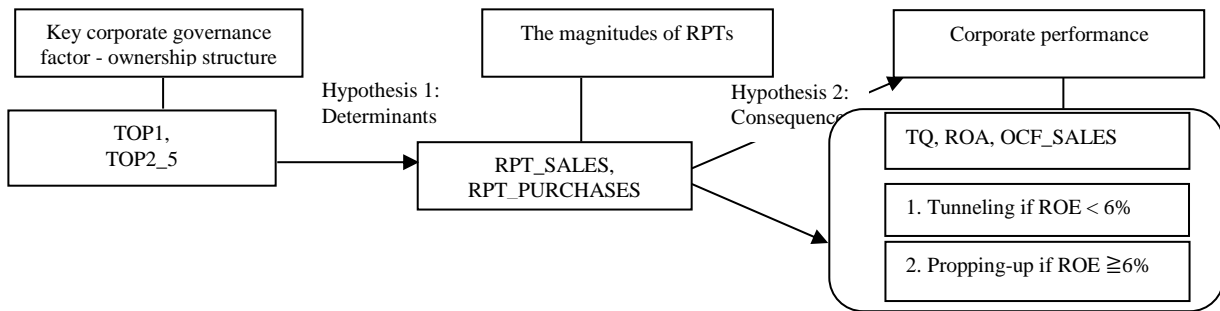
Consistent with previous literature, Tobin's Q value and return on total assets (ROA) are used as indicators of corporate performance (e.g. Xu and Chen, 2003; Chen et al., 2009; SSE, 2010a; Tai et al., 2007). However, some studies (e.g. Liu and Lu, 2007) demonstrate that Chinese listed firms had engaged in RPTs for earnings management by means of discretionary accruals. Jian and Wong (2010) also find that related party sales transactions can be cash-based and accrual-based. Therefore, this paper introduces "net operating cash flow" as the third proxy for corporate performance, consistent with Bowen et al. (2008). OCF_SALES is the net cash flow from operating activities divided by the total sales.

(3) Testing variables - Ownership of the largest shareholder and the alliance of other large shareholders

Ownership of the largest shareholder and other large shareholders

Consistent with previous literature, TOP1, the ownership of the largest shareholders is used as the proxy. Some studies presume that other large shareholders can restrict the tunneling effect by the largest shareholders. This study presumes the alliance of the second to fifth largest shareholders can restrict the acts of the largest shareholders, and aggregate ownership of the second to fifth large shareholders TOP2_5 is used as the proxy (e.g. Li, et al., 2004; Tai et al., 2007; Liu, 2008).

Figure 1. Summarizing of two hypotheses



(Adapted from Liu, 2008)

(4) Control variables

In this paper, business size (lnTA) is measured using the natural log of total assets, consistent with the scale of those RPT variables². The debt ratio (LEV) is included as a control variable and is measured by dividing long-term liabilities by total assets, consistent with Tai et al. (2007). Consistent with Chen et al. (2009), the percentage of growth in total assets (GROW_TA) and that of growth in sales (GROW_SALES) are included as control variables because those factors are expected to have significant impact on the ORPTs and corporate performance. The ultimate control of the largest shareholders (SCLF) is added as the proxy to differentiate those from government control because Brown et al. (2012) find that SOEs engage in more tunneling, but find no evidence that privately controlled firms engage in a greater degree of tunneling or propping-up.

The marketization index (MI) is added to distinguish those registered in eastern (well-developed) region³ because Gao et al. (2006) demonstrate that an increase in the transparency of corporate information and the operation of listed firms in an open commodity market can restrict tunnelling. The presence of two-way ORPTs (RPT_SP) variable is added to differentiate from those with both RPT_SALES and RPT_PURCHASES

Details of variable descriptions are shown in Table 2.

Hypothesis 1 is to account for the association of ORPTs on the ownership of the largest shareholders and the counter-balance of other large shareholders. Eq (1) is formulated as follows:

$$\begin{aligned} \text{RPT} & \quad \text{(RPT_SALES}_{i,t}, \\ \text{RPT_PURCHASES}_{i,t}) & = \beta_0 + \beta_1 \text{TOP1}_{i,t} \text{ [or} \\ & \text{(TOP2}_{i,t})] + \beta_2 \text{TOP2_5}_{i,t} + \beta_3 \ln \text{TA}_{i,t} + \\ & \beta_4 \text{LEV}_{i,t} + \beta_5 \text{GROW_TA}_{i,t} + \beta_6 \text{GROW_SALES}_{i,t} + \beta_7 \text{MI}_{i,t} + \beta_8 \text{SCLF}_{i,t} + \\ & \beta_9 \text{FIXED_EFFECTS}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where ε is the random error term of the model; i is the i th firm and t is the year.

Hypothesis 2 is to account for the association of corporate performance on ORPTs. In order to verify Hypothesis 2.1 and Hypothesis 2.2, Eq (2) is run based on (1) the whole sample, (2) those firms with ROE of at least 6% (propping-up effect) and (3) those firms with ROE of less than 6% (tunneling effect). Eq (2) is formulated as follows:

$$\begin{aligned} \text{CP (TQ, ROA, OCF_SALES)}_{i,t} & = \beta_0 + \\ & \beta_1 \text{RPT_SALES}_{i,t} + \beta_2 \text{RPT_PURCHASES}_{i,t} + \\ & \beta_3 \ln \text{TA}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{GROW_TA}_{i,t} + \\ & \beta_6 \text{GROW_SALES}_{i,t} + \beta_7 \text{MI}_{i,t} + \beta_8 \text{SCLF}_{i,t} + \\ & \beta_9 \text{FIXED_EFFECTS}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

where ε is the random error term of the model; i is the i th firm and t is the year.

5. Research results and interpretation

5.1. Data source and sample selection

Table 3 presents the details of the sample. Our sample period covers five years, from 2007 to 2011, and the data was obtained from the China Stock Market and Accounting Research Data Base (CSMAR). There are 9462 firm-year observations for these five years, of which 160 observations are from the financial sector, 574 observations are under special treatment (ST) status⁴ and 2071 observations with missing variables are excluded⁵. Our final sample contains 6657 firm-year observations.

² The natural logarithm of the total assets of Chinese listed firms (lnSALES) was also considered as a control variable for the firm size of these listed firms. As the correlation coefficient between lnSALES and lnTA was extremely high (0.854 at the 1% significance level) in pretesting, the authors selected lnTA only as a control variable for business size.

³ Gao and Kling (2008) consider Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian and Guangdong as the developed eastern coastal region, which might exhibits better governance structures.

⁴ In accordance with Article 13.2.1 of listing rules of both Shanghai and Shenzhen Stock Exchanges, a Chinese listed firm that has a negative equity or has been creating losses for two consecutive years is labeled as a ST firm, which is subject to additional regulations, such as the announcement of its quarterly results and an external audit on its interim financial results.

⁵ Most scholars exclude these financial sectors and ST firms because those firms are subject to additional regulations.

Table 2. Variable descriptions

Magnitudes of ORPTs	
RPT_SALES	Sales of goods and provision of services to the largest shareholders and its controlled parties, to the total sales for the year
RPT_PURCHASES	Purchases of goods and receiving services from the largest shareholders and its controlled parties, to the total sales for the year
Corporate performance (CP)	
TQ	Tobin-Q value as a ratio of the market value of equity of a firm to the book value of its assets
ROA	Net profit/(loss) for the year to the total assets at year-end
OCF_SALES	Net cash flows from operating activities, to the total sales for the year
Ownership structure	
TOP1	Percentage of shares held by the largest shareholder
TOP2_5	Aggregate percentage of shares held by the second to fifth largest shareholders
Control variables	
lnTA	Natural logarithm of the total assets at year-end
LEV	Total long-term liabilities to the total assets at year-end
GROW_TA	$\frac{TA_t - TA_{t-1}}{TA_{t-1}}$, where TA is the total assets of listed firms at year-end
GROW_SALES	$\frac{SALES_t - SALES_{t-1}}{SALES_{t-1}}$, where SALES is the total sales for the year
SCLF	Dummy variable that takes the value of 1 if the largest shareholder of the listed firm is under state control, and 0 otherwise
MI	Dummy variable that takes the value of 1 if the listed firm is registered in the eastern coastal areas (as defined by Gao and Kling, 2008), and 0 otherwise
RPT_SP	Dummy variable that takes the value of 1 if the listed firm has both RPT_SALES and RPT_PURCHASES in the same year, and 0 otherwise
FIXED_EFFECTS	Dummy variables controlling the fixed effects of calendar years and industries

Table 3. Details of the sample

Period from 2007 to 2011		Number of firm-year observations
Raw sample		9462
Less:	Firms engaged in financial sector (I)	160
	Firms under ST status	574
	Firms with missing variables	2071
Total available firm-year observations		6657

4.2 Descriptive statistics

Table 4 presents the descriptive statistics of the variables. The means of RPT_SALES and RPT_PURCHASES are 4.0% and 4.5%, respectively, indicating that ORPTs in Chinese listed firms are not serious; however, the maximums of these two variables amount to 99.5% and 91.0%, respectively, indicating that some of Chinese listed firms are, in substance, part of their largest shareholders or business group. The means (standard deviations) of TQ, ROA and OCF_SALES are 206.5% (276.9%), 3.5% (64.8%) and 11.4% (682.5%), respectively, indicating that corporate performance of those listed firms is violently dispersed over those years and

across industries. The mean of TOP1, is 36.6%, indicating that ownership of the largest shareholders in this sample is same as that of the whole population (see Table 1). The mean of TOP2_5 is 14.2%, and much lower than that of TOP1, indicating that the alignment of other large shareholders is unlikely to restrict the acts of the largest shareholders in Chinese listed firms.

Table 5 presents the frequencies and the percentages of dummy variables and industry categories of our sample. The percentage of those listed firms which are registered in eastern coastal region (MI) amount to 58.6% indicating that more than half of them are governed in a higher competition market; and 38.2% of them are under

state control (SCLF), indicating that political pressure may still have significant influence on Chinese stock market. RPT_SP amount to 50.6%, indicating that more than half of Chinese listed firms are still an

integral part of their largest shareholders or business groups as they provide the goods and services to, and receive goods and services from, their largest shareholders and their business groups.

Table 4. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Dev.
RPT_SALES	6657	0.000	0.995	0.040	0.113
RPT_PURCHASES	6657	0.000	0.910	0.045	0.107
TQ	6657	0.000	182.831	2.065	2.769
ROA	6657	-51.298	7.696	0.035	0.648
OCF_SALES	6657	-185.127	517.309	0.114	6.825
TOP1	6657	0.006	0.894	0.366	0.156
TOP2_5	6657	0.003	0.610	0.142	0.108
lnTA	6657	14.108	28.282	21.761	1.282
LEV	6657	0.000	3.385	0.091	0.130
GROW_TA	6657	-0.994	4719.612	2.096	78.012
GROW_SALES	6657	-1.000	14883.060	3.547	185.462

Table 5. Frequency of dummy variables

	Years						
	2007	2008	2009	2010	2011	Total	%
MI	770	782	787	777	785	3901	58.6%
SCLF	778	738	446	327	251	2540	38.2%
RPT_SP	646	648	683	689	705	3371	50.6%
Distribution by industry:							
A - agricultural	30	29	27	28	25	139	2.1%
B - mining	30	32	36	38	44	180	2.7%
C - manufacturing	767	761	768	746	760	3802	57.1%
D - production and supply of electricity and gas	52	55	56	56	61	280	4.2%
E - construction	32	32	33	30	29	156	2.3%
F - transportation and storage	58	56	60	57	58	289	4.3%
G - information technology	83	76	81	79	63	382	5.7%
H - wholesale and retail	84	80	80	85	92	421	6.3%
J - property developer	63	71	84	92	111	421	6.3%
K - social services	44	43	45	45	44	221	3.3%
L - media	9	10	9	8	15	51	0.8%
M- others	70	71	68	64	42	315	4.7%
Total firm-year observations	1322	1316	1347	1328	1344	6657	100.0%

Table 6 presents the distribution of ownership of the largest shareholders (TOP1) in Chinese listed firms in our sample. Ownership of the largest shareholders concentrates in the range between 10 and

50%, and most noticeably, about 23.2% in the range of 20 and 30%, indicating that the ownership of Chinese listed firms is still highly concentrated in the hands of the largest shareholders.

Table 6. Distribution of TOP1

Ownership of the largest shareholders	Years						
	2007	2008	2009	2010	2011	Total	%
0- 10%	84	82	87	88	93	434	6.5
10 - 20%	264	259	266	274	285	1348	20.2
20 - 30%	303	294	316	315	318	1546	23.2
30 - 40%	264	267	262	259	263	1315	19.8
40 - 50 %	247	240	231	219	212	1149	17.3
50 - 60%	116	124	126	113	105	584	8.8
Over 60%	44	50	59	60	68	281	4.2
	1322	1316	1347	1328	1344	6657	100.0

Table 7 reports correlation coefficients. The correlation coefficients between the independent variables are generally low, indicating that multicollinearity is unlikely to be a serious problem in the interpretation of the results.

4.3 Multiple regression analysis

This section reports on the results of the multiple regression analysis with respect to the two hypotheses. The results are shown in Tables 8 to 11. According to Berman (2007), the variance inflation factor (VIF) values of variables that do not exhibit multicollinearity are usually between 1.0 and 2.0. The collinearity test results show that none of the independent variables in this paper have a VIF of over 2 (not tabulated). According to these results and the correlation analysis of these variables shown in Table 7, multicollinearity is not considered to be a problem for either model.

4.3.1 The association of ownership and the magnitudes of ORPTs

Table 8 reports on the regression results for the association of ownership and the magnitudes of RPTs. TOP1 is positively related to RPT_SALES and RPT_PURCHASES at the 1% significance level, respectively, implying that the magnitudes of ORPTs increase in line with ownership of the largest shareholder, consistent with previous literature mentioned in Section 2.1. TOP2_5 is not significantly related to any of RPT_SALES and RPT_PURCHASES, indicating that the alignment of other large shareholders cannot restrict ORPTs.

More surprisingly, InTA is negatively related to RPT_SALES, but positively related to RPT_PURCHASES, each at 1% significant level, implying that the smaller-sized listed firms heavily relied upon the largest shareholders (business groups) on the sources of raw materials and supporting services; while the larger-sized firms are quite independent in the sales and business operations from their largest shareholders and business groups. MI is

negatively related to RPT_SALES and RPT_PURCHASES at the 1% significance level, indicating that the issue of RPTs is also serious in those registered in non-eastern coastal region mostly because there is less product competition in that region (Gao et al., 2006). RPT_SP is positively related to RPT_SALES and RPT_PURCHASES at the 1% significance level, maybe because the magnitude of ORPTs becomes more significant when a listed firm is still an integral part (in both upstream and downstream) of the business group.

Some studies demonstrate that there may be a significant “U-shaped” or non-linear relationship between ownership of the largest shareholders and tunneling effects (e.g. Li, et al., 2004; He and Liu, 2005). First sensitivity test was performed using Eq (1) and TOP12 was inserted to replace TOP1. TOP12 is positively related to RPT_SALEAS and RPT_PURCHASES, at 1 % significance level, respectively, indicating that there is a “U-shaped” association between ownership of the largest shareholders and the magnitudes of OPRTs, and after the threshold percentage, there is a positive association between these two factors. Therefore, Hypothesis 1.1 is supported (see also Robustness check on TOP1 and ORPTs in Section 4.3.3).

Second sensitivity test is rerun by eliminating TOP1. The results of second sensitivity test show that TOP2_5 is negatively related to RPT_SALES and RPT_PURCHASES without the presence of TOP1 and such association is consistent with the correlation as shown in Table 5, but TOP2_5 is only negatively related to RPT_PURCHASES at 1% significant level. Some scholars find that the alliance of other large shareholders may restrict the tunneling effects through RPTs in some incidents (e.g. Li et al., 2004; Tai et al., 2007; Liu, 2008). Our results support that in principle, the alignment of other large shareholders seems to restrict to ORPTs with the largest shareholder; however, in practice, since the aggregate ownership of those large shareholders is relatively lower than that of the largest shareholders and therefore, Hypothesis 1.2 is not supported.

Table 7. Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
RPT_SALES (1)	1												
RPT_PURCHASES (2)	0.310**	1											
TQ (3)	0.003	-0.033**	1										
ROA (4)	0.002	0.002	-0.758**	1									
OCF_SALES (5)	-0.002	-0.002	-0.068**	0.016	1								
TOPSHARE (6)	0.152**	0.164**	-0.097**	0.018	-0.004	1							
SHARE2_5 (7)	-0.059**	-0.076**	0.012	0.016	0.005	-0.307**	1						
lnTA (8)	0.040**	0.148**	-0.277**	-0.007**	-0.011**	0.312**	-0.042**	1					
LEV(9)	0.003	0.060**	-0.074**	-0.007	0.031*	0.067*	0.029*	0.323**	1				
GROW_TA (10)	0.023	0.000	-0.009	0.003	-0.001	0.053**	-0.006	0.007	0.010	1			
GROW_SALES (11)	-0.004	-0.006	-0.007	0.001	-0.001	-0.001	0.026**	0.024	0.020	0.049**	1		
MI (12)	-0.092**	-0.104**	-0.016	0.001	0.014	0.030*	0.069**	0.049**	-0.098**	-0.011	-0.015	1	
SCLF (13)	0.115**	0.114**	-0.085**	-0.018	-0.001	0.184**	-0.076**	0.160**	0.066**	0.001	-0.013	-0.089**	1
RPT_SP	0.271**	0.308**	-0.073**	0.012	-0.006	0.278**	-0.128**	0.243**	-0.010	0.000	-0.013	-0.010	0.176**

* Correlation is significant at the 5% level (two-tailed) and

** Correlation is significant at the 1% level (two-tailed).

Table 8. Regression results: Ownership and ORPTs

	Expected sign	RPT_SALES						RPT_PURCHASES					
		Main test		Sensitivity tests				Main test		Sensitivity tests			
TOP1	+	0.065	***					0.043	***				
		(0.000)						(0.000)					
TOP12	+			0.086	***					0.058	***		
				(0.000)						(0.000)			
TOP2_5	-	0.009		0.012		-0.018		-0.018		-0.016		-0.036	***
		(0.511)		(0.361)		(0.147)		(0.134)		(0.195)		(0.002)	
lnTA	?	-0.006	***	-0.007	***	-0.004	***	0.005	***	0.004	***	0.006	***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
LEV	?	0.009		0.009		0.007		0.020	*	0.020	*	0.018	
		(0.429)		(0.437)		(0.554)		(0.067)		(0.068)		(0.091)	
GROW_TA	+	0.001		0.001		0.001	*	0.001		-0.001		0.001	
		(0.137)		(0.178)		(0.068)		(0.939)		(0.980)		(0.748)	
GROW_SALES	+	0.001		0.001		0.001		-0.001		-0.001		-0.001	
		(0.874)		(0.883)		(0.863)		(0.877)		(0.871)		(0.885)	
MI	-	-0.017	***	-0.017	***	-0.016	***	-0.020	***	-0.020	***	-0.019	***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
SCLF	+	0.015	***	0.015	***	0.017	***	0.007	**	0.007	**	0.007	***
		(0.000)		(0.000)		(0.000)		(0.021)		(0.021)		(0.010)	
RPT_SP	+	0.052	***	0.052	***	0.055	***	0.054	***	0.054	***	0.056	***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
FIXED_EFFECTS		Included		Included		Included		Included		Included		Included	
Constant	?	0.134	***	0.152	***	0.120	***	-0.085	***	-0.074	***	-0.095	***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.002)		(0.000)	
Adj-R2		0.107		0.108		0.101		0.127		0.127		0.124	
F-stat.		34.324		34.692		33.644		41.167		41.380		41.847	
OBS		6567		6567		6567		6567		6567		6567	

Note: P-values are in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

4.3.2 The association between ORPTs and corporate performance

Table 9 reports the regression results for the association of ORPTs and the corporate performance. All of TQ, ROA and OCF_SALES are insignificantly related to RPT_SALES, RPT_PURCHASES and RPT_SP in (1) the whole sample, (2) those with ROE of not lower than 6% (possible propping-up effect) and (3) those with ROE of less than 6% (possible tunneling effect), respectively. The results of second regression are inconsistent with Tai et al. (2007), Liu (2008) and Chen et al. (2009) because they find that particular related party purchases and sales may have some influence on the ROA or TQ value for the firm's data prior to 2006. The inconsistency in corporate performance is possibly because Chinese listed firms have adopted the new Chinese Accounting Standards to disclose the details of RPTs and related parties in their annual report and the auditors have to check whether those RPTs are conducted at arm's length basis or not (e.g. details of pricing policies of RPTs), and the increase in information dissemination of those RPTs may result in reducing likelihood of tunneling and propping-up effects (see also OECD, 2012). Such associations are consistent with the correlations as shown in Table 5. lnTA is negatively related to TQ, ROA and OCF_SALES in all cases, indicating that small business firms have higher impact on corporate performance⁶.

Apparently, there is no tunneling effect on ORPTs between Chinese listed firms and their largest shareholders when the listed firms have ROE of less than 6%; there is no propping-up effect on those RPTs when the listed firms have ROE of not less than 6%; and there is no effect on the whole sample. No tunneling effects might result as there is an alignment between the interests of the largest and minority shareholders because their shares are readily for sales after the completion of share reform as mentioned in Section 1.2.

The results of descriptive statistics present that corporate performance of those listed firms is violently dispersed over those years and across industries. Accordingly, four sensitivity tests are performed: (1) only RPT_SALES and RPT_PURCHASES included in Eq (2), i.e. only one RPT variable is included; (2) Eq (2) is run on yearly basis, consistent with the research model of Tai et al. (2007); (3) Eq (2) is run based on manufacturing sector only (C), MI and non-MI groups, and SCLF and non-SCLFs group, respectively; and (4) two ownership structure variables, TOP1 and TOP2_5 are added into Eq (2). The results of these sensitivity tests (not tabulated) further confirm that there is no association between ORPTs and corporate performance, and therefore, there is no evidence that

⁶ Under ROE<6, TA is negatively related to OCF_SALES without significance.

the largest shareholders use ORPTs to tunnel or prop-up their controlled listed firms. Therefore, Hypotheses 2.1 and 2.2 are not supported.

4.3.3 Robustness check on TOP1 and ORPTs

Several scholars argue whether the largest shareholders can control the listed firms and are able to effectively influence the listed firms when they hold an insignificant percentage of the total equity shares (e.g. Chan et al., 2006; Lin and Liu, 2009; Cullinan et al., 2012). Chan et al. (2006) consider the threshold of 20% for the implications of control. In addition to 20% cut-off, the authors also consider "significant influence" or "control" in accordance with the legal framework and professional practice on them, and set the threshold percentages (breakeven points) to be 20%, 30%⁷ and 50%⁸. Eq (1) is rerun by (1) 20% cut-off (i.e. eliminating those observations with ownership of the largest shareholders less than 20% of the total equity), (2) 30% cut-off (i.e. eliminating those observations with ownership of the largest shareholders less than 30% of the total equity) and (3) 50% cut-off (i.e. eliminating those observations with ownership of the largest shareholders not higher than 50% of the total equity). Table 10 reports the regression results of ownership structure and ORPTs in three panels. Except for 50% cut-off in which TOP1 is insignificant to RPT_SALES, TOP1 is positively related to RPT_SALES and RPT_PURCHASES. Such results support our argument in Section 4.3.1 that after the threshold percentage of ownership of the largest shareholders, TOP1 is positively related to ORPTs.

4.3.4 Endogenous effect of TOP1 on ORPTs (endogenous ownership theory)

Chen et al. (2004) suggest that ownership structure is determined by the trade-off of many factors, including firm value, and firm value is likely to affect ownership structure. To examine the potential endogenous effects between ORPTs and TOP1, Eq (1) was modified so that TOPSHARE is the dependent variable and any of RPT_SALES and RPT_PURCHASES are the independent variables as follows:

$$\begin{aligned} \text{TOP1}_{i,t} = & \beta_0 + \beta_1 \text{ORPT} (\text{RPT_SALES}_{i,t}, \\ & \text{RPT_PURCHASES}_{i,t}) + \beta_2 \text{TOP2_5}_{i,t} + \beta_3 \ln \text{TA}_{i,t} + \\ & \beta_4 \text{LEVI}_{i,t} + \beta_5 \text{GROW_TAI}_{i,t} + \beta_6 \text{GROW_SALES}_{i,t} \end{aligned} \quad (3)$$

where ϵ_i is the random error term of the model; i is the i th firm and t is the year.

⁷ Article 47 of Regulations on the Takeover of Listed Companies (2006) requires when a shareholder holding 30% of equity interest of a listed firm continues to acquire such shares, such shareholder has to make a general offer for the rest of the shares of this firm.

⁸ Article 217 (2) of Company Law (2005) requires when controlling shareholder is one who holds more than 50% of equity interest ...

Table 9. Regression results: The magnitudes of ORPTs and corporate performance

	Expected sign	TQ						ROA						OCF_SALES					
		Whole sample		ROE ≥ 6		ROE < 6		Whole sample		ROE ≥ 6		ROE < 6		Whole sample		ROE ≥ 6		ROE < 6	
RPT_SALES	-	0.176		0.162		0.131		-0.032		-0.007		0.076		0.065		-0.020		0.130	
		(0.569)		(0.303)		(0.851)		(0.676)		(0.518)		(0.678)		(0.936)		(0.865)		(0.947)	
RPT_PURCHASES	-	0.242		0.005		0.875		-0.058		0.001		-0.139		0.091		0.003		0.377	
		(0.463)		(0.980)		(0.232)		(0.479)		(0.994)		(0.472)		(0.916)		(0.983)		(0.855)	
lnTA	?	-0.637	***	-0.312	***	-1.133	***	0.046	***	-0.004	***	0.110	***	-0.128	*	-0.030	***	-0.138	
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.097)		(0.009)		(0.497)	
LEV	?	0.456		-1.672	***	1.850		-0.182	***	-0.105	***	-0.185		2.028	***	-0.186		3.263	**
		(0.104)		(0.000)		(0.000)		(0.009)		(0.000)		(0.179)		(0.006)		(0.163)		(0.026)	
GROW_TA	+	0.000		0.000		-0.359	*	0.001		0.001		0.032		0.000		-0.001		-0.270	
		(0.676)		(0.370)		(0.052)		(0.854)		(0.278)		(0.508)		(0.872)		(0.719)		(0.603)	
GROW_SALES	+	0.001		.0001		-0.003		-0.001		0.001		0.013		-0.001		-0.001		-0.032	
		(0.816)		(0.868)		(0.956)		(0.921)		(0.916)		(0.372)		(0.904)		(0.909)		(0.835)	
MI	?	-0.004		-0.109	***	-0.015		-0.006		-0.002		-0.017		0.241		-0.076	***	0.576	
		(0.955)		(0.005)		(0.922)		(0.703)		(0.514)		(0.679)		(0.171)		(0.003)		(0.180)	
SCLF	+	-0.037		-0.225	***	0.298	*	-0.048	***	-0.006	**	-0.094	**	-0.095		0.046		-0.287	
		(0.617)		(0.000)		(0.082)		(0.009)		(0.024)		(0.038)		(0.628)		(0.105)		(0.552)	
RPT_SP	+	-0.093		-0.102	**	-0.129		-0.006		-0.003		-0.004		0.039		-0.056	**	0.116	
		(0.202)		(0.012)		(0.454)		(0.730)		(0.313)		(0.929)		(0.840)		(0.041)		(0.811)	
FIXED_EFFECTS		Included		Included		Included		Included		Included		Included		Included		Included		Included	
Constant	?	16.483	***	9.770	***	25.332	***	-0.939	***	0.176	***	-2.325	***	2.318		0.835	***	2.306	
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.160)		(0.000)		(0.584)	
Adj-R2		0.109		0.283		0.118		0.007		0.054		0.014		-0.001		0.028		0.000	
F-stat.		34.921		66.454		15.811		2.919		10.567		2.564		0.857		5.835		0.986	
OBS		6657		3989		2668		6657		3989		2668		6657		3989		2668	

Note: P-values are in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 11 reports the results of this regression and there is a significant endogenous effect of ownership of the largest shareholder on ORPTs, as both any of RPT_SALES and RPT_PURCHASES and both variables are positively related to TOP1 in those three scenarios. This association supports our explanation on why the largest (controlling) shareholders still hold substantial ownership (say about 40% as mentioned) in Chinese listed firms after IPO and even after the completion of share reform, mostly because the largest shareholder could exercise significant control on them to maintain the continuity of RPTs between listed firms and the business groups as well as the business operations of the whole group (alignment effect). Therefore, we can interpret that in economic reality, most Chinese listed firms are still an integral part of the business operations of their largest shareholders, and even after the completion of share reform, the ownership of the largest shareholders remains the same as that before the share reform, as the largest shareholders can retain the control on their listed firms. In other words, because of having a high portion of ORPTs between the largest shareholders and their controlled firms, the largest shareholders should maintain high ownership on those firms to reduce the threats of discontinued operations of their business groups.

4.4 Summary of the regression results

This paper reexamines the association of ORPTs with ownership structure and corporate performance after the financial reform. Overall, there is still a positive association between ownership of the largest shareholders and the magnitudes of ORPTs, and the alignment of other large shareholders seems to be unable to restrict such RPTs. Hopefully, since the largest shareholders (and the related shareholders/directors) must abstain the voting in the relevant shareholders' (and directors') meeting when any RPTs are reviewed and approved, it is expected that other large shareholders can, in practice, restrict the unfair (unfavorable) RPTs between the largest shareholders and their controlled listed firms.

More surprisingly, the magnitudes of such RPTs seem not to have significant impact on corporate performance, and there seems not to have tunneling effect nor propping-up effects on Chinese listed firms, more likely because (1) the adoption of new Chinese Accounting Standards enhances the disclosure of information content of RPTs, especially the pricing policies and financial position of related parties, (2) new rules and regulations have been implemented for the governance of the disclosure and internal approval of RPTs in Chinese listed firms, and those ORPTs are subject to the review by independent auditors and valuers, (3) after share reform scheme, the interests of the largest and minority shareholders become the same because both interests in the listed firms are valued at the market price, and (4) the largest

(controlling) shareholder can readily realize the shares of their listed firms for cash after the completion of share reform, reducing the likelihood of embezzlement of the firms' resources through tunneling. These institutional reform can restrict the largest shareholders to engage RPTs to tunnel and prop up (earnings management) their controlled listed firms.

5. Conclusion

This study is to explore the association among the ownership structure, the magnitudes of ORPTs and corporate performance of Chinese listed firms after the financial reform.

Before the financial reform, most literature found that it was common for the largest shareholders to transfer interests to controlled firms (propping-up), or to tunnel interest from the listed firms to themselves, through several types of RPTs. The propping-up was to manipulate the profitability of listed firms for IPO or subsequent share issue for funds raising, and then the funds were flowed back to the controlling shareholders. Both the motive of propping-up and tunneling is mainly to expropriate the interests of minority shareholders. This paper finds that there is no significant change on ownership of the largest shareholders in Chinese listed firms after the completion of share reform scheme, and there is still a significant positive effect of ORPTs on ownership of the largest shareholders. Nevertheless, the results of this study do not find any significant association between the magnitudes of ORPTs and corporate performance of Chinese listed firms since 2007. This paper further finds that there is an endogenous effect of ownership of the largest shareholders on ORPTs, suggesting that the largest shareholders have to retain control on those listed firms to maintain the survival of their business groups, but apparently there is no potential of tunneling or propping-up effect.

After the occurrence of a series of corporate scandals in Chinese listed firms, Chinese government, the regulators and stock exchanges are recurrently revising the legal framework to restrict certain RPTs, and regulate ORPTs which should be conducted at arm's length basis. We expect that with the open of commodity markets, the magnitudes of ORPTs and their potential embezzlements and earnings management can be further reduced in future.

Table 10. Regression results: Ownership structure and ORPTs

	Expected sign	RPT_SALES						RPT_PURCHASES					
		20% cut-off		30% cut-off		50% cut-off		20% cut-off		30% cut-off		50% cut-off	
TOP1	+	0.076	***	0.106	***	0.101	**	0.046	***	0.094	***	-0.056	
		(0.000)		(0.000)		(0.047)		(0.000)		(0.000)		(0.240)	
TOP2_5	-	0.012		0.003		0.081		-0.016		-0.022		-0.148	***
		(0.407)		(0.886)		(0.142)		(0.244)		(0.183)		(0.004)	
lnTA	?	-0.007	***	-0.009	***	-0.010	***	0.006	***	0.006	***	0.011	***
		(0.000)		(0.000)		(0.003)		(0.000)		(0.000)		(0.000)	
LEV	?	0.022		0.041	**	0.037		0.028	**	0.029	*	0.093	**
		(0.107)		(0.038)		(0.353)		(0.024)		(0.084)		(0.011)	
GROW_TA	+	0.001		0.001		0.001		0.001		0.001		0.001	
		(0.165)		(0.128)		(0.180)		(0.935)		(0.992)		(0.873)	
GROW_SALES	+	0.001		-0.001		-0.001		-0.001		-0.001		0.001	
		(0.846)		(0.809)		(0.899)		(0.875)		(0.759)		(0.840)	
MI	-	-0.017	***	-0.014	***	-0.016	*	-0.022	***	-0.022	***	-0.028	***
		(0.000)		(0.001)		(0.054)		(0.000)		(0.000)		(0.000)	
SCLF	+	0.017	***	0.018	***	0.030	***	0.008	***	0.010	***	0.012	
		(0.000)		(0.000)		(0.001)		(0.008)		(0.007)		(0.119)	
RPT_SP	+	0.053	***	0.056	***	0.081	***	0.053	***	0.049	***	0.047	***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
FIXED_EFFECTS		Included		Included		Included		Included		Included		Included	
Constant	?	0.142	***	0.162		0.162		-0.103	***	-0.138	***	-0.133	**
		(0.000)		(0.000)		(0.017)		(0.000)		(0.000)		(0.035)	
Adj-R2		0.107		0.100		0.116		0.129		0.129		0.120	
F-stat.		29.682		20.074		8.861		36.443		26.291		9.166	
OBS		5749		4100		1435		5749		4100		1435	

Note: P-values are in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 11. Regression results: Endogenous test of TOP1 on ORPTs

	Expected sign	TOP1					
RPT_SALES	+	0.103	***			0.091	***
		(0.000)				(0.000)	
RPT_PURCHASES	+			0.078	***	0.055	***
				(0.000)		(0.001)	
TOP2_5	-	-0.407	***	-0.406	***	-0.405	
		(0.000)		(0.000)		(0.000)	
lnTA	?	0.028	***	0.027	***	0.028	***
		(0.000)		(0.000)		(0.000)	
LEV	?	-0.035	**	-0.036	**	-0.036	**
		(0.014)		(0.012)		(0.012)	
GROW_TA	+	0.001	***	0.001	***	0.001	***
		(0.000)		(0.000)		(0.000)	
GROW_SALES	+	0.001		0.001		0.001	
		(0.877)		(0.860)		(0.871)	
MI	-	0.019	***	0.019	***	0.020	***
		(0.000)		(0.000)		(0.000)	
SCLF	+	0.017	***	0.018	***	0.017	***
		(0.000)		(0.000)		(0.000)	
RPT_SP	+	0.044	***	0.046	***	0.042	***
		(0.000)		(0.000)		(0.000)	
FIXED_EFFECTS		Included		Included		Included	
Constant	?	-0.238	***	-0.219	***	-0.232	***
		(0.000)		(0.000)		(0.000)	
Adj-R2		0.265		0.262		0.266	
F-stat.		100.753		99.487		97.279	
OBS		6657		6657		6657	

Note: P-values are in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

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Appendix 1

Financial impact of related party transactions

Hubei Xinghua Co., Ltd. has been listed on the Shanghai Stock Exchange (Stock code: 600886) since 1996. The firm is engaged in the production of petrochemical products. Liu and He (2004) claim that the firm was, in reality, part of the production lines of

its largest shareholder, Wubei Jingmen Petrochemical Factory in IPO in 1996. They further reported related party transactions between the firm and its controlling shareholder, China Petroleum from 1996 to 2001 as follows:

	1996	1997	1998	1999	2000	2001
Related party purchases (RMB Million)	343.9	1030.8	915.4	1011.8	1590.5	1495.5
% of related party purchases to total	92.3	96.5	88.8	88.0	98.3	86.28
Related party sales (RMB Million)	422.8	1160.6	102.5	102.0	1405.6	1761.8
% of related party sales to total	68.9	85.0	8.4	8.0	75.7	92.4
Gross profit ratio (%)	26.8	13.3	20.0	3.9	9.3	6.0

(Source: Liu and He, 2004)

Liu and He (2004) mention that there was no significant change of related party purchases over these six years, but there was a significant drop in related party sales in 1998 and 1999. The firm announced the reason for decrease in sales was as a result of the decrease in sales prices and demand in

domestic market in 1998. Therefore, the firm suffered losses from such incident and accumulated inventories. Liu and He (2004) suspect that the largest shareholder protected its own benefit at the expense of the firm.

Appendix 2

Extracts of Chinese Accounting Standard No. 39 Disclosure of related party

Chapter IV Disclosure

Article 9

An enterprise shall, in the annotations to the financial statements, disclose the following information about the parent company and subsidiaries thereof, irrespective of whether there have been transactions between them:

(1) The names of the parent company and subsidiaries thereof

Where the parent company is not the ultimate controlling party of the enterprise, it shall disclose the name of the ultimate controlling party.

Where neither the parent company nor the ultimate controlling party provides the financial statements to outsiders, it shall disclose the name of the parent company which is its closest superior parent company providing financial statements to outsiders.

(2) The nature of business, name, place of registration, and registered capital (or actually paid-in

capital, stock capital) and changes therein of the parent company and its subsidiaries; and

(3) The proportion of shares or voting rights held by the parent company in this enterprise or by this enterprise in its subsidiaries.

Article 10

Where there have been transactions between an enterprise and its related parties, it shall disclose the nature of the related party relationships, the types of transactions and the elements of transaction in the annotations. The elements of transaction shall at least include:

- (1) the amount of transactions,
- (2) the amounts, terms and conditions of outstanding items, and the information about the guaranties granted to others or obtained,
- (3) the amounts of provisions for non-performing debts under outstanding items, and
- (4) price policies.

(Source: Asian Legal Information Institute. Available from:

<<http://www.asianlii.org/cn/legis/cen/laws/asfen36doap666/>> [22 July 2013].

Appendix 3

Current practices for the reduction of related party transactions

Wuliangye Yibin Company Limited is listed on the Shenzhen Stock Exchange (Stock code: 000858). Wuliangye and its subsidiaries are engaged in the sale and manufacture of wine under the name of 'Wuliangye', in Yibin, Sichuan, China. The firm is under the control of a state-owned enterprise, the Wuliangye Group Co Ltd (the controlling party) because they are under the same management. Liu et al. (2004) estimate that the Wuliangye Group yielded private benefits of RMB9.7 billion between 1998 and 2003.

Most contemporary Chinese listed firms reorganized their corporate structure before their IPOs to reduce the magnitude of the RPTs (i.e., the possibility of tunneling and earnings management) and to ensure the independence of their management hierarchy and business models from their related parties. Following

this professional practice, in 2009, the firm announced its proposal for corporate reorganization to separate the core business from the Wuliangye Group and dispose of the non-business related investments to its controlling shareholder to improve investors' perceptions of corporate governance. For example, the firm injected additional capital to a joint venture entity, Yibin Wuliangye Liquor Sales Co Ltd, resulting in that entity becoming a key operating subsidiary in 2009 (the firm and Wuliangye Group held 95% and 5% of ownership of that entity respectively), and announcing the details and the rationale for the ongoing RPTs, including trade mark, properties and other services provided by Wuliangye Group to the firm.

The following table reports RPTs between the firm and Wuliangye Group:

	2008		2009		2010		2011	
	RMB Million	%	RMB Million	%	RMB Million	%	RMB Million	%
Related purchases/Related purchases to total sales (%)	2,132	26.9	1,043	9.4	-	-	-	-
Related sales/Related sales to total sales (%)	4,165	52.5	4,603	41.4	-	-	-	-
Related expenses/Related expenses to total sales (%)	182	2.3	227	2.0	280	1.8	315	1.5
Net advances to/(from) related parties/Net advances to/(from) related parties to total assets (%)	(369)	(2.70)	66	0.30	(122)	(0.4)	(92)	(0.3)
Acquisition of assets from related parties/Acquisition of assets from related parties to total assets (%)	3	0.00	3,827	18.40	54	0.2	4	(0.0)

(Source: The firm's annual reports from 2008 to 2011)

From the above table, it seems that the magnitudes of RPTs between the firm and its controlling party have decreased since 2010, thereby reducing the potential

threats of tunneling, propping-up and earnings management.